

Prototyping of a Mobile Restaurant Application from a User Experience Perspective

Aleksandar Zezovski and Hanna Hultgren

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Prototyping of a Mobile Restaurant Application from a User Experience Perspective

Aleksandar Zezovski

dat11aze@student.lu.se

Hanna Hultgren

ada10hhu@student.lu.se

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Master's thesis work carried out at Softhouse Consulting Öresund AB.

Supervisor at LU: Héctor Caltenco, hector.caltenco@certec.lth.se

Supervisor at Softhouse: Lisa Lindahl, lisa.lindahl@softhouse.se

Examiner: Kirsten Rasmus-Gröhn, kirsten.rasmus-grohn@certec.lth.se

Abstract

The use of smart phones and the areas in which smart phone solutions are provided have increased immensely over the past decade. However, one area which has not been as keen of adopting the smart phone approach is the restaurant area. This study aims to investigate the amenability of users to adapt to this approach and outlines the requirements and desires of such a product. It also presents a solution implemented as a high fidelity prototype.

Creating an intuitive interface for a target audience with differing previous experience using smart phones can be very challenging and the choice of structure and contents is not as trivial as it may sound. By conducting extensive research in form of usability tests, interviews and observations, we developed a high-fidelity prototype based on an elaborate requirements specification.

The results show that the users are, to a great extent, willing to use an application for restaurant related tasks. Together with the prototype, the study provide support for further development of similar applications.

Keywords: Restaurant application, Prototyping, Interaction Design, Usability Testing, User Experience (UX)

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Chapter 1

Introduction

This chapter describes the background and goals of the thesis. It also describes the structure of the report and provides a background research section as well as the intended and actual time schedules of the project.

1.1 Background

The needs of time saving solutions with ability to multitask have become a considerable aspect when creating mobile applications. People use their smart phones to make any sort of purchase over the Internet. However, until recent time, the restaurant market has not been as keen on adopting this approach.

By using smart and interactive applications, the process of managing restaurant related tasks such as ordering food, booking tables etc. can be made easily accessible. This is performed with an interface, similarly to any other web shop, where the customer chooses dishes from a menu and when finished proceeds to check out. The idea is that this can be done prior to visiting the actual restaurant and thereby save the customers valuable time as well as giving them easy access to various offerings.

Urban Deli, the restaurant for which this food ordering prototype was developed, is located at three different places in Stockholm. By providing an intuitive interface in which the user can order food, the ambition is to attract potential customers, mainly from the nearby companies.

The study conducted in the thesis will simplify the process of creating similar applications by contributing with a thorough pre-study specifying the requirements of the users as well as an evaluation of different design concepts and approaches.

This Master's Thesis was conducted at the IT consultancy company Softhouse Consulting Öresund AB. They have previously developed applications mainly for public transportation systems.

1.2 Goals

The goals of the work was divided into thesis goals and business goals.

1.2.1 Thesis Goals

- Study the users' interests and needs of using a mobile application for meal shopping.
- Implement a prototype of a mobile restaurant application with focus on affordance, intuition and appealing design.

1.2.2 Business Goals

- Attract nearby companies by simplifying the ordering and booking experience.

1.3 Approach

The work process of this thesis was divided into the following four phases:

- **Background Research**

Existing technical solutions and relevant literature were studied to gain an understanding of the needs of the prototype.

- **Pre-Study**

A pre-study was conducted to identify the demands of the users and thereby be able to define requirements.

- **Prototyping**

The interface was developed iteratively and divided into three prototyping phases of varying fidelity. In the first phase, a low-fidelity prototype was developed to get an early understanding of the different design concepts. Thereafter, a medium-fidelity prototype demonstrating the main work flow was created. At last, a high-fidelity prototype was implemented containing all design concepts and functionality.

- **Testing and Evaluation**

The prototypes were tested and evaluated at several iterations to ensure that the requirements were fulfilled and the design choices were successful.

1.4 Structure of the Report

The report is divided into the following four sections:

- **Introduction**

The introduction chapter provides the reader with a background description and research and presents the goals for the thesis. To introduce relevant concepts and approaches, a theory section is included. Furthermore, a time schedule section presents the intended and actual time schedules of the thesis.

- **Methodology**

The methodology chapter describes how the approaches were conducted during the different phases of the thesis. The results of the prototyping phase are also included in the methodology phase.

- **Results**

The results chapter presents the results of the pre-study and usability testing.

- **Discussions and Conclusions.**

The discussions and conclusions chapter evaluates if the goals were met and critically reviews the results. In addition, future work is discussed and potential advancements are proposed.

1.5 Background Research

The background research describes the studies conducted in the initiation phase of the thesis.

1.5.1 Literature Studies

Relevant literature was found using one of the digital libraries of Lund University (*LUB-search*) and by using the book search feature provided by Google. Literature from previous school courses was also used.

1.5.2 Previous Work

To get inspiration of various design concepts and functionality, existing technical solutions in the form of applications were studied. The majority of applications that were considered were applications used for take away food or drinks. The group of applications included *Pinchos*, *Espresso House*, *Joe & the Juice* and *Max*. Screen captures of interesting screens were taken and studied.

Inspiration regarding which type of navigation to use in the prototype was taken from *Pinchos* (see figure 1.1), *Joe & the Juice* (see figure 1.2) and *Espresso House* (see figure 1.3). In these screens, a tab bar is used at the bottom to navigate through the application.

The tab bar is a smooth approach which divides the application into a logical and clear structure. It is also clear where the user is located in the application because the current tab in the tab bar is marked.

In the Max application there is a distinct division between eating at the restaurant and ordering take away as seen in figure 1.4. This approach was chosen to be used in the prototype of Urban Deli to be able to have an early and clear division of menus.

The screen in figure 1.2 gave inspiration regarding how to show the user's order. With the plus and minus signs, the user is able to add and remove items to the order. The number of items is shown in the tab bar and next to each item to indicate how many items that have been selected.

The idea of having digital offers is shown in figure 1.3. Offers are important to attract customers and also to be able to reward recurring customers. An offer is used by pressing its corresponding button and can only be used once.

The concepts of the discussed screens were used in the design of similar screens in the prototype and those contributions are further described in section 4. The website of Urban Deli was also explored. The design of the website including *what* information was displayed and *how* the information was structured and conveyed, led to inspiration for the prototype.

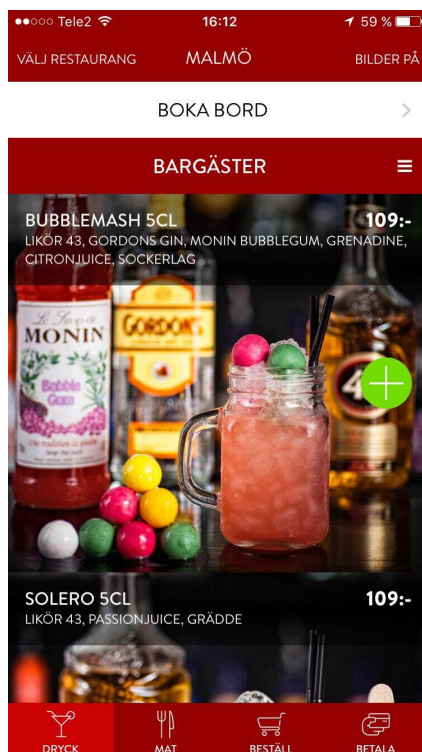


Figure 1.1: Pinchos: example of tab bar concept.

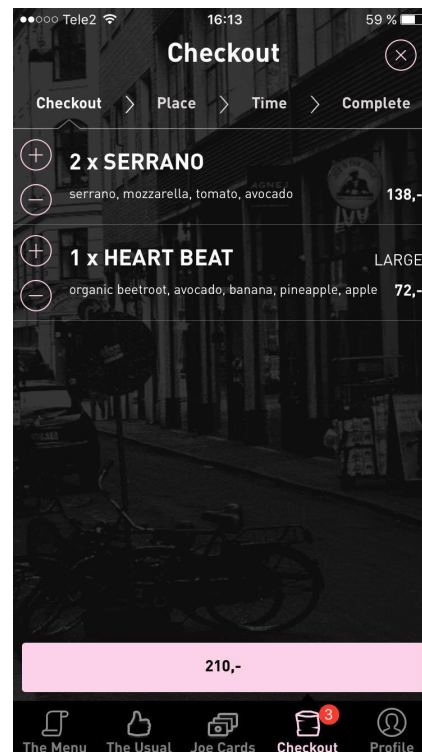


Figure 1.2: Joe & the Juice: example of tab bar and order summary.

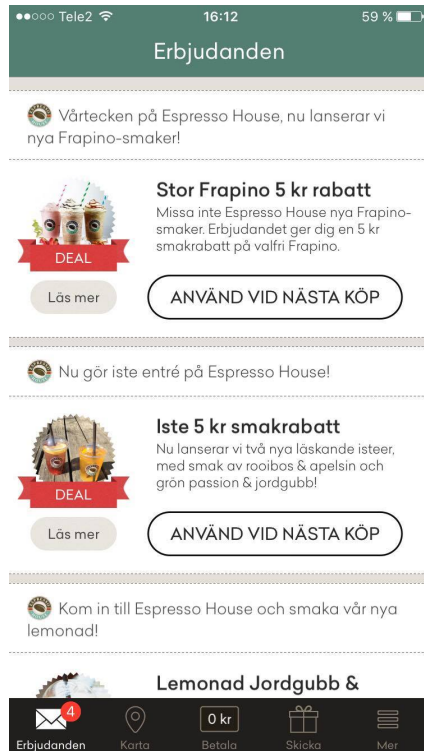


Figure 1.3: Espresso House: example of tab bar and offers.



Figure 1.4: Max: example of division between restaurant and take-away.

1.6 Time Schedule

An important part of creating a project plan is the development of a time schedule. Figure 1.5 shows the intended time schedule for the project. As can be seen in the figure, the project was divided into five sprints (green bars) and their corresponding tasks (blue bars).

During the course of the project, unexpected events and new input led to adjustments of the intended time schedule. As can be seen in figure 1.6, the actual time schedule contains six sprints instead of five. One part of the pre-study (sprint 1) was a customer visit in Stockholm. In the intended time schedule, development of a lo-fi prototype, prior to the customer visit, was included to get early feedback. This was however moved to after the customer visit which allowed the customer to freely elaborate on requirements and design concepts without being guided by a prototype.

A mid-fi prototyping phase (sprint 3) was added after the lo-fi phase. The addition of a new prototyping phase resulted in the hi-fi prototype and report finish being postponed. However, since the mid-fi phase had been documented in the previous phase, the time effort for documentation of the hi-fi was reduced.

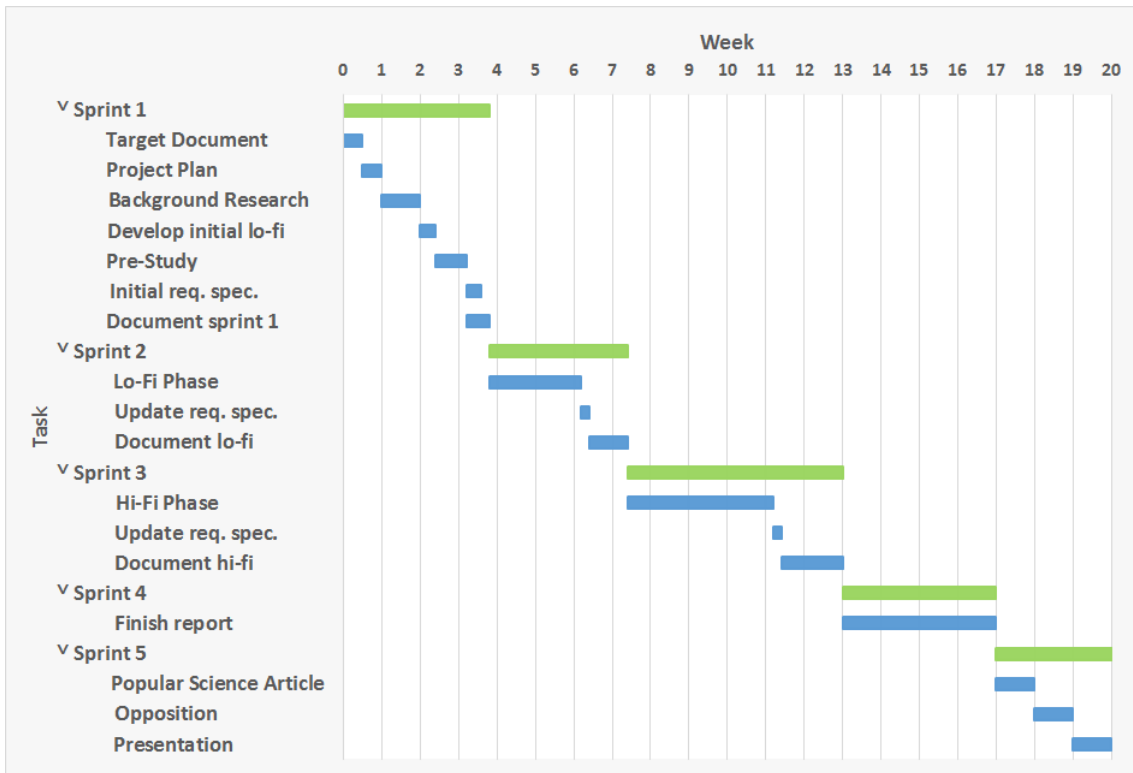


Figure 1.5: Intended time schedule.

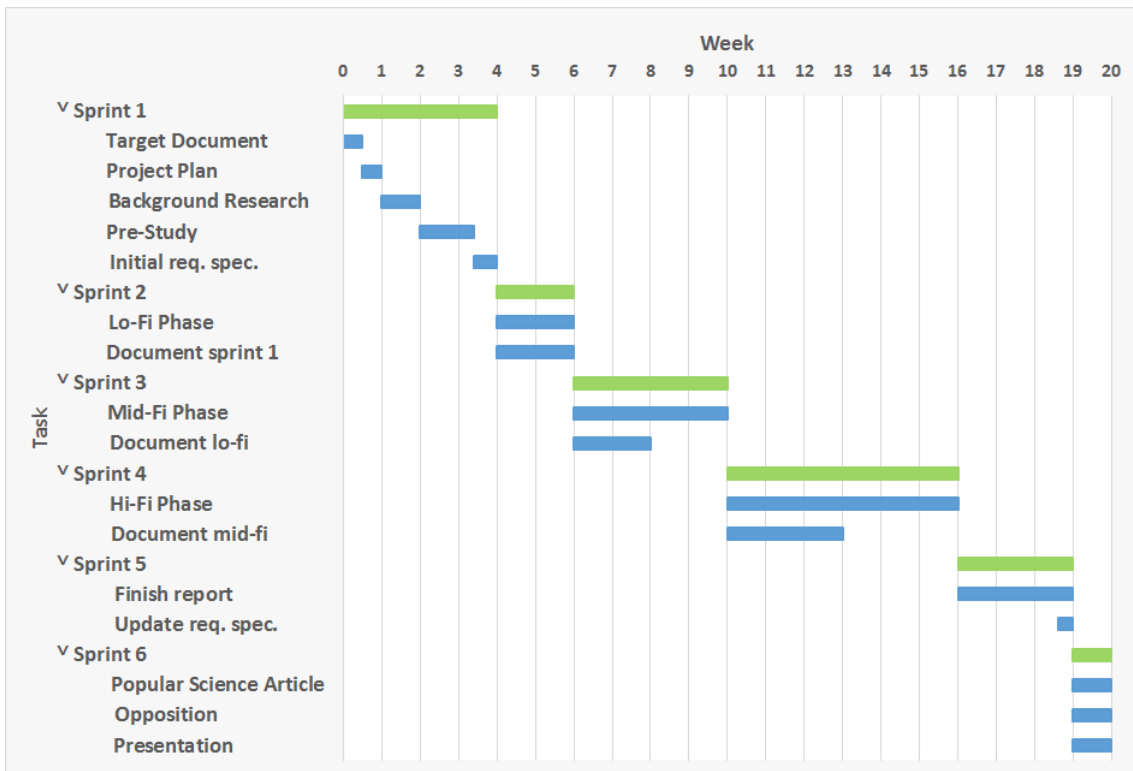


Figure 1.6: Actual time schedule.

1.7 Distribution of work

The process followed an iterative work flow according to the Scrum approach. The responsibilities were divided between the writers of the report who alternated being Scrum Master from week to week and thereby ensuring that the process was followed as intended. Otherwise, the work was divided equally with an exception in the high-fidelity prototyping phase where Aleksandar focused on the creation of the prototype and Hanna focused on the writing of the report.

Chapter 2

Theory

For the reader to better understand the methods and approaches of the thesis, this theory chapter describing the different processes is included.

2.1 Agile Software Development

The use of agile software development has increased greatly in the past couple of years. Previously the waterfall model, in which every phase is completed in sequence, was a very common design process. However, the demands of rapid development and ability to respond to changes, have forced the industry to work towards a more flexible work flow. In agile software development, the development is divided across several different, self-organized teams working in parallel. As opposed to working with phases in sequence, in agile development, all phases are developed simultaneously [19].

There are several different process frameworks that can be used in an agile project. In the upcoming two sections, the methods used in this project are described.

2.1.1 Scrum

Scrum is one of the most well-known and widely used agile methods today [16]. It consists of a number of key concepts which should be considered throughout the process.

The work is divided into iterations called *sprints*. Each sprint is two to four weeks long and the work is carried out according to a *sprint backlog*. The sprint backlog contains high-priority tasks which should be implemented during the current sprint. The sprint backlog is derived from the *product backlog* which can be viewed as a database for all functionality. These functionality items are often referred to as *user stories*. To keep track of the backlog, a method called *Kanban* was used (see section 2.1.2 Kanban). Every day, the team holds a short meeting, called *daily scrum*, where previous work and daily plans

are discussed. Each sprint ends with a *sprint review* and a *sprint retrospective* where the work is demonstrated and reviewed.

A scrum team consists of the following three core roles.

- **Development Team**

The development team are the actual developers and designers. Rather than having a project manager, the development team itself is responsible for allocating tasks and ensuring that the outcome is correct.

- **Product Owner**

The product owner can be viewed as the main stakeholder of the product. The product owner ensures that the development team reaches appropriate targets from a business perspective. When deciding which functionality to include in a certain sprint backlog, the product owner is the one prioritizing the different tasks.

- **Scrum Master**

The scrum master is accountable for ensuring that the scrum process is used as intended. It is the responsibility of the scrum master to coach and train both the development team and the product owner so that the product reaches the predefined goals.

2.1.2 Kanban

In order to structure and organize all tasks in a project, a tool called *Kanban* can be used [12]. Kanban is a very powerful tool and is often used as a compliment to Scrum. The core of Kanban is to visualize the workflow by creating a board (*Kanban board*) containing the tasks and dividing it in appropriate columns. Section 3.1.2 describes how the Kanban method was implemented in this project.

2.1.3 Trello

Trello can be considered a virtual auditorium with several whiteboards [8]. Each whiteboard represents a process in the project and contains, as stated in section 2.1.2, appropriate columns describing the progress flow. Section 3.1.2 describes how Trello was implemented in our design process.

2.2 Design Theory

In this section, design approaches and principles used in the process are described.

2.2.1 User-Centered Design

User-Centered Design (UCD) is the approach of designing a system with the focus on how the system will be perceived and used by a human user. Often the UCD process is used iteratively and could be divided into the following four steps: Observation, Idea generation,

Creating design solutions and Testing. These phases are conducted in parallel to ensure that the end product fulfills the users' needs [11].

2.2.2 Design and Usability Principles

When designing user interfaces there is a number of principles that should be considered. Sections 2.2.2 and 2.2.2 provide a description of the principles considered in this thesis.

Affordance

The term affordance is described by Don Norman in *The Design of Everyday Things* as "the relationship between a physical object and a person" [11]. When talking about affordance in interaction design, one refers to the ability of a user determining how an object, for instance a button on a screen, could be used. An affordance's presence is decided by two factors: the ability (determined by the previous knowledge and experience) of the user and the quality of the object.

Consistency

In *Interaction design: beyond human-computer interaction*, the authors describe consistency as "designing interfaces to have similar operations and use similar elements for achieving similar tasks" [13]. Consistent interfaces are easy to use since the user only have to learn *one* mode of operation and apply it to all objects.

2.2.3 Prototyping

Prototyping is an important part of designing software applications and is often used in iterative processes [13]. By creating prototypes it is possible to transfer ideas into physical form which allows concrete evaluation of ideas and concepts. A prototype is essentially an incomplete application that can be faithful at different levels depending on the type of prototype that is performed. The aim is to get a physical picture of the design so it is possible to evaluate it and get valuable feedback from stakeholders. The prototyping phase is performed in many iterations where design concepts, ideas and requirements are explored. To verify that the concepts should be used in the prototype, usability testing is conducted. There are three types of prototypes that can be created: low-fidelity, medium-fidelity and high-fidelity.

Low-fidelity

A low-fidelity prototype (lo-fi) is created early in a design process and is used to explore new ideas and concepts in an easy and fast way [13]. The lo-fi is not intended to resemble the final product and is created of simple materials like paper. A well-proven approach in lo-fi prototyping is sketching which requires pen and paper. In this approach, design ideas are explored by transferring them to papers and successful ideas are further developed in upcoming prototyping phases.

Medium-fidelity

A medium-fidelity prototype (mid-fi) represents a prototype with higher faithfulness than a lo-fi but not the final product as the hi-fi [15]. The mid-fi enables the possibility to include navigation, interaction flow and labels. A prototyping tool is used to create the mid-fi and the main focus is to get feedback on the graphical layout.

High-fidelity

A high-fidelity prototype (hi-fi) is the final product in the prototyping process [13]. It represents a detailed solution of the design concepts, containing partial or complete functionality. The hi-fi is typically developed using a prototyping tool which requires some programming skills. One major benefit with the hi-fi is that it allows the customer to truly interact with the system and therefore give accurate comments and feedback.

2.3 Development Tools

Throughout the project, a number of different development tools were used. Depending on prototyping process, tools were chosen to appropriately match the deliverables. The following five sections describe the tools used in the project.

2.3.1 Google Presentation

Google Presentation is a web-based presentation program with similar features as *Microsoft PowerPoint* [4]. Since it is web-based, it allows users to cooperate on the same document in real-time. Presentation programs are often used to quickly create realistic prototypes by creating screens with mock-up buttons and linking them together. The rapid progress pace allows developers to test out multiple design concepts early on in the prototyping process.

2.3.2 InVision

InVision is a web-based prototyping tool offering features such as version control and task management [5]. Design files are easily imported and edited with animations, gestures and transitions. InVision also provides good sharing solutions, making it easy for developers to get feedback from supervisors or colleagues. With the *InVisionApp* iOS application, prototypes can be user tested directly in the phone with features such as screen interaction recording and face camera.

2.3.3 Adobe Photoshop

Adobe Photoshop is a powerful, raster graphics design tool used mainly for photo-editing [1]. Other than photo-editing, it offers a number of different editing options such as cropping and color balancing. It also supports multiple layers allowing users to manage and

change properties for the different parts of the project. When developing for mobile devices, a number of different UI Kits can be downloaded and imported into Photoshop.

2.3.4 Framer

Framer is a code-oriented design tool used to create realistic and intuitive prototypes [3]. Framer provides an editor (*Framer Studio*) in which code is written in a language called *CoffeScript* and then compiled into standard JavaScript. The basic concepts build on layers that are animated and linked together to form a page hierarchy. Each layer can have multiple *states* where the transition between states is performed via *events* such as click, drag and pinch. The pages (screens) and layers can either be created directly in Framer or imported from other design tools such as *Adobe Photoshop* or *Sketch*. Given that the imported layers are properly ordered, Framer automatically converts them into objects that can be accessed and modified.

Framer uses *modules* to factorize parts of the code. Modules are CoffeScript or JavaScript files which are imported into the prototype and can contain any functionality. A Framer project can contain as many modules as desired.

Framer provides thorough documentation of the different design features. Furthermore, the community is highly active resolving issues by providing modules and tutorials as well as answering questions in the forums.

Chapter 3

Methodology

This chapter carefully describes the methodology used in the thesis. The components of the agile work approach and are also described.

3.1 Work Process

The project was conducted according to the iterative method *Scrum*. The agile workflow allowed development of testable prototypes and early feedback. Throughout the entire life cycle of the project, regular testing was integrated and development of the prototypes was incrementally implemented. The prototyping phase including usability testing is described in chapter 4.

3.1.1 Scrum

As described in section 2.1.1, the Scrum method consists of three core roles (development team, product owner and scrum master). Normally/ideally, a scrum team consists of 5-11 people. However, since this project was carried out by only two people (three if product owner is included), some tweaks to the process had to be made.

In this project, the **development team** was formed by the writers of the report and the customer acted as the **product owner**. Normally, the product owner is making the final decisions regarding tasks, however, in this project, the development team had more influence on the prioritization of tasks. Since there was no dedicated **Scrum master**, the writers of the report took turns being Scrum master from week to week.

3.1.2 Kanban

The Kanban board (see section 2.1.2) is normally a standard whiteboard where each task is represented by a post-it note. However, to be able to stay synchronized even when working from home, the web-based application *Trello* (see section 2.1.3) was used. In this project, the following four boards were used: *Lo-Fi/Mid-Fi*, *Hi-Fi*, *Report* and *Other*. Each board consisted of the following four columns: *Backlog*, *In progress*, *Review* and *Done*. For each sprint the backlog of the boards was updated. This helped in limiting the work in progress and made sure that the tasks were completely finished when moved to the *Done* column. It also simplified staying synchronized with the time schedule by providing a great overview of the work. An example of a board in Trello can be seen in figure 3.1. The figure shows the four columns and the different tasks for the Lo-Fi/Mid-Fi board.

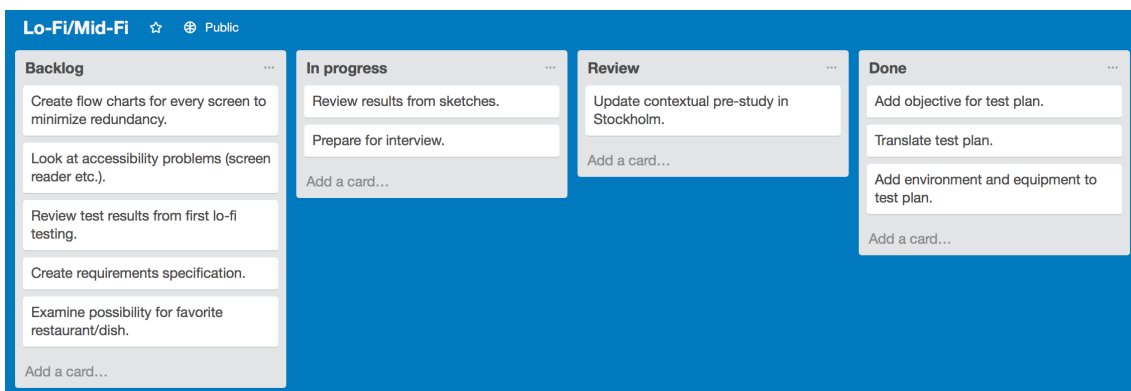


Figure 3.1: Trello board with tasks for Lo-fi/Mid-fi prototype.

3.2 Pre-Study

A pre-study was conducted to explore the needs of the users for the application. The pre-study phase was divided into observations and interviews. The information gathered gave valuable insights and formed a foundation for the work with the prototypes.

Early on in the process, a customer visit was conducted to gain an understanding of the expectations of the customer, the environments of the restaurants and the potential users' desires. The restaurants and their customers were observed at different times of the day to get a complete picture of the different needs (see section 3.2.1). Interviews with the customer and the potential users were performed as well. These are described in section 3.2.2.

3.2.1 Observations

To get an overall representation of the three restaurants and their concepts, the environments and visitors were observed during the customer visit. The observations were conducted at three time spans (breakfast, lunch and evening) on a weekday to explore if the visitor throughput of the restaurants varied between different time periods and how this affected the restaurants. The customer had previously mentioned the problem with visitors leaving the restaurants as soon as they experience long queues and visitors not getting

tables because of full restaurants. Knowing this, the main focus in the observation sessions were these problems. At each observation time span, the number of observed visitors was 30 (i.e. 90 in total). A guided tour with the customer was also conducted to observe the restaurants from a different perspective and to further explore the restaurants in detail. The results from the observations of the visitors are described in section 5.1.1 [13].

3.2.2 Interviews

The interview section of the pre-study consisted of three interviews which are described in the following three sections.

Customer Interview

An *unstructured interview* with the customer was conducted to be able to explore the wishes of the customer and form a base for the prototype. The choice of using an unstructured interview was natural since the goal was to gather as much data as possible [13]. This also allowed the customer to ask questions during the interview. Prior to the customer visit, the customer had sent user stories (see appendix A.1) describing what he wanted the system to implement. Based on these, the following topics for discussion during the customer interview were prepared.

- Food ordering options.
- Table booking.
- Favorite meal.
- Premium guest.
- Back-end services.

The notes from the interview became part of the foundation of the requirements specification which was initialized after the customer interview. Section 3.3 describes how the requirements specification was created.

Contextual Interviews

During the customer visit, contextual interviews with people passing by outside the restaurant were also conducted. Since the interviews were performed in a potential environment for the prototype, the interviews were called contextual. These interviews were carried out to get an insight into the habits and needs of the potential users. The interviews were chosen to be *semi-structured* to be able to obtain feedback of various levels [13]. The interviews were performed with ten persons who were estimated to be between the ages of 18 to 60. The age span was chosen based on the high probability of previous experience using smartphones of the test persons. The interview questions are shown below A.2 and the entire interview material in appendix A.2.

1. *Have you heard of Urban Deli?*
2. *How often do you eat out?*
 - (a) *Never.*
 - (b) *1-3 times per week.*
 - (c) *4-6 times per week.*
 - (d) *7 or more times per week.*
3. *Have you ever used an application for ordering food?*
 - (a) *Yes.*

Which one and how do you think it worked?
 - (b) *No.*

Would to be up to give it a try?
4. *Would you consider paying for food in an application to avoid standing in line at the restaurant and thereby save time?*
5. *Would you want to use an application to get offers on food and drinks?*

The results of the contextual interview are presented in section 5.1.2.

Feature Interview

To get further opinions of desired features of the application, a merge between a semi-structured interview and a group interview was performed with two persons [13]. The persons were chosen because of their high technical skills and previous experience with smartphones. Interview questions were prepared and consisted of both open and closed questions. This enabled discussion of specific areas as well as opportunity to ask follow-up questions. The interview questions can be seen below and the entire interview material in appendix A.3.

1. *How often do you eat out? Never, once a week, several times per week?*
2. *Would you consider buying lunch or dinner in an application? How do you think such a feature should work?*
3. *In addition to ordering, what features would you like to have in this type of applications?*
4. *What do you think of a membership in this type of applications? How would you want to become a member and what features would you want as a member?*
5. *How would you like to be informed about personal offers? (For example notices, flow and/or my page).*
6. *What do you think of the two features favorite meal and history of orders?*
7. *Do you have any other ideas or comments?*

The result of the feature interview is presented in section 5.1.2.

3.3 Requirements Specification

The creation of the requirements specification began after the customer interview [18]. At first it consisted of the user stories from the customer. Throughout the course of the project, the requirements specification evolved and new requirements were defined. The requirements were categorized into three main sections: *System*, *Quality* and *Application* requirements. The *system* requirements contains mainly the tasks describing what the user should be able to do in the application. The *quality* requirements bring up usability and performance requirements and the *application* requirements describe the requirements for a complete application and not just the prototype. Parts of the result of the requirements specification can be seen in section 5.2 and the full requirements specification can be seen in appendix B.

3.4 Brainstorming

To explore and discuss different design concepts, brainstorming was conducted continuously during the entire prototyping process (see section 4) [13]. After each sprint, the outcome of the research work and usability testing was analyzed and formed a basis for the brainstorming sessions. All ideas were written down on paper and later discussed and compared. Some ideas were discarded whereas some were added to the prototype.

3.5 Conceptual Model

The conceptual model used in the prototype builds on the activity model where the instructing activity is the most common way of interacting with the system [13]. By *pressing buttons* users instruct the system to perform a specific task. This allows the users to quickly and efficiently interact with the system.

Chapter 4

Prototyping

A big part of the work process consisted of prototyping and usability testing. This chapter provides a detailed description of these sections.

4.1 Development phase

A low fidelity prototype could be created based on the results of the research, pre-study and brainstorming sessions. By working iteratively with the methods described above and conducting usability testing (see section 4.2), the prototype evolved into a medium-fidelity and at last a high-fidelity prototype. The process of creating the three prototypes is described in sections 4.1.1, 4.1.2 and 4.1.3.

4.1.1 Low-Fidelity

To create the low-fidelity prototype (lo-fi), the information from the background research and the pre-study was gathered, brainstormed and converted into design concepts in the form of sketches. The sketches were drawn on paper templates of an *iPhone*. The main focus of the sketches was to illustrate and compare different design concepts. The functionality and flow of the prototype were not considered in this process. At the end of the lo-fi phase, usability tests forming the base of design concepts to be used in prototype were conducted.

The lo-fi prototype consisted of five sketches portraying different design concepts of the prototype.

Sketch 1 - Division of Eating in Restaurant and Ordering Take Away

The question of having or not having a clear division between eating in the restaurant and ordering take away is demonstrated as two alternatives in figure 4.1. Screens 1 to 2 portray the first alternative where users decide if they want to eat in the restaurant or order take away straight after the start screen. The second alternative, where users have to explore the prototype to find the different menus without having an early division, is demonstrated in screens 1 to 3.

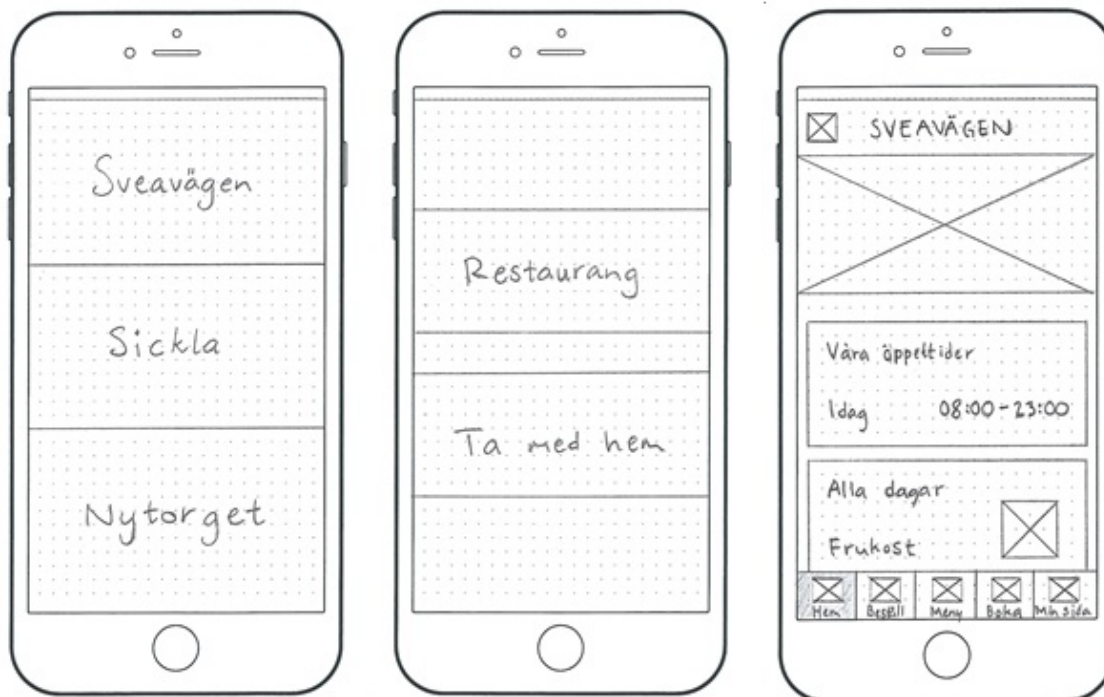


Figure 4.1: Sketch 1 - Two alternatives for initial start-up process choosing whether to eat in restaurant or order take away.

Sketch 2 - Home Screen Flow Concept

The concept of having a home screen flow for each restaurant was discussed early on in the prototyping process. To evaluate the concept of a flow, a sketch with a flow on the home screen was created (see figure 4.2). The flow concept could also be used in other screens.



Figure 4.2: Sketch 2 - Home screen flow concept.

Sketch 3 & 4 - Tab Bar or Hamburger Menu

Another concept regarding the different types of menus that could be used in the prototype was also studied and discussed. This resulted in the two alternatives: a bottom tab bar and a hamburger menu. The idea of a tab bar was explored during the background research where existing applications were studied and many of them used a tab bar as seen in the figures 1.1, 1.2 and 1.3. The tab bar consists of tabs with the main functions of the prototype. The sketch for the tab bar example can be seen in figure 4.3. When the users are on a specific tab, the tab will be marked to give the users feedback of where in the prototype they are. The hamburger menu (see figure 4.4) on the other hand, is placed in the upper parts of the screen. It consists of an icon with three lines which expands to a menu with the main functions of the prototype when clicked.

Sketch 5 - Position of Tab Bar

During the evaluation of the tab bar concept, it was discovered that the standard screen position of the tab bar differed between the two operating systems iOS and Android. For iOS it is at the bottom of the screen whereas for Android it is at the top. Both approaches were explored using the sketch in figure 4.5.

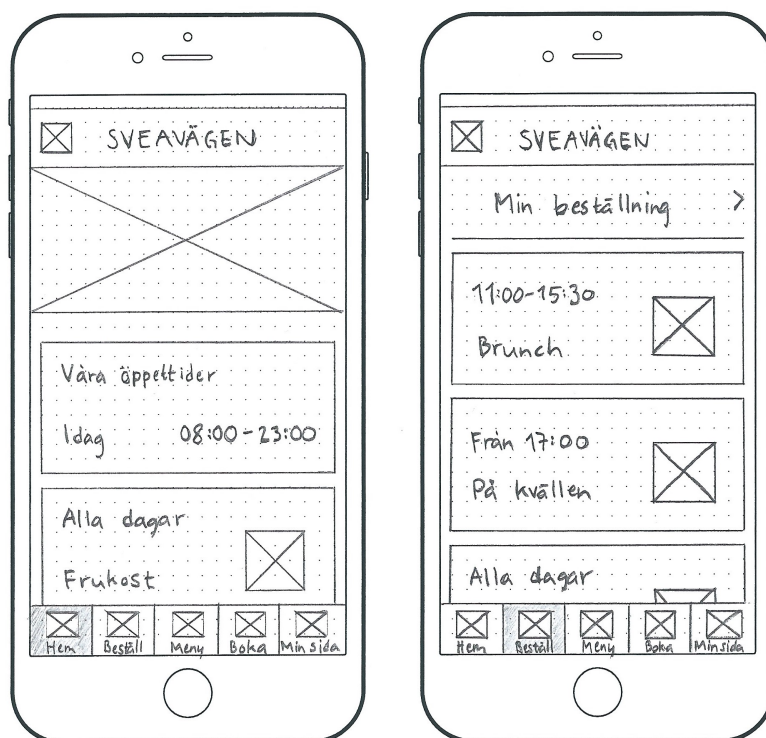


Figure 4.3: Sketch 3 - Bottom tab bar concept.

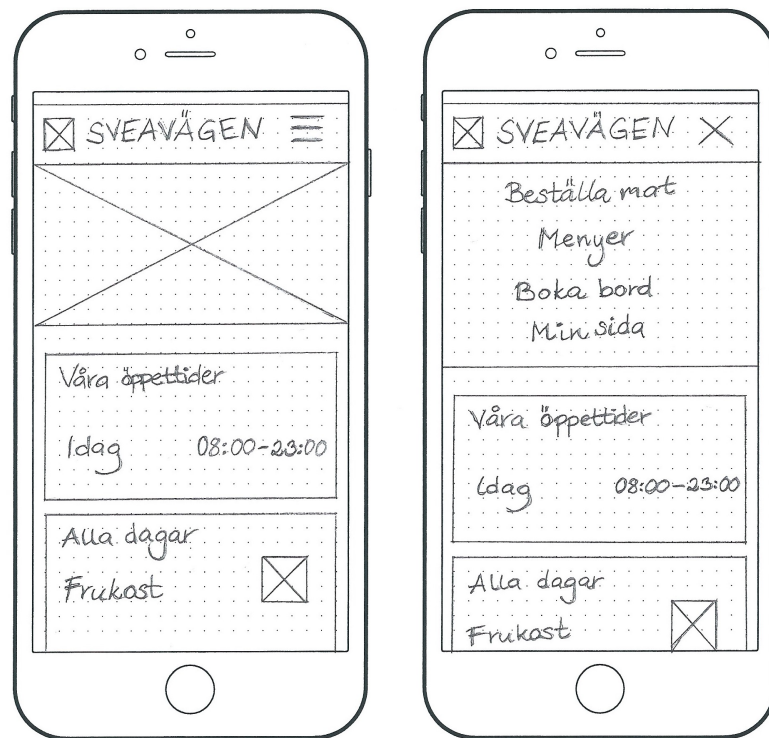


Figure 4.4: Sketch 4 - Hamburger menu concept.

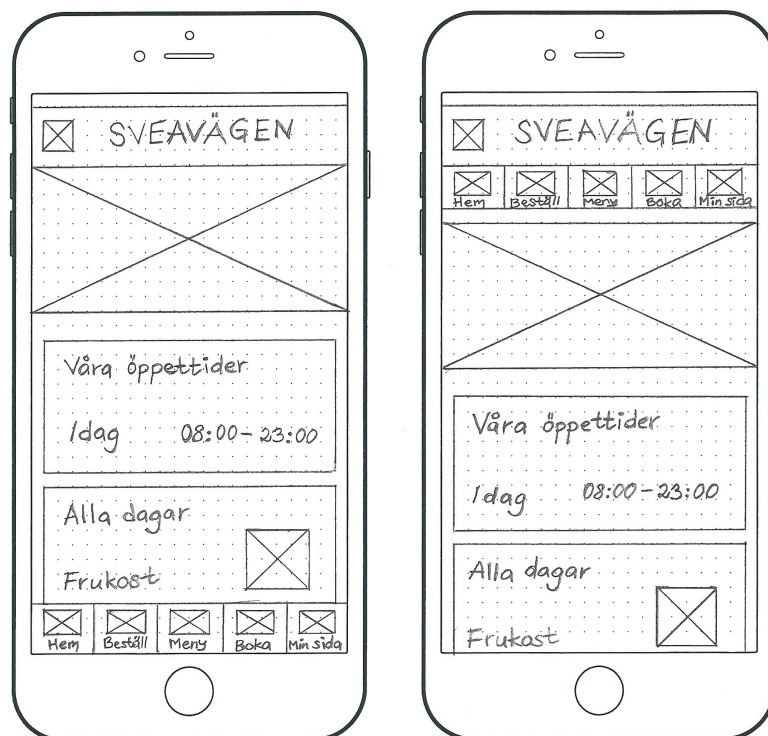


Figure 4.5: Sketch 5 - Positioning of tab bar.

4.1.2 Medium-Fidelity

To be able to explore design ideas further, a medium-fidelity prototype (mid-fi) was developed. The idea was to create clickable mobile screens in an easy and quick way. This led to the choice of using the program *Google presentations* (see section 2.3.1) for the mid-fi. The results from the pre-study and the lo-fi phase were discussed and transformed into screens. To keep the design consistent with other Urban Deli, many of the elements of the mid-fi were taken from the website. The program *Photoshop* was used to create appropriate colors and effects for some icons and elements. When all screens were finished, the program *InVision* (see section 2.3.2) was used to be able to present the prototype on a mobile device as clickable screens. The mid-fi phase was divided into two iterations and usability tests were carried out last in each iteration. Because of the successfully performed scenarios in iteration 2, no further iterations of the mid-fi were necessary. How the usability tests for the mid-fi phase were performed is described in section 4.2.2.

Iteration 1

In iteration 1, a first version of the mid-fi prototype was developed. Some of the screens from this iteration are discussed in this section.

The start screen is the first screen of the prototype and can be seen in figure 4.6. In this screen, the user should choose which of the three restaurants to visit. For each restaurant, the logotype and the address together with the corresponding background color forms a button.

The home screen for the restaurant *Sveavägen* can be seen in figure 4.7. The home screens of the other two restaurants should have the same structure as the one for *Sveavägen*. A tab bar is placed at the bottom and is used for navigating in the prototype. The tab bar has five options: home, order, menu, book table and my page. Each tab bar option is marked to inform the user where it is located in the prototype. The home screen is represented by a flow which contains important information and shortcuts to essential features. At the left side of the navigation bar (see figure 4.14) a direction icon is placed which leads the user back to the start screen. The tab bar and the direction icon are also placed at the rest of the screens in the mid-fi and will not be described in more screens in this section.

The screen in figure 4.8 is the first screen the user sees when entering the order mode in this version of the mid-fi. On this screen, the order menus represented by colored buttons with text, are showed. The button "Min beställning" at the top leads to a summary of the user's current order where the order can be edited and finished.

When the user chooses an order menu option, it will be directed to the screen in figure 4.9. This screen describes the menu for the chosen menu. For each menu item there is a plus sign and when it is pressed, the item is added to the user's order. To show the user that an item has been added to the order, an indicator showing the number of items in the order, is placed in the tab bar option "Beställ". To finish the order, the button "Beställ" at the top right corner is pressed and the user is led to "Min beställning" as mentioned in the previous paragraph.



Figure 4.6: Mid-fi: start screen.



Figure 4.7: Mid-fi: home screen Sveavägen with 5 tab bar options.



Figure 4.8: Mid-fi: order menu screen.



Figure 4.9: Mid-fi: chosen order menu screen.

Iteration 2

In iteration 2, the test results from iteration 1 were analyzed and used to create a second version of the mid-fi.

As a result of the usability tests from iteration 1, some modifications to the mid-fi were performed in this iteration. The tab bar was changed to contain four instead of five options. The order option was discarded leaving only the options home, menu, book and my page (see figure 4.11). A map feature was included by placing a map icon on the right side in the navigation bar of the home screen (see figure 4.10).

Having discarded the division between restaurant menu and order menu from the tab bar, another solution had to be made. Instead of having it in the tab bar, a new screen containing the two options was added (see figure 4.11). Inspiration to having a clear division between the options was discovered in the background research when studying the Max application (see figure 1.4). In this iteration, it was also decided to have the direction icon only in the top-level hierarchy screens. For all other screens, the direction icon was replaced by a back arrow (see figure 4.13). The back arrow allowed the user to navigate backwards in the work flow.

The button "Beställ" on the chosen menu screen (see figure 4.9) was changed to "Min beställning". Since this leads to the same screen as the "Min beställning" button on the order menu screen (see figure 4.8), it would not be consistent to have different names.



Figure 4.10: Mid-fi: home screen Sveavägen with 4 tab bar options.



Figure 4.11: Mid-fi: restaurant or order menu choice screen.

4.1.3 High-Fidelity

At this stage in the development process, several design concepts and ideas had been explored which resulted in a final version of the mid-fi prototype. Given the thorough usability testing that had been conducted, the major concepts such as the basic structure, tab bar and home flow of the current prototype were decided.

As mentioned before, one of the most important aspects to consider when creating a hi-fi prototype is to make it as realistic as possible. To accomplish this, the two tools Adobe Photoshop and Framer (see sections 2.3.3 and 2.3.4) were used. All screens were created in Photoshop and then imported and animated in Framer. Mark that these processes were developed in parallel. In the following two sections, the processes are described.

Creating the Screens

Most of the graphic for the prototype was taken directly from the Urban Deli website through screen captures. Some graphics were however new for the prototype and had to be manually created. Parts of the graphics were also accessible from a graphics database created by Urban Deli. Initially, the main components of the structure were created. These include the navigation bars (see figures 4.12, 4.13 and 4.14), the status bar (see figure 4.15) and the tab bar (see figure 4.16). The hierarchy of the prototype consists of a start screen, four (plus one for login) top hierarchy level screens (tab bar options) and all other screens (non-top hierarchy level screens). In the flow chart (see appendix C) the screens, the contents of them and the relationship between them can be seen.



Figure 4.12: Navigation bar for home screen.



Figure 4.13: Navigation bar for non-top hierarchy level screen.



Figure 4.14: Navigation bar for top hierarchy level screen.



Figure 4.15: Status bar.

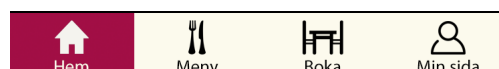


Figure 4.16: Tab bar for home screen.

Once the structure of the prototype was finished, work on all other screens could begin. The prototypes contains a total of 27 screens (see appendix E). With the use of groups, the structure components could easily be imported into corresponding screen. All screens were created in separate files and every element was contained within a group. By using groups in Photoshop, Framer could automatically convert the groups to operable elements (layers). In figure 4.17, an example of grouping of elements on the home screen can be seen. It contains the status bar and tab bar as well as the scroll feed containing the navigation bar and all the different buttons.

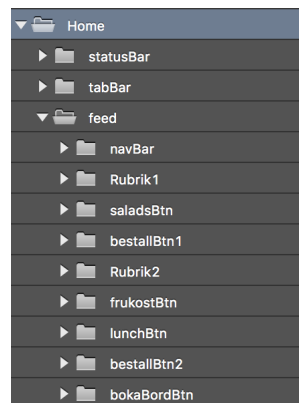


Figure 4.17: Grouping of elements on home screen in Photoshop.

As stated, the prototype follows the graphic profile of Urban Deli by using screen captures from the website as well as having access to parts of the graphics database. The elements that were manually created, were developed in a separate projects and then imported to corresponding screens.

Creating a Working Prototype

Once some of the screens were done, work on creating the actual prototype could begin. The project consists of two CoffeeScript files, one containing all layers and animations and another on containing a module. The module, which was previously designed by a developer named Chris Camargo, was downloaded from Github and imported to the project [9]. The file, called *ViewNavigationController (vnc)*, provides various functionality for transitioning between screens such as screen animations and handling of history with automatic placement of back buttons. By using the module, a lot of redundancy could be removed from the prototype and thereby improve the overview of the code.

The other file contained all imported layers (images, buttons, text etc. hereafter items), animations of them, scroll components and page components. The *ScrollComponent* and *PageComponent* are functions that can be used to transform layers into draggable content. In the following sections, the most relevant screens are described.

Home Screen

The home screen of the mid-fi (see figure 4.10) consisted of the navigation bar, the tab bar and two items (content-layers). In the hi-fi (see figures 4.18 and 4.19) the structure of the screen is the same. However, the content was developed as a scrollable flow (using scrollComponent) of many items instead of just two. The items can be viewed as shortcuts to the

different functions of the prototype. The flow was divided into three sections ("Beställ", "Restaurangen" and "Just nu") with separate headings. These were grouped according to the *law of proximity* which is a part of the *gestalt laws* [17]. By grouping the items in each group near each other, the user can easily perceive the distinction between them.

Order Menu/My Order Screens

With the ordering process being one of the greatest concerns in the project, a lot of time was put into creating a user-friendly and intuitive work flow. In the mid-fi (see figure 4.8) the menu and the order summary were on two different screens. In the hi-fi however, the contents were placed on one single screen through the use of tabs (see figures 4.20 and 4.21). The tabs are created with `pageComponent` which allows horizontal scrolling between multiple pages (i.e. screens). In the first tab, a list of the different ordering menus was put and on the second, the order summary. This allows the user to browse between the two, without having to go back and forth in the system. The concept of being able to see and edit the number of items added as seen in figure 4.20 was explored during the research of the existing application screen seen in figure 1.2.



Figure 4.20: Hi-fi: Salads & Stuff order menu screen.



Figure 4.21: Hi-fi: order summary screen.

My Page Screens

As seen in figure 4.22 the my page screen was also implemented using tabs. To separate the contents, four tabs representing offers, orders, events and profile were used. In the different tabs, short cuts to different parts of the prototype were provided. In the events tab for instance, a shortcut to re-do a previous order was provided. The my page screen should contain all personal content of the prototype (offers, orders, events and profile). The use of tabs provided a simple overview of the personal content for the user. The screen in figure 1.3 was studied during the background research and gave inspiration for how to present the user's offers on a separate screen in an easy way as seen in figure 4.21.



Figure 4.18: Hi-fi: home screen flow, top half.



Figure 4.19: Hi-fi: home screen flow, bottom half.



Figure 4.22: Hi-fi: offers page on my page screen.

4.2 Usability Testing Phase

In each of the three prototyping phases, usability tests were conducted to be able to evaluate the design of the prototypes. Before the tests, documents of different granularity were prepared to know which data to collect and how to perform the tests [14]. The test documents used for each phase are further referenced in the following sections 4.2.1, 4.2.2 and 4.2.3.

4.2.1 Low-Fidelity

To decide if the design concepts in the lo-fi prototype were appropriate to use in the prototype, usability tests were conducted. The tests were conducted using the sketches which allowed testing on the basic concepts of the prototype such as the start process, home screen flow and navigation. In this test, focus was put on comparing different ideas to see which was the most intuitive. By using templates of an *iPhone*, the user could easily visualize the content of the screen as a real phone. The number of test persons (TPs) was six.

The test persons were introduced to different scenarios to reflect on. The scenarios are shown below and the entire test material describing the performed tests for the lo-fi can be seen in appendix D.1.

Scenarios

Sketch 1 - Division of Eating in Restaurant and Ordering Take Away

If you choose a restaurant at the start screen, would you then like to have the decision if you should order food or see the menu as seen in screen 2 or jump directly to screen 3 and make the decision there later? Screen 2 forces you to make an early decision and screen 3

inspires you to do the choice when exploring the home screen of the prototype.

Sketch 2 - Flow Concept

What do you think of using a flow on different screens in the prototype like this one on the home screen of the restaurant?

Sketch 3 & 4 - Tab Bar or Hamburger Menu

There are different kinds of menus to use in an application. In sketch 3 you can see a tab bar and in sketch 4 a hamburger menu. Explore the different menus and explain which menu option you would prefer and why.

Sketch 5 - Position of Tab Bar

A tab bar can be placed at different positions of a mobile screen. You will be shown two screens one at a time and then I would like you to explain which menu position you prefer and why.

The test results of the lo-fi prototype are shown in section 5.3.1.

For the first iteration, the tests were planned according to the test plan seen in appendix D.2. A test material document was then created to be used during the tests and is shown in appendix D.3.

4.2.2 Medium-Fidelity

For the two iterations in the mid-fi phase, usability tests were conducted on ten and five different TPs, respectively. Before the tests, test plans and test materials for the iterations were prepared. The tests were conducted at school with TPs with relatively high knowledge in interaction design. The tests consisted of four short pre-questions regarding the previous experience with similar applications and their approach to this kind of solution. Following the pre-questions, the TPs were presented scenarios to perform. The scenarios mainly aimed to test the ordering process as well as the overall flow of the prototype. At last, a debriefing session was held where the TPs answered a number of pre-defined questions regarding the experience with the prototype. In the following sections the pre-questions, scenarios and debriefing questions are presented. The first iteration contained these seven scenarios.

Pre-Questions

1. *How often do you eat out?*
 - (a) *Never.*
 - (b) *1-3 times per week.*
 - (c) *4-6 times per week.*
 - (d) *7 or more times per week.*

2. *Have you ever used an application for ordering food?*
 - (a) *Yes.*

Which one and how do you think it worked?
 - (b) *No.*

Would you be up to give it a try?
3. *Would you consider paying for food in an application to avoid standing in line at the restaurant and thereby save time?*
4. *Would you want to use an application to get offers on food and drinks?*

Scenarios

1. *You would like to know what's for breakfast at Sveavägen.*
2. *You are having dinner at Sveavägen tonight and would like to know what they offer.*
3. *You would like to book a table for lunch tomorrow at Sveavägen.*
4. *You would like to order the dish "Kronkotlett" at Sveavägen to take home for dinner.*
5. *You change your mind and want to delete the dish you just ordered.*
6. *You are not sure what food you fancy today so you would like to know what personal offers you have.*
7. *You would like to know what the restaurant in Sickla has on their menu.*

Debriefing

1. *What did you think of the test?*
2. *Was anything particularly hard to understand?*
3. *What did you like the most about the application?*
4. *Would you consider using this application to be able to order food fast?*
5. *Did you like the design?*

The test plan for iteration 1 can be seen in appendix D.2 and the entire test material for iteration 1 is shown in appendix D.3.

For the second iteration, the test plan and test material were modified to fit the updated prototype (see test plan in appendix D.4 and test material in appendix D.5). The approach for the second iteration was exactly the same as for the first except that one feature was added and the number of subjects was halved. Thereby, the second iteration contained eight scenarios and the added one tested the map feature:

- *You would like to know where the restaurant Sveavägen is located.*

The results from the usability tests of the mid-fi phase are shown in section 5.3.2.

4.2.3 High-Fidelity

The last part of the testing process consisted of usability tests on five TPs in a controlled environment. The tests were conducted in a usability lab and all test sessions were video recorded.

The test session consisted of five parts. Initially an orientation script was read to the TP to introduce the subject and the test. Thereafter a short background questionnaire consisting of three questions was conducted. After that, the actual test began. It consisted of ten scenarios, simulating ordinary use of the application, where each TP read the scenarios and performed them without any help. When the scenarios were done, a questionnaire was conducted as well as an interview summarizing the test.

After each test session, the video recordings were analyzed. In the analyzing phase, the number of errors (critical and non-critical) were counted and the duration for completing each scenario was noted.

In the following sections the pre-questions, scenarios and debriefing questions are presented.

Background Interview

1. *How often do you eat out?*
 - (a) *Never.*
 - (b) *1-3 times/week.*
 - (c) *4-6 times/week.*
 - (d) *7 or more times/week.*

2. *Have you ever used an application for ordering food?*
 - (a) *Yes.*
Which one/ones?
 - (b) *No.*

3. *Have you ever used an application for receiving offers on food?*
 - (a) *Yes.*
Which one/ones?
 - (b) *No.*

Scenarios

You have just downloaded the Urban Deli application and would like to give it a try. Since you have heard so much about the restaurant at Sveavägen, you choose Sveavägen and continue.

- 1. You feel hungry for salad for lunch and would like to know what's on the order menu Salads & Stuff.*
- 2. The salads seem interesting, but before you decide what to eat, you'd like to see if you have any personal offers.*
- 3. You have now checked your offers but decide that you want a chicken salad. Add a chicken salad to your order and pay for it.*
- 4. You are not sure where the restaurant at Sveavägen is located and would like to find a map of the area.*
- 5. Once inside the restaurant, the cashier asks for your confirmation number. Show him this.*
- 6. It is now evening and you realize that you don't have anything for dinner at home. Since the restaurant at Nytorget is close by you want to check their opening hours.*
- 7. Since Nytorget is closed for renovation, you choose Sveavägen instead and check what's on the evening menu.*
- 8. You find a lot of things you like so you decide to book a table there.*
- 9. Once inside the restaurant, the waiter tells you about the event "Kosläpp" that they will hold this Friday where all members are free to join. You open the application and sign up for the event.*
- 10. You are so happy with the service at Sveavägen that you realize that you'll probably only eat here the upcoming couple of weeks. Therefore you'd like to make Urban Deli Sveavägen your favorite restaurant.*

Post-Test Interview

- 1. So, what did you think of the application?*
- 2. What did you think was good/bad with the application respectively?*
- 3. Which parts of the test did you find easy/difficult respectively?*

The entire test material used during the test sessions can be seen in D.7. The test plan, containing research questions for the test, method and data collection measures can be seen in D.6. It also contains time estimations for the scenarios, participant characteristics and test environment information. The results from the hi fi testing are shown in section 5.3.3.

Chapter 5

Results

This chapter describes the results of all parts of the study. It contains figures and graphs showing to provide a better visualization of the interviews. In addition, several tables are included to provide a good overview of the results of the usability tests.

5.1 Pre-Study

The results from the observations and the interviews led to the creation of a requirements specification (see section 5.2) for the application. Through the customer visit, primary and secondary users could be defined. The primary users are those who will use the application directly and the secondary those who are affected by the application like the restaurant staff and external services. The result of the pre-study is discussed in section 6.1.

5.1.1 Observations

During the observations of the visitors in the restaurants, there were problems discovered at the times around lunch and evening. 20% (6 of 30) of the observed visitors at lunch chose to leave because of long queues or no available tables. 50% (15 of 30) of the observed visitors at the evening left the restaurants because of no available tables. This was probably due to the tables being booked more often at night than at other times of the day.

5.1.2 Interviews

The results from the three interviews are described in the following three sections.

Contextual Interview

The contextual interviews were performed with ten people passing by the restaurants and gave the following outcome.

As visualized in figure 5.1, 70% of the people that were interviewed had heard of Urban Deli before. Many of those also mentioned that they had visited one of the restaurants.

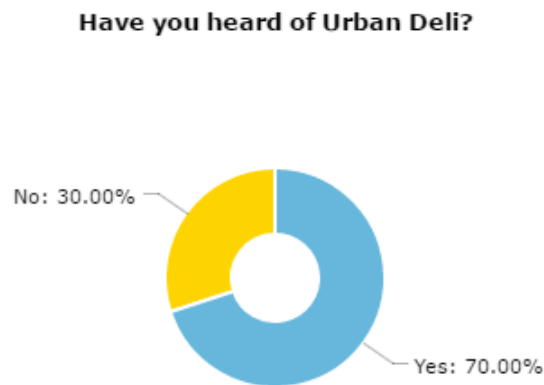


Figure 5.1: Contextual interviews, question 1: *Have you heard of Urban Deli?*

Figure 5.4 shows that 50% of the participants are eating out 1-3 times per week and the other 50% 4-6 times per week.

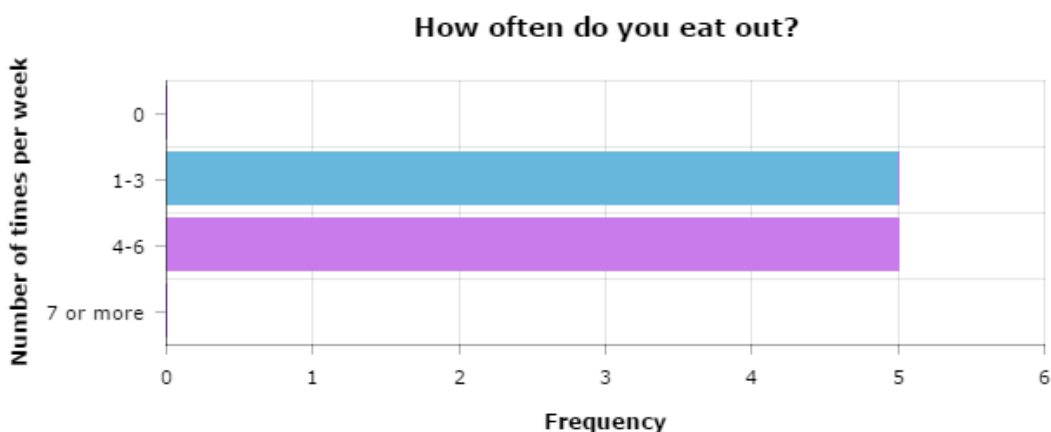


Figure 5.2: Contextual interviews, question 2: *How often do you eat out? Never, 1-3 times per week, 4-6 times per week, 7 or more times per week?*

As seen in figure 5.5, 50% of the people that were interviewed had used an application for ordering food before. Those who said yes were asked which application they had used and how they experienced it. The participants mentioned the applications "Espresso House" and "Max" and thought they worked well. However, they did not appreciate a forced membership in the application.

The participants who had never used an application for ordering food were asked if they would be willing to, and all said yes on the condition that it would be easy to use.

The interviewee were also asked if they would consider paying for food in an application to avoid standing in line at the restaurant and thereby save time. All agreed that they absolutely would, if it was easy to follow through and safe regarding payment methods.

Have you ever used an application for ordering food?



Figure 5.3: Contextual interviews, question 3: *Have you ever used an application for ordering food?*

To know how the participants thought about offers they were asked if they would want to use an application to get offers on food and drinks. All interviewees appreciated offers but many thought that notifications could be too intrusive.

Feature Interview

The feature interview was conducted with a group of two persons. Interview questions were prepared and the questions with their results were as follows.

1. *How often do you eat out? Never, once a week, several times per week?*
Both of the participants said they eat out once a week.
2. *Would you consider buying lunch or dinner in an application? How do you think such a feature should work?*
Both agreed that they would consider buying meals in an application and that the feature should be easy to use with few clicks. It was also mentioned that it should be smooth to pick up the food at a delivery point or to get the food delivered to the company.

3. *In addition to ordering, what features would you like to have in this type of applications?*

The desired features of the interviewees included locations of the restaurants, tempting images in the menu, discounts and offers. A filtering function, in which the user should be able to apply filters to the different menus, was also mentioned. This would simplify the process of finding a meal by choosing specific preferences such as vegetarian diet, allergies etc. For users only interested in checking the opening hours, the interviewees preferred to use a browser's search engine instead of downloading an application.

4. *What do you think of a membership in this type of applications? How would you want to become a member and what features would you want as a member?*

Membership with offers was an appreciated feature. They thought that the offers should not be too pushy and instead use rewards such as "the sixth coffee free". It was also discussed that it should not be forced to become a member to be able to use the standard features of the application.

5. *How would you like to be informed about personal offers? (For example notices, flow and/or my page).*

They would gladly be informed through notifications but they should not remain for a long time to avoid being annoying. Other ideas, including the use of geo tagging to provide contextual and time-based notifications, were also discussed. A feature that was crucial according to the interviewees, was that the notification settings should be manageable.

6. *What do you think of the two features favorite meal and history of orders?*

The participants liked the idea of having the possibility to have specific meals easily accessible. They thought that one solution could be a search field instead of favorite meal or order history.

7. *Do you have any other ideas or comments?*

One of them thought that a website is preferable if the application would not be used so many times but the other one thought that an application would be more smooth to use. They also mentioned that a map feature would be desirable and that it may be connected to an external application like Google Maps.

5.2 Requirements Specification

As stated, the requirements specification was an evolving document through the course of the project. By conducting usability testing in the different prototyping phases of the project, requirements were both added and removed from the specification. Most of the requirements in the specification are implemented in the prototype. However, some of the requirements were either prioritized very low or could not be implemented in a prototype because of the absence of a back-end solution. These are also stated in the application section of the specification. Figure 5.1 shows the tasks section of the requirements specification after the pre-study. As can be seen in the figure, the tasks describe what the user

should be able to do in the prototype. The complete requirement specification containing all requirements can be seen in appendix B.

Table 5.1: Part of requirements specification after pre-study showing tasks.

Id	Title	Description
T1	Place order	The user should be able to place an order for a meal
T2	Pre-pay food	The user should be able to pre-pay food
T3	Book table	The user should be able to book a table
T4	Self checkout	The user should be able to checkout a pre-paid order using a unique confirmation number
T5	Book event	The user should be able to book events
T6	Change restaurant	The user should be able to change current restaurant
T7	View current order	The user should be able to view a current order
T8	View previous order	The user should be able to view a previous order
T9	Change order	The user should be able to change an actual order
T10	View menus	The user should be able to view the menu of a restaurant
T11	Sign in	The user should be able to sign in to its pages
T12	Create membership	The user should be able to create a new membership
T13	Favorite restaurant	The user should be able to choose a favorite restaurant when logged in
T14	Order from history	The user should be able to order an already ordered meal by visiting its order history
T15	Confirmation number	The user should be able to view the confirmation number of its order
T16	Use offers	The user should be able to use offers
T17	Member status	The user should be able to see its member status

5.3 Usability Testing

The results from the usability testing of the three prototyping phases are described in the following three sections.

5.3.1 Low-Fidelity

From the usability testing of the lo-fi prototype the following opinions were gathered.

Sketch 1 - Division of Eating in Restaurant and Ordering Take Away

In sketch 1 in figure 4.1 showing two alternatives of the initial start-up process, all TPs thought that it was unnecessary to use the second screen with the clear division of ordering take away and eating in the restaurant. They considered it enough and easy to explore the third screen with the home screen flow directly after the first one instead of an early division.

Sketch 2 - Home Screen Flow Concept

All TPs were familiar with the concept of a home screen flow seen in sketch 2, figure 4.2. They had all used applications such as *Facebook* and *Instagram* which use a home screen flow before and felt comfortable with the concept. The information in the flow was considered to be essential and easily accessible.

Sketch 3 & 4 - Tab Bar or Hamburger Menu

All TPs liked the tab bar (see figure 4.3) better than the hamburger menu (see figure 4.4). 50% (3 of 6) of the TPs thought the hamburger menu requires more number of clicks and is not visible at all times which makes the features of the app harder to reach.

Sketch 5 - Position of Tab Bar

In sketch 5, showing two alternatives of positioning the tab bar (see figure 4.5), all TPs did not react on the position of the tab bar despite having previous experience with different operating systems. Even when the TPs were told about the standard position of their operating system, they did not think it would affect their experience.

The result of the usability testing of the lo-fi is discussed in section 6.2.1 and the outcome was used in the design of the mid-fi prototype.

5.3.2 Medium-Fidelity

In this section, the test results from both iterations of the mid-fi phase are merged.

Figure 5.4 shows that 60% of the ten TPs are eating out 1-3 times per week and the other 40% 4-6 times per week.

Pre-Questions

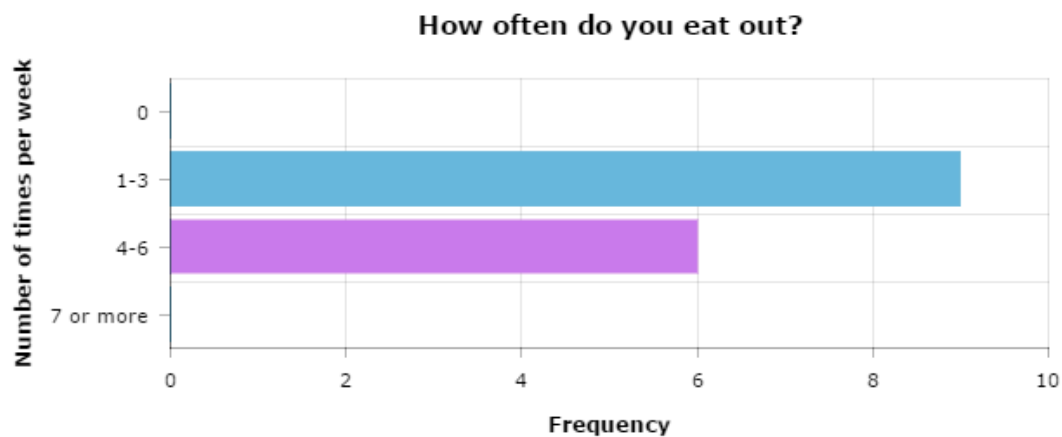


Figure 5.4: Mid-fi testing, pre-question 1: *How often do you eat out? Never, 1-3 times per week, 4-6 times per week, 7 or more times per week?*

As seen in figure 5.5, 53% of the TPs had previously used an application for ordering food. Those who said yes were asked which application they had used and how they experienced it. The TPs mentioned the applications *Espresso House*, *Max*, *Joe & the Juice*, *Pinchos* and *Online-pizza*. They thought the applications worked well and it was easy to use it with the phone. One TP did not think it was worth downloading the Pinchos application to only use it when inside the restaurant.

The TPs who had never used an application for ordering food were asked if they would be willing to, and all said yes on the condition that it would be simple and safe.

The TPs were also asked if they would consider paying for food in an application to avoid standing in line at the restaurant and thereby save time. All TPs were positive, but some pointed out that they would probably not download an application to use it only one time.

To know how the TPs thought about offers they were asked if they would want to use an application to get offers on food and drinks. All of them liked the idea with offers, but they were not fond of intrusive notifications. Two of the TPs suggested to have the offers in a feed to make them more visible.

Have you ever used an application for ordering food?



Figure 5.5: Mid-fi testing, pre-question 2: *Have you ever used an application for ordering food?*

Scenarios

1. *You would like to know what's for breakfast at Sveavägen.*

All TPs found the breakfast menu through the shortcut at the home screen of Sveavägen seen in figure 5.6 without any problems.

2. *You are having dinner at Sveavägen tonight and would like to know what they offer.*

All TPs found the dinner menu for Sveavägen via the "Meny" tab bar option seen in figure 5.7 without struggle.

3. *You would like to book a table for lunch tomorrow at Sveavägen.*

All TPs found the table booking by the "Boka" tab bar option seen in figure 5.6 without any problems.

4. *You would like to order the dish "Kronkotlett" at Sveavägen to take home for dinner.*

In the first iteration, some TPs pressed the "Meny" tab bar option hoping it would lead them to the order feature. When they entered the "Meny" option they realized that they were wrong and discovered the "Beställ" option in figure 5.8 instead and completed the scenario. In the second iteration, when the tab bar did not have a separate option for ordering as in figure 5.8, the TPs did not have any struggle to complete the order.

5. *You change your mind and want to delete the dish you just ordered.*

Most TPs had no problems with finding the screen in which the order could be modified. In iteration 1, they pressed the "Beställ" button (see figure 5.9) and in iteration 2, they pressed the same button with the new name "Min beställning". Some of the TPs did not understand that the button "Min beställning" (see figure 5.8) in fact was a button and not a heading.

6. *You are not sure what food you fancy today so you would like to know what personal offers you have.*

All TPs completed the scenario and found their offers through the "Min sida" tab bar option seen in figure 5.6.

7. *You would like to know where the restaurant Sveavägen is located (only in iteration 2).*

All TPs found the map icon on the home screen (see figure 5.6) easily.

8. *You would like to know what the restaurant in Sickla has on their menu.*

It was easy for the TPs to find the direction icon in the navigation bar seen in figure 5.6 by using the process of elimination. If the direction icon was not visible because of the back arrow, the TPs went to the home screen of the restaurant and found it there (see figure 5.6). When the TPs pressed the direction icon, it was easy for them to change to the Sickla restaurant and see its menu.



Figure 5.6: Mid-fi: home screen Svevägen with 4 tab bar options.



Figure 5.7: Mid-fi: restaurant or order menu choice screen.



Figure 5.8: Mid-fi: order menus screen.



Figure 5.9: Mid-fi: chosen order menu screen.

Debriefing

All the test persons said the structure of the test was logic and easy to understand. All of them also agreed to that the design was appealing with intuitive icons and nice colors. In the first iteration, some TPs experienced struggle with having the order option in an own tab in the tab bar (see figure 5.8). In the second iteration, this problem was solved when the order option was included in another tab as seen in figure 5.7. This solution resulted in no discussions regarding the order option in the debriefing part in iteration 2. Most of the TPs mentioned that they thought the button "Min beställning" in figure 5.8 was a heading.

5.3.3 High-Fidelity

In this section, the result of the hi-fi usability testing is described. As stated, the hi-fi test was conducted on five TPs. The result is divided in two sections: performance data and preference data (see section 8 in D.6).

Performance Data

This data was mainly collected through close review of the video recordings as well as the post-test questionnaire (see sections *Post-test questionnaire* and *SUS-score* in section 5.3.3). All scenarios were completed without any critical errors.

Background Interview

The background interview consisted of three simple questions and gave us an overview of the previous experience of the TPs with similar applications.

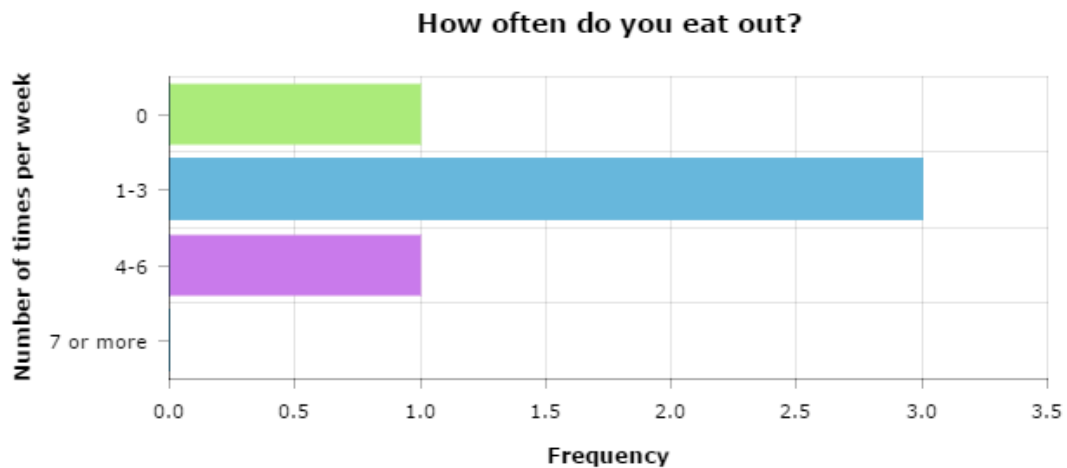


Figure 5.10: Hi-fi testing background question 1: *How often do you eat out? Never, 1-3 times per week, 4-6 times per week, 7 or more times per week?*

As seen in figure 5.10, the variance of the amount of times the TPs eat out is quite big. 60% of the TPs eat out 1-3 times per week whereas 20% chose never and 4-6 times per week, respectively.

Have you ever used an application for ordering food?



Figure 5.11: Hi-fi testing pre-question 2: *Have you ever used an application for ordering food?*

Have you ever used an application for receiving offers on food?

Figure 5.12: Hi-fi testing pre-question 3: *Have you ever used an application for receiving offers on food?*

Figures 5.11 and 5.12 show the results of the last questions of the background interview. The figures show that 60% of the TPs have used an application both for ordering food and receiving offers on food.

Response Times

Table 5.2 describes the response times per scenario for each TP. The last column contains the average response time for all TPs. Some scenarios could be solved in different ways, resulting in relatively high variance for those scenarios. The observations from table 5.2 can be seen in the list below.

- All TPs have a lower total response time than estimated.
- Some deviations can be found (scenario 1 and 6) which indicates multiple solutions to a scenario.

Non-critical Error Rate

Table 5.3 describes the number of non-critical errors/faulty icon selection per scenario for each TP. The last column contains the average number of errors for all TPs per scenario and the last row contains the percentage of tasks completed incorrectly per TP. The observations from table 5.3 can be seen in the list below.

- A majority of the scenarios were completed without any non-critical errors.
- Scenario 6 (change restaurant) was the hardest.

Some scenarios were a bit problematic to the TPs. In scenario 3, where the TP should place an order for a salad, some TPs did not understand the difference between restaurant menu and order menu. The ones that finished the task quickly realized that there was a shortcut on the home screen leading directly to the salads order menu. The other approach was to go via the tab bar option "Meny" and then choosing "Beställ".

Scenario 6 was also problematic. The common error for all TPs was to initially press the map-button in the navigation bar (see figure 4.12). From here, some of the TPs tried

Table 5.2: Hi-fi testing, response times.

Scenario	TP1	TP2	TP3	TP4	TP5	Avg.
1.	0:03	0:19	0:05	0:07	1:00	0:19
2.	0:40	0:20	0:35	0:24	0:30	0:37
3.	0:35	0:30	0:20	0:55	0:55	0:39
4.	0:15	0:06	0:05	0:06	0:09	0:14
5.	0:04	0:05	0:12	0:20	0:20	0:20
6.	0:37	0:19	1:01	0:55	0:25	0:39
7.	0:33	0:22	0:25	0:30	0:16	0:25
8.	0:20	0:11	0:06	0:09	0:09	0:11
9.	0:10	0:17	0:12	0:15	0:20	0:15
10.	0:28	0:40	0:17	0:20	0:17	0:24
Total:	3:45	3:09	3:18	4:01	4:21	4:03

Table 5.3: Hi-fi testing, non-critical errors.

Scenario	TP1	TP2	TP3	TP4	TP5	Avg.
1.	0	0	0	0	1	0.2
2.	0	0	0	0	0	0
3.	0	0	0	1	2	0.6
4.	0	0	0	0	0	0
5.	0	0	0	0	0	0
6.	2	0	2	1	0	1
7.	1	0	0	0	0	0.2
8.	1	0	0	0	0	0.2
9.	0	0	0	0	0	0
10.	0	1	0	0	0	0.2
Total:	30%	10%	10%	20%	20%	24%

to continue by pressing the location button for the specific restaurant but without result. Some TPs also tried to press the logo in the navigation bar. Some of the ones that suc-

ceeded did not realize that they pressed the specific change restaurant button but rather thought they went back in the hierarchy. This is due to the placement of the change restaurant button.

SUS-score

A SUS-score was also generated from the post-test questionnaire. The standard method for calculating the score was used and the result can be seen in table 5.4. The table describes both the individual result for each TP as well as the average result for all TPs. Note that the scores are not percentages but rather just a measure of perceived usability. According to an extensive research of 500 studies where the SUS-questionnaire was used, the average score was 68. This means that the average score of 74.5 can be considered as above average [6] [10].

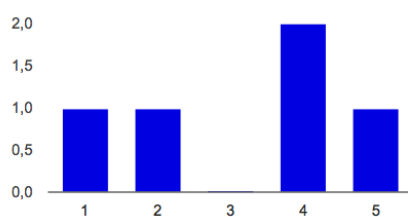
Table 5.4: Hi-fi testing, SUS-score.

	TP1	TP2	TP3	TP4	TP5	Avg.
SUS-score:	52.5	67.5	87.5	72.5	92.5	74.5

Post-Test Questionnaire

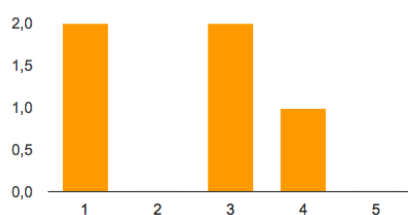
The result of the post-test questionnaire (see appendix D.8) is shown in figures 5.13, 5.14 and 5.15.

I think that I would use this application frequently.



Strongly disagree: 1	1	20 %
2	1	20 %
3	0	0 %
4	2	40 %
Strongly agree: 5	1	20 %

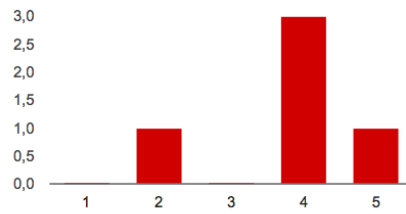
I found the application unnecessarily complex.



Strongly disagree: 1	2	40 %
2	0	0 %
3	2	40 %
4	1	20 %
Strongly agree: 5	0	0 %

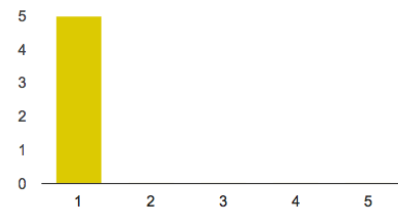
Figure 5.13: Hi-fi testing, post-test questionnaire, part 1 of 3.

I thought the application was easy to use.



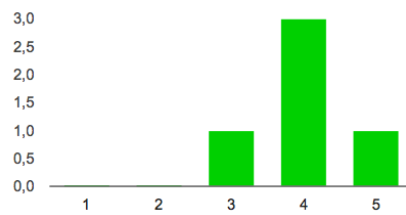
Strongly disagree: 1 0 0 %
 2 1 20 %
 3 0 0 %
 4 3 60 %
 Strongly agree: 5 1 20 %

I think I would need the support of a technical person to be able to use this application.



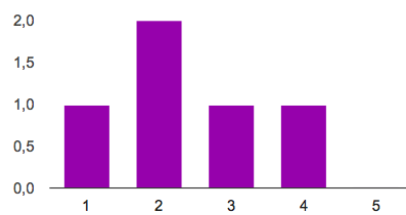
Strongly disagree: 1 5 100 %
 2 0 0 %
 3 0 0 %
 4 0 0 %
 Strongly agree: 5 0 0 %

I found the various functions in this application were well integrated.



Strongly disagree: 1 0 0 %
 2 0 0 %
 3 1 20 %
 4 3 60 %
 Strongly agree: 5 1 20 %

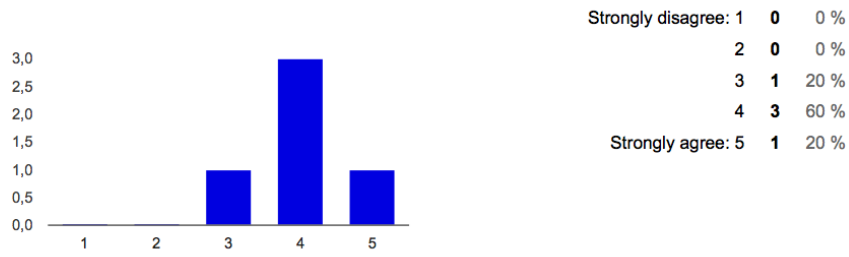
I think there was too much inconsistency in this application.



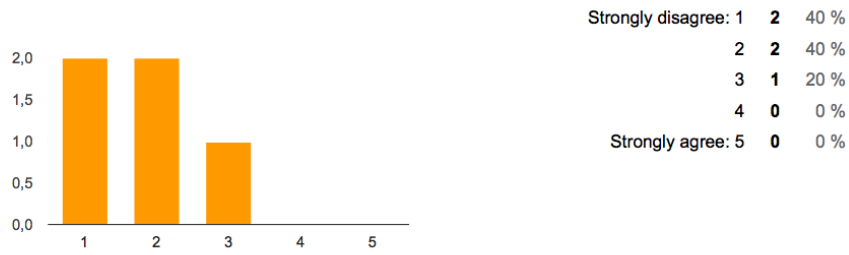
Strongly disagree: 1 1 20 %
 2 2 40 %
 3 1 20 %
 4 1 20 %
 Strongly agree: 5 0 0 %

Figure 5.14: Hi-fi testing, post-test questionnaire, part 2 of 3.

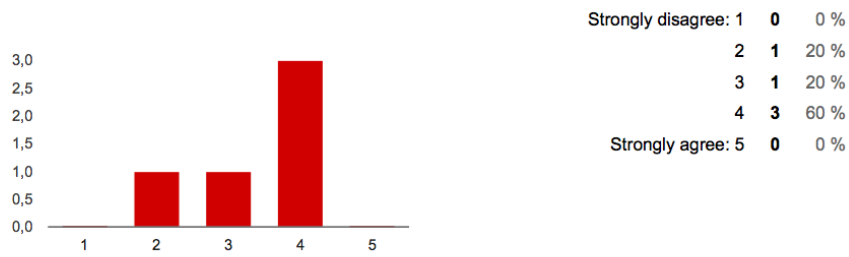
I would imagine that most people would learn to use this application very quickly.



I found the application very cumbersome to use.



I felt very confident using the application.



I needed to learn a lot of things before I could get going with this application.

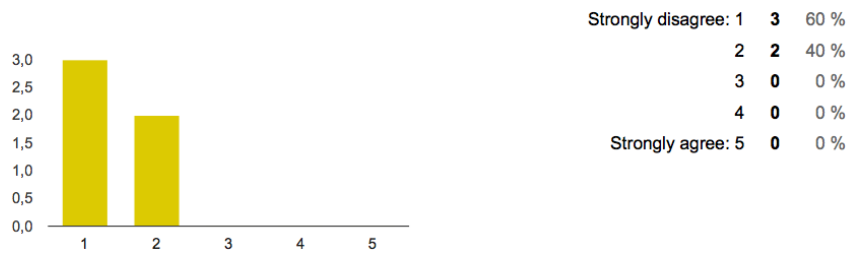


Figure 5.15: Hi-fi testing, post-test questionnaire, part 3 of 3.

5.3.4 Preference Data

The preference data was collected through the post-test interview where TP and test moderator discussed relevant topics. Together with the observations during the test, these will be matched with the research questions (see section 2 in D.6) to get an accurate preference description of the TPs.

High-Fidelity Testing Research Questions

Table 5.5 shows the results of the research questions for the hi-fi testing in table 1 in appendix D.6.

Table 5.5: Hi-fi testing, research questions

Question	Result
1.	The TPs had a good overall understanding of what was clickable and not on the screen. On the map screen however, some TPs tried to press the address field hoping it would lead them to the start screen.
2.	The TPs could easily return to the home screen without any assistance.
3.	All TPs succeeded completing an order. For some it took longer since they did not use the shortcut on the home screen. The average response time for this task was 39 seconds.
4.	The TPs understood concept of a bottom tab bar very well. This concept is used in many popular applications providing high affordance for the TPs. Despite this, some TPs preferred using the home screen flow instead of the tab bar.
5.	Generally, the TPs understood the difference. However, some TPs were not sure where to look for a specific menu.
6.	The TPs thought that the flow of the prototype was intuitive and easy to learn. Using familiar concepts such as bottom tab bar and home screen flow, the TPs could use the prototype confidently.
7.	There were no apparent usability flaws in the prototype.

Chapter 6

Discussions and Conclusions

This chapter discusses the findings of the study, evaluates the conducted work and gives recommendations for future work. At last a conclusion of the thesis and the goals is provided.

6.1 Findings of the Pre-Study

As a result of the pre-study, the primary users were defined as the direct users of the application. We chose to only focus on the primary users and not the secondary because this prototype will be aimed mainly towards the primary. To consider the secondary users we would have had to focus on an entire application solution and not only the design. To achieve a complete application, the application would have to be integrated to the existing systems of the restaurants and interact with external applications. The external systems of the restaurants that would have had to be considered are the CMS, payment, table booking and event booking. The external applications to interact with would have been *Instagram* and *Google Maps*. Instagram is an important part of reaching out to its customers for Urban Deli and is therefor chosen to be on the home screen flow.

From the contextual interviews and the feature interview we were able to conclude that the participants were in favor of ordering food in an application. Thereby, we found the application desirable and implemented the discussed features such as meal ordering, meal menus, table booking, membership, restaurant location and order history. The desire to find time saving solutions makes the users more willing to adopt new methods for solving simple tasks. Having all content for the restaurant neatly packaged in an application provides a satisfactory experience and a sense of security for the users.

In the contextual interviews, safe payment was a criteria for some of the interviewees. However this was not considered in our prototype since an external service will handle the payment and it was not part of the scope of the project. During the feature interview, a filtering function was mentioned but we chose not to use it in the prototype because we

did not think it was relevant when not having so many meals to choose from. It was also discussed that the application needed to be easy enough to be used instead of a web page. Therefore a key goal, saying that the important functions should be easy accessible with few clicks, was defined.

6.2 Design Decisions

Throughout the thesis work, important design decisions were taken. These are described in the following seven sections.

6.2.1 Low-Fidelity

According to the results from the usability testing of the sketches in section 5.3.1, the following conclusions were made regarding what to include in the mid-fi prototype.

We chose to not use the second screen in figure 4.1 because the initial division of eating in the restaurant and ordering take away was not necessary.

The flow was an appreciated concept and we decided to use it in the prototype. A flow is a well known concept and it conveys information seamlessly and efficiently which we want to achieve with the prototype.

We selected the tab bar instead of the hamburger menu because we agree with the TPs that it is easier and smoother to use. The main functions will always be visible and reachable which is a great advantage and a prerequisite for the prototype to work as expected.

Regarding the position of the tab bar, we tested the difference because we wanted to know if it played part in the usability of the application and would thereby require us to create two prototypes (one for each operating system) instead of one. Since the usability tests showed that the position of the tab bar did not affect the TPs, we decided to use the iOS operating system standard for the development of the mid-fi and hi-fi prototype. Therefore, the tab bar was positioned at the bottom of the screen.

6.2.2 Medium-Fidelity

Due to the test results of the first iteration of the mid-fi phase, we chose to only have four options in the tab bar instead of five to not confuse the user about where to find the order feature. The order tab was removed and the feature was put into one tab containing menus for both eating at the restaurant and ordering take away. Because of the positive results from the tests for the second iteration, we decided to continue with the tab bar consisting of the four options in the hi-fi prototype.

To make it clear for the user where to find its order, we chose to include a tab menu (see figure 4.21) in the hi-fi. We thought that this type of menu would enable the user to always have its order available when in ordering mode.

When the map feature was added in iteration 2, we decided to only place it on the home screen and not on all screens. We did not consider the map feature to have such high importance that it was relevant and fair to have it on all top-hierarchy level screens.

6.2.3 High-Fidelity

Having conducted such thorough usability testing in previous iterations, the results of the hi-fi testing were very positive. As can be seen in diagram 1 and 2 of the post-test questionnaire results, (figure 5.14) 80% of the TPs thought that the prototype was easy to use and 100% thought they would not need help to use it. The variance of answers on the sixth question regarding inconsistency (diagram 2 in figure 5.14) was very high. One possible explanation to this is that some of the TPs had more previous experience using applications with home-screen flows than others. For TPs who were familiar with home-screen flows, the tab bar felt unnecessary and inconsistent with the system whereas TPs who preferred using the tab bar to navigate thought that the flow was superfluous. A description of the two concepts tab bar and home screen flow is provided in sections 6.2.4 and 6.2.5. In addition, the sections 6.2.6 and 6.2.7 provide an evaluation of the order and my page screens. Overall, the results from the post-test questionnaire were quite scattered. This might be due to the various previous technical experience of the TPs. For instance, in diagram 4 in figure 5.14 some thought that there was a lot of inconsistency in the system whereas some thought that there was none. For a person with little experience, the handling of much information within an application might seem inconsistent. Some questions were also misinterpreted by the TPs. In diagram 1 in figure 5.13, one score should be moved from 1 to 4. To get more even results, TPs should have been chosen based on their previous technical experience.

Throughout the development of the hi-fi, the number of clicks to perform a task has always been a main aspect to consider. Measures have been made to keep the number of clicks as low as possible. For instance, the user is able to choose favorite restaurant and thereby do not have to choose restaurant every time the application is started. The choice of having a home screen flow with shortcuts to the different features of the application is also based on the idea of having as few clicks as possible.

6.2.4 Tab Bar

The tab bar (see figure 4.16) is thought to be the main navigation of the prototype. It consists of four tiles with icons and is accessible and visible from all screens. In addition to icons, the tiles are also described with text to provide accessibility for people using screen readers. The icons were chosen carefully to work as *signifiers* and thereby provide a good *affordance*. By using recognizable icons, the users intuitively understand the result of an action (i.e. button press) [11].

6.2.5 Home Screen Flow

The home screen flow (see figures 4.18 and 4.19) consisted, as mentioned, of a scrollable flow of three sections containing various items. With the ordering process being the main focus, items related to that is placed in the top. Then follows items related to the restaurant and at last there is a section for current events, offers, opening hours etc. The feed is time based and should be automatically updated depending on time of the day. In the morning for instance, the breakfast and the lunch menus will be displayed in the restaurant section, whereas in the evening the mrkt and evening menus will be displayed.

6.2.6 Order Menu/My Order Screens

The order menu/my order screens (see figures 4.20 and 4.21) were designed to provide a clear overview of the different menus as well as quick access to the order summary. By using tabs for grouping of the content, we could provide *affordance* and *consistency* [13]. Designing the prototype with a clear hierarchy and work flow, it was important for us that the screens in every layer were displayed equally. This, in addition to the overall structure of the prototype, provided a consistent feeling for the user who could understand and operate the prototype effortlessly.

6.2.7 My Page Screens

In the interviews (see section 5.1.2) many people commented on membership and the advantages and disadvantages of it. Most of the TPs liked that there were personalized offers which did require log in but the prototype was otherwise operable without having to log in. Knowing this, we chose to include log in via social media (Facebook and Google) for fast creation of membership. In the prototype, the user is forced to log in every time my page is clicked. In a finished application, this should however only be required once when the application is used the first time.

During the usability testing of the hi-fi, most of the TPs used the my page screen for completing personal tasks. The grouping of all things personal inside of one tab bar option provided a secure notion for the users.

6.3 Evaluation of conducted work

The agile approach with short iterations and frequent reviews used in this thesis allowed us to rapidly create prototypes of various fidelity and get feedback on them continuously. The different design concepts could be discussed with the customer early on which minimized the initiation process. Throughout the development process, we were keen on discussing every design decision very carefully.

The goal of the pre-study was to gather as much information of the restaurants and their visitors as possible. To achieve this we chose to work with the two approaches observations and interviews. The choice of working with these two methods was successful and enabled the establishment of the needed requirements. We thought of using a questionnaire to gather even more information in the pre-study phase. However, we considered the collected data from the observations and interviews sufficient and decided that a questionnaire would not generate enough information for the analyzing effort to be worth conducting.

As stated, the prototyping phase consisted of three phases (lo-fi, mid-fi and hi-fi). The main focus of the prototype was the ordering feature. To be able to test this feature as well as the general flow and layout of the prototype, the mid-fi phase was added. As opposed to a hi-fi prototype, the mid-fi prototype was developed rapidly allowing us to conduct the mid-fi usability test early on in the process. This proved to be a successful approach providing us with a faithful prototype generating relevant feedback in the usability testing.

Most often when creating a prototype, you talk about vertical or horizontal prototyping. We consider the prototype created in this project to have enough width and depth to

be recognized as both vertical and horizontal. During the prototyping work, we wanted to include as much detail of the requirements specification as possible in order for the customer to get a sense of completeness.

For the mid-fi and hi-fi usability testing, plan and material documents containing scenarios were thoroughly prepared. This well-structured approach allowed us to easily generate extensive and diverse data.

The usability tests conducted through the course of the thesis, consisted of quite few test people. In order to get more statistical data (performance data), more tests should be conducted. This would form a better basis for the design decisions. Because of time limitations, expanding the TP span was unfortunately not an option.

6.4 Future Work and recommendations

The prototype created in this project is thought to be utilized as an extensive pre-study when creating the real application. We have conducted thorough usability testing throughout the design process and can therefore conclude that the design choices made are relevant and accurate. The prototype has been developed according to the requirements specification (see appendix B). Some requirements are not included in the prototype, however they are included in the requirements specification as *application requirements*. The prototype implements the screens for the restaurant Sveavägen. In the finished application, similar screens for Nytorget and Sickla would have to be created.

In a finished application, we would recommend to integrate a tutorial or helping text which introduces the user to the application when it is started for the first time. This would reduce the initiation time for the user and clarify possible ambiguities. The tutorial could include guidance regarding the various features of the application, for instance the *favorite restaurant* feature. It could also include a short tutorial for the ordering process.

The main feature of this application is, as stated, the ordering feature. However, there are several other features that should also be included. Many of the existing applications that were studied utilize the shopping cart metaphor for the ordering process. Using a shopping cart, which is visible at all times and persists throughout the work flow, would probably make the ordering process more intuitive. Nonetheless, we believe that such a solution does not fit the application in general and would outshine all other features such as offers, table booking etc.

During the interviews and usability testing, a notification feature was discussed a lot. In an application, it would be desirable to include notifications for promoting offers, events etc. Region monitoring using for instance *geofencing* or *iBeacon*, where geographically based notifications can be pushed, is an approach that should be considered [2][7]. When a user enters the pre-defined region around the restaurant, restaurant-specific offers can be made available.

6.5 Conclusions

The studies and evaluations conducted in the thesis are essentially generic and directly applicable to similar restaurant applications. Results from the pre-study and usability testing in the different phases of prototyping can further benefit development of design concepts.

From the results of the pre-study, the users' interests and needs of the application could be defined. Throughout the whole process, the iterative approach let us continuously evolve the prototype according to the usability testing. This allowed us to assure that the requirements from the users as well as the customer were fulfilled as well as verify that the appropriate prototype was developed.

Through the results of the pre-study and usability testing, we could draw the conclusion that all users were in favor of using an application for ordering food. Some users had done it before whereas for some it was completely new. However, the common divider for all users was that it should be easy to use. Using pre defined design principles, we could provide high affordance and thereby minimize the learning time. Design decisions such as placement of buttons, choice of colors and general work flow allowed us to ultimately create a highly intuitive interface.

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Appendices

A Pre-Study

A.1 Customer's User Stories

1. As a guest, I want to pre-order food, so that I can save time.
2. As a guest, I want to pre-pay food, so that I can save time.
3. As a guest, I want help to select what food to buy, so that I can get my preferred choice easily.
4. As a guest, I want to be able to do my first purchase ;30 seconds, so that it simple to get started.
5. As a guest, I want to be able to save my regular dish, so that I can buy with one click.
6. As a guest, I want to be able to book a table, so I don't have to visit, or visit web-site or call, or stand in line.
7. As a guest, I want to know what there is for breakfast, so that I can get help knowing and have an easier time choosing breakfast.
8. As a guest, I want to have acknowledgement for being a good/frequent customer, ie the 6th coffee for free
9. As a guest, I want to be able to self check-out, so that I dont have to stand in line (save time).
10. As a guest, I want to know whats going on, so I don't miss out.
11. As a guest, I want to be able to book events, so I dont have to visit webb or store.
12. As a guest, I want to get room service, so I can eat/drink at my room.
13. As a premium guest, I want to be able to book a table, even if the restaurant is fully booked.
14. As a premium guest, I want to be able to get special treatment, to feel seen/rewarded.
15. As Deli X, we want to track guest/customer to cross-sell/promote to increase sales, ie make restaurant guests buy stuff in our store or the other way round.
16. As Deli X, we want to work with last-minute-dealsåhen we have extra capacity, ie rooms, fresh produce, tables etc.
17. As Deli X, we want to know in advance the demand for each dish, so we can plan and prepare in advance, to shorten potential lines.
18. As Deli X, we want our guests to pre-pay their pre-order in the app so we are guaranteed payments.
19. As Deli X, we want to able to integrate items of our choosing with our web-shop, so that we don't have to administer one more digital shop.

A.2 Contextual Interviews

1 Purpose

During the contextual interviews we want to investigate the users' habits and interests when it comes to eating out and ordering food by an application. The interviews are performed in the actual context of the application (Stockholm), to get as accurate feedback as possible.

2 Background

“We are two students who conduct our Master’s Thesis in Interaction Design at Lund University. The work includes development of an application for a restaurant named Urban Deli. In order to make the application as useful as possible, we would like to hear your thoughts on the subject. The interview should not take more than five minutes.”

3 Interview questions

1. Have you heard of Urban Deli?
2. How often do you eat out?
 - (a) Never.
 - (b) 1-3 times per week.
 - (c) 4-6 times per week.
 - (d) 7 or more times per week.
3. Have you ever used an application for ordering food?
 - (a) Yes.
Which one and how do you think it worked?
 - (b) No.
Would to be up to give it a try?
4. Would you consider paying for food in an application to avoid standing in line at the restaurant and thereby save time?
5. Would you want to use an application to get offers on food and drinks?

A.3 Feature Interview

1 Introduction

“We are two students at Lund University and we are currently conducting our Master’s Thesis in interaction design. We will develop an application for a restaurant and perform this interview to get an insight into what features the users would want this application to offer. We will ask a few questions that we would like you to reflect on.”

2 Recording Consent

Will you allow this interview to be recorded verbally? Recorded material will only be used by us and will be deleted after this Master’s Thesis. Any results are presented anonymously.

3 Interview Questions

1. How often do you eat out? Never, once a week, several times per week?
2. Would you consider buying lunch or dinner in an application? How do you think such a feature should work?
3. What features would you like such an application to offer, in addition to ordering?
4. What do you think of that the application would offer a membership? How would you have wanted to become a member and what would you wish for as a member?
5. How would you like to be informed about personal offers? (For example notices, flow and my page)
6. What do you think of features as favorite meal and history of orders?
7. Other comments?

B Requirements Specification

1 Introduction

1.1 Purpose

The purpose of this document is to state the general requirements for the hi-fi prototype of Urban Deli.

1.2 Scope

The requirements specification primarily focuses on the system and quality requirements of the prototype as seen in the sections 2 and 3. Section 4 states requirements for an entire application. These requirements are not considered in the prototype but could be applied in further development of an application.

2 System Requirements

2.1 Goal Requirements

Id	Title	Description
G1	Attract users	The system should attract users by providing a quick and easy approach for ordering takeaway
G2	Reduce customer throughput	The system should reduce the customer throughput in the restaurants by offering takeaway
G3	Source of information	The system should provide users with important and current information
G4	Attract new members	The system should attract new members by providing favorable offers and advertising member activities
G5	Reward members	The system should reward members by providing events and personalized offers

2.2 Domain Requirements

Id	Title	Description
DO1	Tasks	The system should have support for the tasks in section 2.2.1

2.2.1 Tasks

Id	Title	Description
T1	Place order	The user should be able to place an order for a meal
T2	Pre-pay food	The user should be able to pre-pay food
T3	Book table	The user should be able to book a table
T4	Self checkout	The user should be able to checkout a pre-paid order using a unique confirmation number
T5	Book event	The user should be able to book events
T6	Change restaurant	The user should be able to change current restaurant
T7	View current order	The user should be able to view a current order
T8	View previous order	The user should be able to view a previous order
T9	Change order	The user should be able to change an actual order
T10	View menus	The user should be able to view the menu of a restaurant
T11	Sign in	The user should be able to sign in to its pages
T12	Create membership	The user should be able to create a new membership
T13	Favorite restaurant	The user should be able to choose a favorite restaurant when logged in
T14	Order from history	The user should be able to order an already ordered meal by visiting its order history
T15	View map	The user should be able to view a map with the location of a restaurant
T16	Pick-up time	The user should be able to choose a pick-up time when ordering take-away
T17	Confirmation number	The user should be able to view the confirmation number of its order
T18	View booked events	The user should be able to view its booked event
T19	Use offers	The user should be able to use offers
T20	New offers	The user should be able to view new offers not seen
T21	Member status	The user should be able to see its member status

2.3 Product Requirements

Id	Title	Description
P1	Frequent customers	The system should support promoting of frequent customers
P2	Membership	The system should support memberships
P3	Login	The system should provide Facebook and Google Plus login
P4	Save previous orders	The system should save a history of the five latest orders
P5	Time-current items	The system should support time-current items
P6	Pay orders	The system will charge for each order made in the application
P7	Order item feedback	The system should give the user visible feedback when adding and removing items in the ordering mode

2.4 Design Requirements

Id	Title	Description
DE1	Select restaurant	The start screen should display the selectable restaurants
DE2	Home screen	The home screen "Hem" for each restaurant should consist of a news feed containing the opening hours, current menu, events, offers and important information
DE3	Member screen	The member screen "Min sida" should contain the member information, personalized offers, events and latest orders
DE4	Order confirmation screen	The order confirmation screen should display the confirmation number, the pick-up time, the address of the restaurant for pick-up and a shortcut to the map

3 Quality Requirements

3.1 Usability

Id	Title	Description
QU1	Meal ordering	The system should make it simple for users to order meals
QU2	Finding menu	The system should make it simple for users to find menus
QU3	Table booking	The system should make it simple for users to book a table
QU4	Time-specific offers	The system should make it easy for users to access time-specific offers
QU5	Change restaurant	The user should easily be able to change restaurant
QU6	Overview of order	The system should provide a comprehensible overview of an order

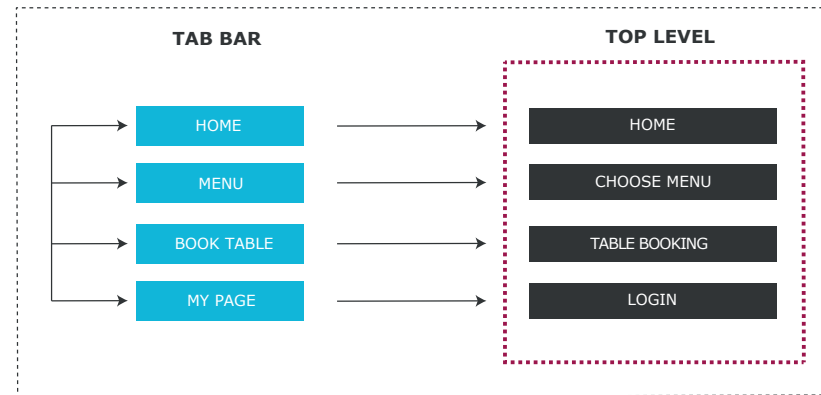
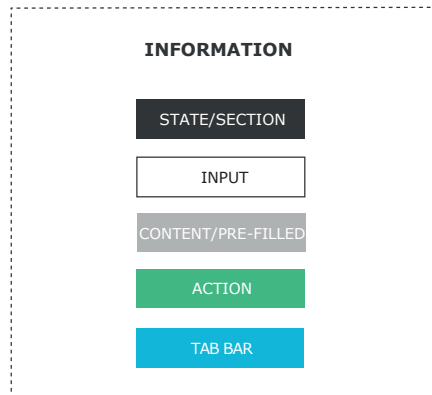
3.2 Performance

Id	Title	Description
QP1	Purchase time	The user should be able to make a purchase within 30 seconds
QP2	Member time	9 out of 10 users should be able to become a member within 90 seconds

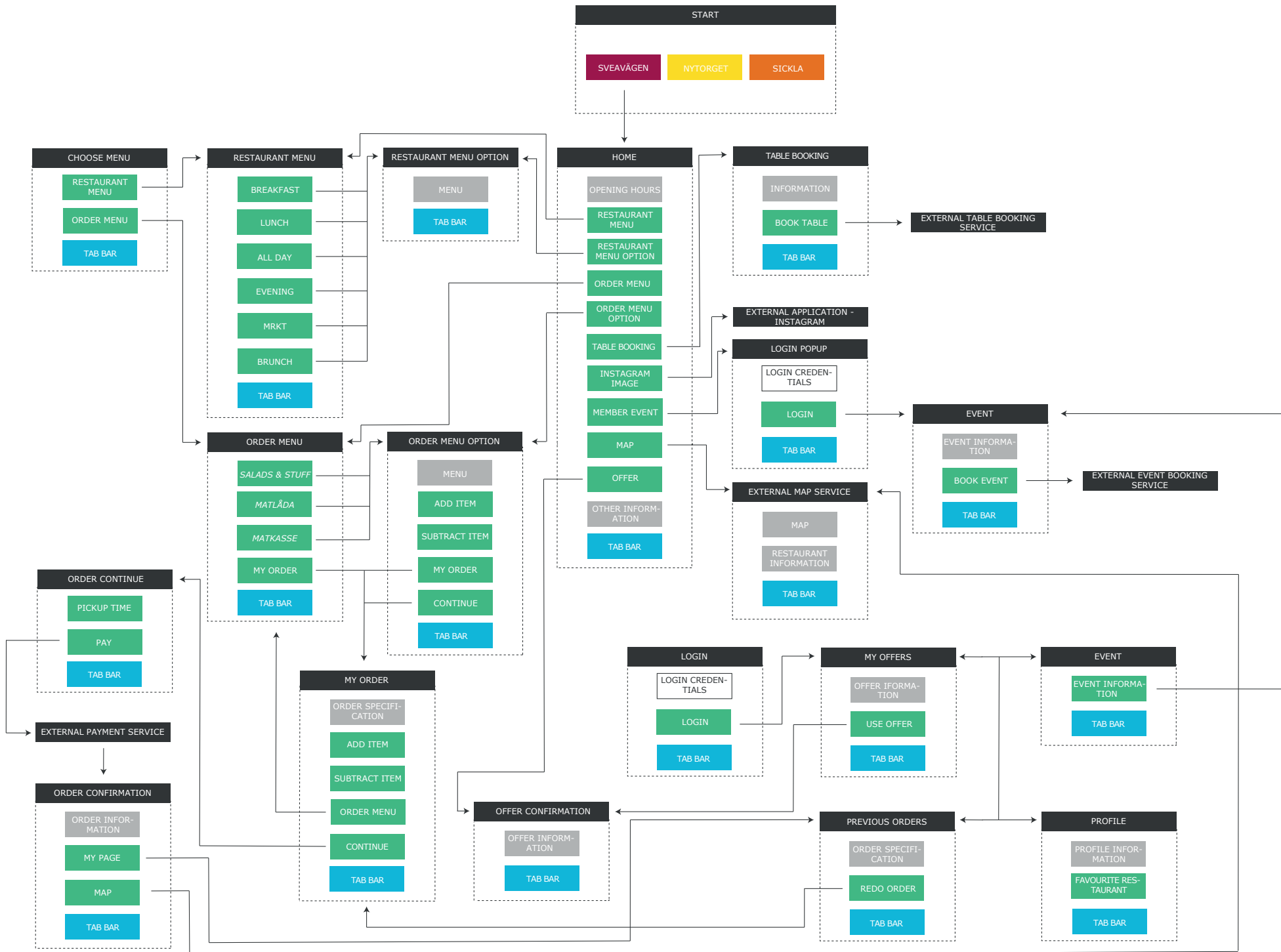
4 Application Requirements

Id	Title	Description
F1	Room service	The user should be able to order room service
F2	Premium guests	The system should make premium guests feel appreciated by giving them special treatment
F3	Premium table booking	A premium user should be able to book a table even if the restaurant is fully booked
F4	Payment	The system should provide direct payment methods
F5	Meal suggestions	The system should provide users with meal suggestions to facilitate the choice of food
F6	CMS Integration	The system should be integrated with the CMS of Urban Deli to avoid double maintenance
F7	Payment integration	The system should be integrated with the payment system of Urban Deli
F8	Booking integration	The system should be integrated with the booking systems of Urban Deli (tables, events)
F9	Last minute deals	The system should offer the users "last-minute-deals" when extra capacity is available (rooms, tables, fresh produce)
F10	View table booking	The user should be able to view its booking of a table
F11	Table notification	The system should notify guests who are waiting on a table when the table is ready

C Flow Chart



From the top level, the start screen is always accessible.



D Usability Testing

D.1 Low-fidelity Test document

1 Purpose

A number of sketches have been created to portray the overall design of some key features of the prototype. In this test will each test person be shown one or two sketches and asked to share its thoughts after hearing a scenario of how the sketches would be used. The test person is intended to give feedback and help us make good key design decisions early on in the process.

2 Selection of Subjects

The test will be conducted on smartphone users and the number of subjects is six. The preferred choice of operating system (iOS and Android) is equally divided through the participants.

3 Test environment and equipment

The tests should be conducted at home and at the office and the required equipment is the created sketches.

4 Orientation Script

We are two students who conduct our Master's Thesis in Interaction Design at Lund University. The work includes the development of a prototype of an application for the restaurant Urban Deli. With the application you should be able to order food and book a table. You will be shown a few sketches and we will tell you a scenario for each sketch that we would like you to reflect on.

5 Sketches and scenarios

5.1 Sketch 1 - Division of eating in restaurant and ordering take away

5.1.1 Description

Tests if the users want a clear division between eating in the restaurant and ordering take away next after the start screen (screen 2). Otherwise they will do the choice when at the restaurant home screen (screen 3).

5.1.2 Scenario

If you choose a restaurant at the start screen, would you then like to have the decision if you should order food or see the menu as seen in screen 2 or jump directly to screen 3 and make the decision there later? Screen 2 forces you to make an early decision and screen 3 inspires you to do the choice when exploring the home screen of the prototype.

5.2 Sketch 2 - Flow concept

5.2.1 Description

Tests what users think about the concept of a flow on the home screen.

5.2.2 Scenario

What do you think of using a flow on different screens in the prototype like this one on the home screen of the restaurant?

5.3 Sketch 3 & 4 - Tab bar or hamburger menu

5.3.1 Description

Test to compare two different menu options, one with a visible tab bar and one with a top “hamburger” menu.

5.3.2 Scenario

There are different kinds of menus to use in an application. In sketch 3 you can see a tab bar and in sketch 4 a hamburger menu. Explore the different menus and explain which menu option you would prefer and why.

5.4 Sketch 5 - Position of tab bar

5.4.1 Description

Tests if there is any difference between iOS and Android users regarding the position of the tab bar (top or bottom). If there is a remarkable difference, the prototype will be developed as a hybrid application and otherwise as a hi-fi prototype using only one operating system. In the two operating systems iOS and Android, the standard location on the screen for a tab bar differ. For iOS it is at the bottom of the screen whereas for Android it is at the top. iOS users will be shown the Android-standard first and vice versa to be able to see if there is any difference between the users.

5.4.2 Scenario

A tab bar can be placed at different positions of a mobile screen. You will be shown two screens one at a time and then I would like you to explain which menu position you prefer and why.

D.2 Medium-fidelity Test plan iteration 1

1 Purpose

We want to evaluate features and design concepts of the mid-fi prototype.

2 Implementation

1. Short presentation of us and of the test.
2. Pre-questions to find out the test subject's background.
3. The test subject is introduced to different scenarios that it will solve.
4. Debriefing session in the form of an interview in which the subject must reflect on the performed tasks.

3 Selection of subjects

The test shall be performed on smartphone users. The number of subjects to be tested is ten.

4 Test environment/equipment

The tests should be conducted at home and at the office and the required equipment is an iPhone.

D.3 Medium-fidelity Test material iteration 1

1 Orientation Script

We are two students who conduct our Master's Thesis in Interaction Design at Lund University. The work includes the development of a prototype of an application for the restaurant Urban Deli in Stockholm. With the application you should be able to order food and book a table. In order to get as good a result as possible, we do a survey where users can test the application. The test will include a number of tasks that you should try to solve. Please try to tell out loud what you are thinking during the test.

2 Pre-questions

1. How often do you eat out?
 - (a) Never.
 - (b) 1-3 times per week.
 - (c) 4-6 times per week.
 - (d) 7 or more times per week.
2. Have you ever used an application for ordering food?
 - (a) Yes.
Which one and how do you think it worked?
 - (b) No.
Would you be up to give it a try?
3. Would you consider paying for food in an application to avoid standing in line at the restaurant and thereby save time?
4. Would you want to use an application to get offers on food and drinks?

3 Scenarios

1. You would like to know what's for breakfast at Sveavägen.
2. You are having dinner at Sveavägen tonight and would like to know what they offer.
3. You would like to book a table for lunch tomorrow at Sveavägen.
4. You would like to order the dish "Kronkotlett" at Sveavägen to take home for dinner.
5. You change your mind and want to delete the dish you just ordered.
6. You are not sure what food you fancy today so you would like to know what personal offers you have.
7. You would like to know what the restaurant in Sickla has on their menu.

4 Debriefing

1. What did you think of the test?
2. Was anything particularly hard to understand?
3. What did you like the most about the application?
4. Would you consider using this application to be able to order food fast?
5. Did you like the design?

D.4 Medium-fidelity Test plan iteration 2

1 Purpose

We want to evaluate the final features and design concepts of the mid-fi prototype.

2 Implementation

1. Short presentation of us and of the test.
2. Pre-questions to find out the test subject's background.
3. The test subject is introduced to different scenarios that it will solve.
4. Debriefing session in the form of an interview in which the subject must reflect on the performed tasks.

3 Selection of subjects

The test shall be performed on smartphone users. The number of subjects to be tested is five.

4 Test environment/equipment

The tests should be conducted at home and at the office and the required equipment is an iPhone.

D.5 Medium-fidelity Test material iteration 2

1 Orientation Script

We are two students who conduct our Master's Thesis in Interaction Design at Lund University. The work includes the development of a prototype of an application for the restaurant Urban Deli in Stockholm. With the application you should be able to order food and book a table. In order to get as good a result as possible, we do a survey where users can test the application. The test will include a number of tasks that you should try to solve. Please try to tell out loud what you are thinking during the test.

2 Pre-questions

1. How often do you eat out?
 - (a) Never.
 - (b) 1-3 times per week.
 - (c) 4-6 times per week.
 - (d) 7 or more times per week.
2. Have you ever used an application for ordering food?
 - (a) Yes.
Which one and how do you think it worked?
 - (b) No.
Would you be up to give it a try?
3. Would you consider paying for food in an application to avoid standing in line at the restaurant and thereby save time?
4. Would you want to use an application to get offers on food and drinks?

3 Scenarios

1. You would like to know what's for breakfast at Sveavägen.
2. You are having dinner at Sveavägen tonight and would like to know what they offer.
3. You would like to book a table for lunch tomorrow at Sveavägen.
4. You would like to order the dish "Kronkotlett" at Sveavägen to take home for dinner.
5. You change your mind and want to delete the dish you just ordered.
6. You are not sure what food you fancy today so you would like to know what personal offers you have.
7. You would like to know where the restaurant Sveavägen is located.

8. You would like to know what the restaurant in Sickla has on their menu.

4 Debriefing

1. What did you think of the test?
2. Was anything particularly hard to understand?
3. What did you like the most about the application?
4. Would you consider using this application to be able to order food fast?
5. Did you like the design?

D.6 High-fidelity Test plan

1 Purpose

With an ever so increasing use of smart phones when performing simple tasks, the restaurant industry is forced to keep up with the pace in order to keep their customers. The purpose of this survey is to investigate how users interact with the interface and how intuitive the different concepts and functions of the prototype are.

2 Research questions

Table 1 shows a complete list of research questions to be answered in the test sessions. In order to obtain data of various nature (subjective/objective and qualitative/quantitative), we will use a number of different techniques. During the test session, the test person (hereafter TP) will be observed in order to identify insecurities or other hesitating signals. The video recording will be reviewed after the test, to check and compare the response times for the TPs. In addition, the test will include a debriefing session consisting of two methods, a questionnaire and an interview.

Table 1: Research questions

Question	Category	Data
1. How well does a user understand which elements on the screen are possible to interact with?	Objective/quantitative	Post-test questionnaire/interview and observation
2. Can a user return to the home screen without assistance?	Objective/quantitative	Observation
3. Can a user make an order without assistance? If yes, how quickly?	Objective and subjective/qualitative and quantitative	Post-test interview and observation
4. How well does a user understand the concept of the bottom tab bar?	Subjective/qualitative	Post-test questionnaire/interview and observation
5. Does a user understand the difference between restaurant and order menu?	Subjective/qualitative	Post-test interview and observation
6. How closely does the flow of the prototype reflect how the user think of the work flow?	Subjective/qualitative	Post-test questionnaire/interview
7. Are there any usability flaws that prevent a user from completing the most common tasks?	Objective/quantitative	Post-test questionnaire/interview and observation

3 Participant characteristics

The test will be conducted on 5-6 participants. The previous technical skills of the TPs should vary from moderate to good, however all people should be fairly comfortable using a mobile application.

4 Method

The whole test, from start to finish, should not take more than 60 minutes (see table 2). Each TP will be welcomed to the usability lab and asked to sit at a certain place where cameras and microphones have been previously positioned. The test moderator will be together with the TP throughout the whole test, while the observer will sit in the control room. The test consists of three different sections; *briefing*, *tasks* and *debriefing*. These sections are further explained below.

The test will be of type *Within-Subjects Design* meaning that *all* TPs will perform *all* tasks. With this approach there is a risk of transfer of learning. In order to mitigate the effects of transfer of learning, we have designed our tasks to be as independent of each other as possible.

4.1 Briefing

The briefing part begins with the test moderator holding a short introduction to the test, providing some background information as well as briefly describing the test. Thereafter a number of short background-questions (see section 1.2 in Test Material) will be asked, primarily to get a better understanding of the previous experience of using similar restaurant applications of the TP. Before beginning with the tasks, the TP will have the opportunity to ask questions to the test moderator.

4.2 Tasks

This section begins with the test moderator giving a short introduction to the context. Thereafter the test moderator will read each scenario out loud and ask the TP to perform the task. If needed, the TP will be able to also read the scenario from a paper. If the TP gets stuck for a long period of time or has difficulties performing a task, the test moderator will provide a clue. In these situations, the TP will be reminded to "think aloud" to better understand their thoughts during the execution.

4.3 Debriefing

The debriefing session consists of two parts; a short SUS (System Usability Scale) questionnaire (see section 1.4 in Test Material) and complementary in-

interview questions (see section 1.5 in Test Material). The TP will also get the opportunity to ask questions and give other thoughts about the test.

Table 2: Method

Section	Subsection	Material	Max time
Briefing	Greet and orient TP. Background information. Forms.	Orientation Script. Background interview questions. Recording consent form.	6 min
Tasks	Work through scenarios with TP.	Scenario descriptions.	27 min
Debriefing	TP fills in the post-test questionnaire. Complementary interview questions.	Post-test questionnaire. Post-test interview questions.	15 min
Total:			48 min

5 Task list

The test consists of a number of tasks (see table 3) which will simulate common use cases of the prototype. To get a realistic sense, we will describe a number of different scenarios that should be performed by the TP. The scenarios will be of varying type and complexity.

All tasks are performed on the provided phone and states of the application will not be considered.

6 Test environment and equipment

The tests will be conducted in a controlled setting. They will take place at a usability lab at Lund University. This simulates the environment of the primary user (i.e. office). The lab consists of the actual testing room as well as an observation room hidden behind a one-way mirror.

The lab is equipped with several cameras and microphones. TP will use an iPhone running the prototype through a MacBook Pro. There will be one camera capturing the TPs face and one recording what is happening on the screen. The microphone will be placed on the table in front of TP to complement the video recordings.

7 Test moderator role

Throughout the whole test, the test moderator will sit in the room together with the TP. The test moderator will introduce the project, conduct a short background interview and present the scenarios. During the test session, the

Table 3: Task list

Description	Successful Completion Criteria	Max time
1. Find the Salads & Stuff menu.	TP reaches the Salads & Stuff menu.	2 min.
2. Find personal offers.	TP reaches 'My offers' screen.	3 min.
3. Place an order for a salad and pay for it.	TP adds a salad to 'my order' and continues to the payment confirmation screen.	4 min.
4. Find the location of restaurant at Sveavägen.	TP reaches Map screen.	2 min.
5. Find the order placed on May 4th.	TP reaches 'Latest orders' screen and chooses May 4th.	4 min.
6. Find the opening hours for restaurant at Nytorget.	TP reaches Nytorget home screen.	3 min.
7. Find the evening menu.	TP reaches the evening menu.	2 min.
8. Book a table.	TP reaches table booking confirmation screen.	1 min.
9. Join the event 'Kosläpp'.	TP reaches event confirmation screen.	3 min.
10. Make restaurant at Sveavägen your favorite.	TP presses the toggle at 'Profile' screen.	3 min.
Total:		27 min.

test moderator will carefully study the behavior of the TP. If needed, the test moderator will give tips to the TP. After completing the scenarios, the test moderator will conduct an interview as well as provide the TP with a post-test questionnaire.

8 Data to be collected and evaluation measures

During the test session, data of different types will be collected. Performance (objective) data and preference (subjective) data. The measures to obtain the data is described below.

8.1 Performance data

The performance data will mainly be collected through review of the video recording. Quantitative results will be collected through the post-test questionnaire which will generate a system usability scale (SUS) score which can be analyzed and compared between the TPs.

- Percentage of tasks completed correctly without assistance from test moderator.
- Time to complete each task.
- Percentage of tasks completed incorrectly (non-critical errors).
- Count of incorrect icon selection.

8.2 Preference data

The preference data will mainly be collected in the post-test interview where open questions will be asked which gives the TP opportunity to freely elaborate over the subject. During the test session, the TP will also be encouraged to think aloud which will generate useful information. Observations during the test will also contribute to the preference data collecting.

- Ease of use overall.
- How well product matched the TP's previous experience with similar products.
- Ease of accessibility.
- Ease of learning during tasks.

D.7 High-fidelity Test material

1 Orientation script

Described below is the introduction which will be read to each test person (TP) before performing the scenarios.

Thank you for agreeing to participate in our test. My name is Aleksandar/Hanna and I will be here together with you throughout the entire test session. Along with my partner Hanna/Aleksandar, I am developing a prototype of an application for a restaurant in Stockholm. We need your opinion to be able to develop the best product possible.

During the test session, I will ask you to perform different tasks in the application on the phone and observe how you interact with it. Use the application as you would normally.

Please try to think aloud while you're working and describe what is going through your mind. Note that there is no such thing as a wrong question or answer and that we are not testing you but rather how well the functions of the application can be used.

The whole test session will take about 60 minutes.

Since the test session will be video recorded we would need your recording consent. The material will only be used by us developing the application and potential results will be presented anonymously.

Do you have any questions before we begin?

2 Background interview

1. How often do you eat out?
 - (a) Never.
 - (b) 1-3 times/week.
 - (c) 4-6 times/week.
 - (d) 7 or more times/week.
2. Have you ever used an application for ordering food?
 - (a) Yes.
Which one/ones?
 - (b) No.
3. Have you ever used an application for receiving offers on food?
 - (a) Yes.
Which one/ones?
 - (b) No.

3 Scenarios

Below is a short introductory description of the context and then a list of the scenarios which will be performed by each TP.

You have just downloaded the Urban Deli application and would like to give it a try. Since you have heard so much about the restaurant at Sveavägen, you choose Sveavägen and continue.

1. You feel hungry for salad for lunch and would like to know what's on the order menu *Salads & Stuff*.
2. The salads seem interesting, but before you decide what to eat, you'd like to see if you have any personal offers.
3. You have now checked your offers but decide that you want a chicken salad. Add a chicken salad to your order and pay for it.
4. You are not sure where the restaurant at Sveavägen is located and would like to find a map of the area.
5. Once inside the restaurant, the cashier asks for your confirmation number. Show him this.
6. It is now evening and you realize that you don't have anything for dinner at home. Since the restaurant at Nytorget is close by you want to check their opening hours.
7. Since Nytorget is closed for renovation, you choose Sveavägen instead and check what's on the evening menu.
8. You find a lot of things you like so you decide to book a table there.
9. Once inside the restaurant, the waiter tells you about the event "Kosläpp" that they will hold this Friday where all members are free to join. You open the application and sign up for the event.
10. You are so happy with the service at Sveavägen that you realize that you'll probably only eat here the upcoming couple of weeks. Therefore you'd like to make Urban Deli Sveavägen your favorite restaurant.

4 Post-test questionnaire

https://docs.google.com/forms/d/1pCQ9qq5M622RVzrMbK3ADDeTPZ_c6UA14hUSg5R1RLA/edit?usp=drive_web

5 Post-test interview

Below is a list of questions that will be posted to TP after the post-test questionnaire is completed. Depending on the answers of the TP, follow-up questions will be posted.

1. So, what did you think of the application?
2. What did you think was good/bad with the application respectively?
3. Which parts of the test did you find easy/difficult respectively?

After these general questions, the test moderator may ask more specific questions. In this section, individual scenarios where TP made an error or had problems completing the task, can be reviewed. For instance, the test moderator may ask TP why he/she acted in a certain way and further elaborate depending on the answer of the TP.

D.8 Post-test questionnaire

Evaluation - Urban Deli

For every item below, mark the alternative that best describes your experience with the Urban Deli application.

1. I think that I would use this application frequently.

Markera endast en oval.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

2. I found the application unnecessarily complex.

Markera endast en oval.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

3. I thought the application was easy to use.

Markera endast en oval.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

4. I think I would need the support of a technical person to be able to use this application.

Markera endast en oval.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

5. I found the various functions in this application were well integrated.

Markera endast en oval.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

6. I think there was too much inconsistency in this application.

Markera endast en oval.

1 2 3 4 5

Strongly disagree Strongly agree

7. I would imagine that most people would learn to use this application very quickly.

Markera endast en oval.

1 2 3 4 5

Strongly disagree Strongly agree

8. I found the application very cumbersome to use.

Markera endast en oval.

1 2 3 4 5

Strongly disagree Strongly agree

9. I felt very confident using the application.

Markera endast en oval.

1 2 3 4 5

Strongly disagree Strongly agree

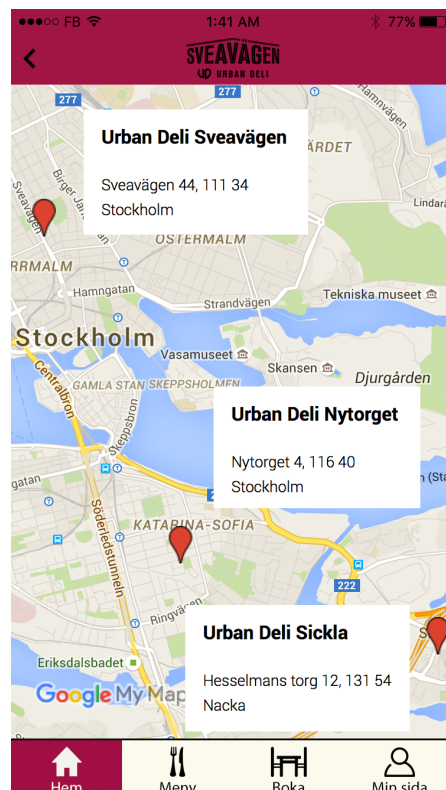
10. I needed to learn a lot of things before I could get going with this application.

Markera endast en oval.

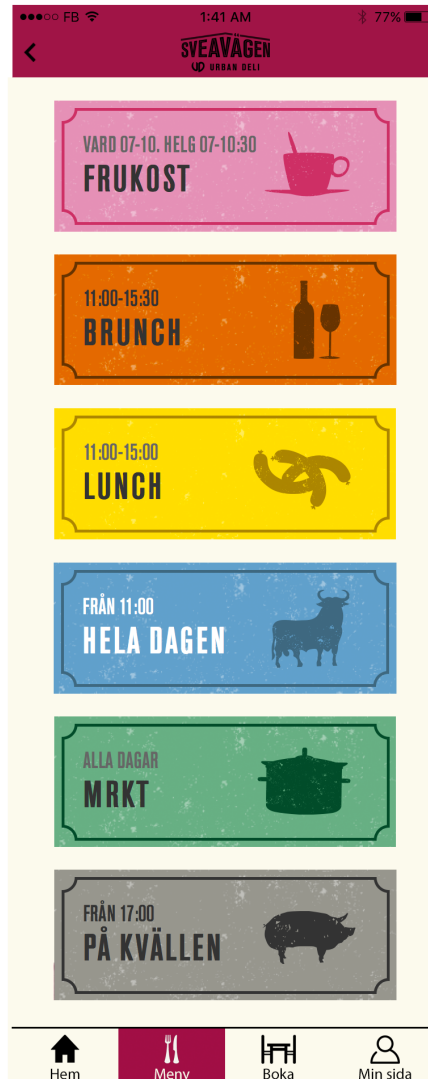
1 2 3 4 5

Strongly disagree Strongly agree

E High-fidelity Prototype screens









LUNCH	
MÅNDAG	
SÖTPOTATISKROKETTER	130
västerbottenost, grillad spetskål, chimichurri, limekräm, rökta mandlar <i>Sweet Potato Croquettes, Västerbotten cheese, grilled cabbage, chimichurri, lime cream, smoked almonds</i>	
FLÄSKYTTERFILE	140
potatisterrine, bönor, torkade tomater, cidervinägersås <i>Pork, potato, beans, dried tomatoes, cider vinegar sauce</i>	
TISDAG	
COQ AU VIN BLANC	140
potatis- och blomkålstomp, picklad steklök, champinjoner, rökt sidfläsk <i>Coq au vin blanc, potato and cauliflower stomp, pickled steklök, mushrooms, smoked bacon</i>	
HEMGJORD BLODPUDDING	135
äpple, bacon, rödlök, lingon, brynt smör <i>homemade black pudding, apple, bacon, red onions, lingon berries, browned butter</i>	
ONSDAG	
HALSTRAD TORSK	155
tomat, syrad gurka, risnudlar, rädisor, sojasky, forellrom <i>Grilled cod, tomato, pickled cucumber, rice noodles, radishes, soy sauce, trout roe</i>	
KYCKLINGKORV	140
mandelpotatispuré, lardo, rödvinsås, ruccola, basilika, parmesan <i>Chicken Sausage, potato puree, lardo, red wine sauce, arugula, basil, parmesan</i>	
TORS DAG	
POCHERAD LAX	140
grön ärtpuré, gurka, polkabetor, miso, bakat ägg, pepparrot 140 kr <i>Poached salmon, green pea purée, cucumber, polka beets, miso, baked eggs, horseradish</i>	
UD'S ÄRTSOPPA	115

FREDAG	
BANKAD BIFF	160
tomatsallad, ruccola, lökkräm, ugnsbakad potatis, rostad vitlökssky, friterad persilja <i>Beaten steak, tomato salad, arugula, lökkräm, baked potatoes, roasted garlic, fried parsley</i>	
FALAFEL	125
tabbouleh, harissa-yoghurt, koriander, picklad chilli, sotat bröd <i>Falafel, tabbouleh, harissa yogurt, cilantro, pickled chiles, toasted bread</i>	
SPENAT- OCH FETAOSTLASAGNE	130
inlagd zucchini, kalamata oliver, ruccola, kronärtskockor, solrosfrö <i>Spinach and feta lasagna, pickled zucchini, kalamata olives, arugula, artichokes, sunflower seed</i>	
CHILISOTAD LAX	145
råris, groddar, spenat, ägg, asiatisk ketchup <i>Chillisotad salmon, brown rice, sprouts, spinach, eggs, ketchup Asian</i>	
1/2 ASIATISK RÅBIFF MED POMMES	135
koreansk senap, koriander, sesamfrön, salladslök, rädisor, gari <i>asian steak tartar, korean mustard, cilantro, sesame seed, scallions, radish, gari</i>	
RÄKSALLAD	185
Urban deli's räksallad <i>Shrimp salad</i>	
UD'S KORV MED BRÖD	205
chimichurrikorv, kimchi, surkål, gremoulata, rostad lök, pommes frites <i>chimichurri sausage, kimchi, sauerkraut, gremoulata, roasted onion, french fries</i>	
FISKGRYTA	185
Krutonger, musslor, dill <i>Fish casserole, clams, croutons, dill</i>	



Hem



Meny



Boka



Min sida

1:41 AM 77%

HELA DAGEN

SKALDJURSDISKEN

RÄKOR 105/195
aioli, citron
Prawns, aioli, lemon

RÖKTA RÄKOR 105/155
aioli, citron
Prawns, aioli, lemon

KOKT KRABBA 155/265
senapsmajonnäs, citron
Fresh crab, mustard mayonnaise, lemon

KOKT HUMMER 225/355
cocktailsås, citron
Fresh lobster, cocktail sauce, lemon

SKALDJURSPATEAU

URBAN DELI 595
2 ostron, 1 näve räkor, 1 näve rökt räkor, 1/2 krabba, 1/2 hummer, 100g Kalixlörrom, aioli, cocktailsås, senapsmajonnäs, citron
2 oysters, 1 handful of prawns, 1 handful of smoked prawns, 1/2 crab, 1/2 lobster, aioli, cocktail sauce, mustard mayo

LYX 1395
6 ostron, 2 nävar räkor, 2 nävar rökt räkor, 1 krabba, 1 hummer, 100g Kalixlörrom, aioli, cocktailsås, senapsmajonnäs, citron
6 oyster, 2 handful of prawns, 2 handful of smoked prawns, 1 crab, 1 lobster, 100g Kalix bleak roe

OSTRON

FINE DE NORMANDIE N.4 22
citron, hot sauce, lökvinaigrette

UTAH BEACH N.3 30
citron, hot sauce, lökvinaigrette

GILLAREAU N.3 40
citron, hot sauce, lökvinaigrette

OSTRONMIX (6 ST OSTRON AV DAGENS URVAL) 155
citron, hot sauce, lökvinaigrette

12 OSTRON 240
citron, hot sauce, lökvinaigrette

FRÅN CHARKDISKEN

CHARKBRICKA 145/265/490
dagens urval från charkdisken med tillbehör
Charcuteries from our deli with condiments

VEGETARISK ANITPASTI 110
dagens urval
Antipasti with veggies

DELI DELUXE 550
perfekt start för 4 pers
A perfect start for a groupe of 4

IBERICO PURO DE BELLOTTA 40 G 165
spaniens bästa skinka (enligt oss)
Spain's best ham (according to us)

BUFFELMOZZARELLA 130
balsamico invecchiato från Nonna Carlotta, olivolja
Balsamico invecchiato från Nonna Carlotta, olive oil

balsamico invecchiato från Nonna Carlotta, olivolja
Balsamico invecchiato från Nonna Carlotta, olive oil

COPPA PARMA ANTICO 50 G 80
bröd, olivolja
Bread, olive oil

CLASSICS

FISKGRYTA 215
räkor, gremoulata, parmesan, aioli
Fish casserole, shrimps, gremoulata, parmesan, aioli

UD'S KORV 205
chimichurrikorv, kimchi, surkål, gremoulata, rostad lök, pommes frites
chimichurri sausage, kimchi, sauerkraut, gremoulata, roasted onion, french fries

RÅBIFF 125/235
djonnais, syrad grädd, kryddkrasse, lökvariation, potatiskrisp
steak tartar, djonnais, sour cream, cress, variation of onion, crispy potatoe

ASIATISK RÅBIFF 125/235
koreansk senap, koriander, sesamfrö, salladslök, rädisor, gari (hel med pommes)
asian steak tartar, korean mustard, cilantro, sesame seed, scallions, radish, gari

TILLBEHÖR

TOMATSALLAD 55
syrad lök, olivolja, persilja
Tomato salad, pickled onions, olive oil, parsley

GRÖNSALLAD 45
misodressing
Green salad, miso dressing

POMMES 55
Fries

FRÅN OSTDISKEN

OSTBRICKA 115/210/390
dagens urval från ostdisken med tillbehör
Cheeses from our deli with condiments

NÅGOT SÖTT

CRÈME BRÛLÉE 55
You know this one

GLASS/SORBET 55
Icecream/Sorbet

TRYFFEL 35
Truffle

KIDS

FISKGRYTA 65
räkor, musslor, aioli, dill
Fishpot, shrimps, mussels, aioli, dill

KÖTTBULLAR 65
potatispuré, gräddsås, lingon
swedish meatballs, potatoepuré, cream sauce, lingonberries.

CHICKEN BITS 65
pommes frites, sean connerly-dip, sallad
chicken bits, french fries, sean connerly-dip, salad

Hem Meny Boka Min sida



FB 1:41 AM 77%

SVEAVÄGEN
URBAN DELI

PÅ KVÄLLEN

KVÄLLENS

KÖTTPLATÅ 595/2 PERSONER

kvälens utbud från saluhallen, grillad blomkål & gemsallad, rödvinssky med oxmärg, tryffel- & dragonmajonnäs, pommes
a variation of meat for 2 people. With grilled cauliflower and gem lettuce, red wine sauce with marrow, truffle & tarragon mayonnaise

HÄNGMÖRAT (DAGENS UTBUD) DAGSPRIS

grillad blomkål & gemsallad, rödvinssky med oxmärg, tryffel- & dragonmajonnäs, pommes
cured beef (selection of the day) with grilled cauliflower and gem lettuce, red wine sauce with marrow, truffle & tarragon mayonnaise

STARTERS

KALIXLÖJROM 155

smördeg, krassekräm, äpple, fänkål, västerbottenkrisp, citronvinaigrette
bleak roe, puff pastry, watercress cream, apple, fennel, Västerbotten crisp, lemon vinaigrette

OXCARPACCIO 135

parmesanemulsion, bakade tomater, sotade lökar, picklad kapris, kavringkrisp
parmesan, baked tomatoes, onions, pickled capers, bread crisp

GRILLAT MÄRGBEN 95

citrongelé, panko, rökt sidfläsk, picklad steklök, ruccola, surdegsbröd
grilled marrowbone, lemon jelly, bacon, pickled onion, rocket salad, bread

VARMRÄTTER

ENTRECÔTE 365

ursprung Sverige

KRONKOTLETT 245

Från Sverige
Pork Chop from Sweden

SOTAD TONFISK 295

grillad gurka, spetskål, kålrabbi, grön tomat
blackened tuna, grilled cucumber, cabbage, kohlrabi, green tomato

alla varmrätter ovan serveras med tryffel- & dragonmajonnäs, gemsallad, pommes, citron

SMÖRSTEK ANKA 285

rostad vitlökspuré, grönkål, svartrot, morot, maderiaskv

maderiaskv
butter fried duck, roasted garlic puré, kale, salsify, carrot, madeira sauce

SKREITORSK 295

citronconfit, dillemulsion, rökt algsmör, gravad äggula, bacon
cod, lemon confit, dill emulsion, smoked butter, yolk, bacon

GRILLAD SPETSKÅL 215

bakat ägg, yoghurt - & potatisskum, kaprisdressing
grilled cabbage, baked eggs, yogurt and potato foam, caper dressing

NÅGOT SÖTT

CHOKLAD I UGN 105

nougatglass, gräddfil, hasselnötter
baked chocolate, nougat ice cream, sour cream, hazelnuts

MARÄNGSVISS (FÖR 2PERSONER) 140

salt chokladkräm, bananglass, dulce de leche, chokladmaräng, grädde, hallon
salty chocolate cream, banana ice cream, dulce de leche, chocolate meringue, cream, raspberries

HALLON & LAKRITS 85

hallonkompott, vitchokladskum, madeleinekaka, hallon- & lakritskräm, gräddfilsglass, råiven lakrits, madeleinecrumble
raspberry compote, white chocolate foam, madeleine cakes, raspberry and licorice cream, sour cream ice cream, madeleinecrumble

ÄPPLESORBET 75

bakad vaniljkräm, karamellsås, havresmulor, kardemumma
apple sorbet with vanilla ice cream, caramel sauce, oat crumbs, cardamom

SNACKS

BOQUERONES MED ZUCCHINI 55

SOBRASADA MED TOMAT OCH MANDEL 55

KORVMIX 55

PARMESANKORV 55

OLIVMIX 65

SALTA VALENCIA MANDLAR 45

Hem Meny Boka Min sida

