Analysis, design and implementation of a user friendly global advertisement engine and portal

- Analys, design och implementation utav en användarvänlig global reklammotor och portal

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Abstract

This thesis deals with the work regarding user-friendliness, design and the reprogramming of the Adengi smart advertising system. Adengi is a new revolutionizing advertisement engine that bridges the gap between companies, application programmers and end users/customers in a safe and easy way.

This report is divided into three parts:

* Test of "old" Adengi system to see what flaws can be found and where effort shall be made. This phase is also intended to find flaws and deficiencies in "old" design and give an answer to which map system is supposed to be used.

* Design and development dependent on first phase tests and requirements from Crunchfish. The aim here is also to connect the new system to the Cassandra [1] database.

* Test of "new" Adengi system to see if the requirements and intended goals are being met accordingly.

The result was a functional implementation of a map system and an acceptable user friendly design of a new web portal that behaves accordingly to requirements and criteria.

Keywords: Adengi, Crunchfish, marketing, global commercial engine, userfriendliness.

Sammanfattning

Denna rapport behandlar arbetet med att utveckla och förfina användarvänlighet, design och programmeringskod till Adengi. Adengi är en ny revolutionerande reklammotor som bryggar gapet mellan företag, applikationsprogrammerare och slutkunder på ett enkelt och säkert sätt.

Denna rapport är indelad i tre delar:

* Test utav det "gamla" Adengisystemet för att få information om var felaktigheter finns och därmed var det behövs mest utveckling och arbete. Dessutom skall denna fasen besvara frågan om vems kartsystem som skall användas, Goggles eller Microsofts.

* Design och utveckling beroende på resultaten från första fasens test och krav och önskemål från Crunchfish. Målet här är också att sammankoppla Adengi med den nya Cassandradatabasen [1].

* Test utav det "nya" systemet för att se om alla krav och mål har blivit uppfyllda.

Resultatet var en funktionell implementering utav ett kartsystem och en acceptabel design utav en webbportal som uppför sig enligt uppställda krav och kriterier.

Nyckelord: Adengi, Crunchfish, marknadsföring, global reklammotor, användarvänlighet.

Foreword

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Last but not least, the authors also wish to thank you, the reader of this report.

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1 Introduction

The era of the "smartphones" began when Apple Corporation released their iPhone. There were some attempts at making smartphones as they are today (best examples of companies that tried are Nokia and RIM (Blackberry)), but the technology was not too developed and expensive.

Apple made the smartphone available for everyday user, and suddenly the demand for such mobile phones rose tremendously worldwide.

Google realized already 2005 that handheld devices are the future and bought Android Inc. [2], a company developing Android, an operating system for handheld devices. This OS was based on a modified Linux core.

Apple released iPhone 2007 and one year later came the first phone using Android, the T-Mobile G1, also known as HTC Dream.

This started the fantastic race that is experienced today.

Because of the rise of "smartphones", new ways of marketing began to appear. Since a smartphone nowadays is common, always available and GPS coordinates are easy retrievable, this gives unique possibilities regarding smart marketing.

Smart marketing means adverts especially aimed at customers, their location and their preferences. Smart marketing means statistical data a company can use to collect information about current campaigns and how to further develop them.

The Adengi system is the new revolutionizing smart way of making accurate marketing aimed at your customers.

1.1 Background

1.1.1 Adengi
Adengi, a system for bridging information between consumer and advertiser exists today in a very crude beta-stadium. This will be further developed to exchange information on a much more efficient and measurable way between Adengi, advertising companies, developers and end-users. For more in-depth information about the Adengi system, please see section 4.1.

1.1.2 Crunchfish

Crunchfish AB is a company founded by Paul Cronholm and is currently based in Malmö, Sweden. Crunchfish has a second development office in Helsingborg and offices of commerce in Stockholm, London and India.

Crunchfish develops mobile solutions for iPhone, Android, Symbian and Windows Mobile and also have solutions that are cloud-based. The company is very passionate about mobile device innovation, focusing on the user experience. They have launched more than 30 applications for the iPhone- and Android market.

Crunchfish has collaborations with companies such as Microsoft and PopCatcher. They also have cooperation with people and companies through joint ventures.

1.1.3 Database

Adengi uses MySQL as a database management system. MySQL has to be replaced with Cassandra [1]. MySQL is by far the most used database in the world. It is agile, highly optimized, very fast and most important, it is completely free and the source code is freely available.

Despite these advantages, more and more developers and companies are looking for alternatives. The reason why MySQL has to be replaced with Cassandra is due to the nature of the requirements set upon the Adengi engine. MySQL is optimal when you for instance have a system where all requests are being made to one server. If the system has several servers with need to share information and make requests to each other, problems are inevitable. MySQL is not created to handle multiple database servers efficiently. If three MySQL-servers are depending upon each other in the system and one of them breaks down, the other two servers will not function properly. Most likely, they will also break down.

Cassandra was created to handle large amounts of data across many servers and at the same time providing no single point of failure.
If a system has three servers and one of them breaks down or crashes, the other two servers can manage all requests, be it retrieval or saving of information, to the erroneous server until it has been repaired by technicians.

Once the erroneous server is functional, the two servers are automatically starting to transfer all the data to the now functional server, thus making it appear as if no interrupt happened.

This is why Cassandra is a necessity for Adengi. The main idea with the Adengi system is that it is supposed to be a global advertising engine. Developers and customers around the world are going to make several

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hundreds of requests every second. Only having servers in a narrow geographic vicinity will not be optimal because future customers are going to have their own specific needs and requirements. This will require adaptation and an agile system.

The authors of this bachelor thesis did not implement a database solution, but cooperated with another group responsible for implementation and translation between the initial database for Adengi and Cassandra. Thus, there was a finished product to be used in this project. The only necessary coding regarding this thesis and the Cassandra database proved to be making simple connections and calls to retrieve or send information to the Cassandra database system.

1.2 Project scope

1.2.1 Goal
The intention is to completely redesign the current Adengi system and web portal. This will include a functional prototype of a new user friendly web based interface.

Since the portal will aim at restaurants, shops and other traders, it shall be easy to use the interface to update information like opening hours, offers, positions and descriptions.

The portal will communicate with a database using Apache Cassandra and to create the complete website, languages like Java, HTML, PHP, JavaScript, JSON, CSS and XML will be used.

1.2.2 Limitations
The greatest limitation is the fact of not having enough time to complete the web portal. Effort will be made at creating a basic and functional prototype for the next programmers and developers to work on.

Therefore, a great part of the portal will not be finished. The parts not implemented are described in section 9.2.

The portal will function in the following browsers.

- Microsoft Internet Explorer (IE) 7.0 and later (for Windows)
- Firefox 3.6 and later (for Windows, Mac and Linux)
- Safari 3.1 and later (for Mac and Windows)
- Google Chrome 11.0.696.71 (for Windows and Mac)

The chances are high for compatibility with other browsers, but the authors only guarantee functionality with the above mentioned browsers.

2 Work method

2.1 Prestudy and phases

Work is divided into four different steps, the prestudy, phase one, two and three. The phases are dependent upon the prestudy, phase three is dependent upon phase one and two. However, first and second phase can be done separately.

Current knowledge and experience from programming languages means it is only necessary to do prestudies on PHP, JS, JSON, XML and gain some understanding of Cassandra.

Prestudy will mostly consist of reading about the different languages on the Internet and making exercises to get to know the basics of the languages. It also consists of studying different test methods.

First phase will be both an analysis phase and a development phase of two different virtual maps. This analysis will answer which virtual map is supposed to be integrated with the Adengi system.

Depending on the choice, intention is to develop a full map with all the functionality that Adengi requires.

Second phase will consist of design of a user friendly interface for the web portal. This includes creation of an appealing color scheme, designing an easy to look at logo, texts, background etc. Design will be possible to implement in phase three.

In the third and final phase, the authors will start implementation of the functions around the design. This means creating the design of buttons, text fields, maps etc. respond to a user clicking on them and making all the database queries.

Usability is the main goal and this is where programming and design will become challenging.

Testing of the original Adengi website will occur to receive input about

difficulties and flaws.

Some form of small testing will occur in the end. For this cause, hallway testing and expert review is required. For more information about the performed test, please see section 8.

2.2 Time plan

Veckonummer / week number: Kalendervecka / Calendar week: År/Year:2011	1 / 11	2 / 12	3 / 13	4 / 14	5 / 15	6 / 16	7 / 17	8 / 18	9 / 19	10 / 20	11 / 21	12 / 22	13 / 23	14 / 24	15 / 25
Planering av arbete / Planning of work disposition	▓														
Litteratur - Dokumentationssökning / Literature - Documentation research		▓	▓												
Förberedelser / förstudier / Preparations / prestudies			▓	▓											
Fas 1 / Phase 1				▓	▓										
Fas 2 / Phase 2						▓	▓	▓							
Fas 3 / Phase 3								▓	▓	▓	▓				
Rapportskrivning / Report writing			▓	▓					▓	▓	▓	▓			
Förberedelser inför presentation / Preparations for presentation													▓	▓	
Rapportering till handledare / Informing the tutor			▓		▓		▓				▓			▓	▓
Rapportering till examinator / Informing the examiner							▓						▓	▓	

2.3 Source evaluation

The authors chose deliberately to try and find the most relevant source from the creators. For instance, Silverlight has been created by Microsoft, thus the

website of Microsoft should naturally have the most relevant and updated information about Silverlight.

Most of the sources for this thesis have been acquired on this method. The authors also tried hard to find the actual persons who programmed or wrote the article. This was troublesome and not always possible.

Another problem the authors encountered was finding a source at all, as was the case with the Waterfall model. The first person to use something similar of what now is called the Waterfall model [3], was Herbert D. Bennington. In this case, the only book to be found about the subject was from 1956 and not available in any libraries in Sweden.

2.4 Development methodology

The authors chose the "Waterfall model" [3] since this model is the most used and, despite efforts to try and use other models, always end up using the Waterfall model. This is clear once the model have been evaluated in the end. The authors did not use a strict Waterfall model because the need arose for minor modifications of the Adengi system after a phase was completed.

3 Adengi system

3.1 Background

Adengi is a two-way system. First part of the system concerns the developer of an application. A developer can easily implement the Adengi engine into his own application, thus making it possible to create forms of income or revenue.

The main difference between Adengi and other providers is the possibility to exactly pinpoint your preferred criteria concerning your advertising. There are possibilities to decide conditions like type of weather, predefined coordinates, specific periods of time (i.e. advert is only shown during day, night or more specific like only under lunchtime).

The possibility exists to also have special points of interest. These points of interest can be dependent upon, as every other criterion, the developers intended aim. If the developer has created an application that he knows will only be used to promote adverts specifically towards tourists, it will only be a matter of setting a variable.

Second part of the system concerns the advertising companies. The Adengi engine allows advertisers to reach their specific and potential customers in a much more precise way. According to the criteria the advertiser decides upon,

such as weather, time, position etc., the adverts can be focused and reach only the intended customers.

When an account has been setup at the Adengi homepage, the advertiser can immediately start defining a campaign.

There is another important aspect to this. As a natural cause of all the requirements for the Adengi system, it is extremely easy to obtain and access measurable statistics concerning advertisements. The statistics will be a rich resource where information can be apprehended and compared to a certain condition, thus allowing both developers and advertisers to see in real time how their adverts generate income or the lack thereof. This information is important because it gives directions for future campaigns or even hints for change of current campaigns.

3.2 Purpose

The purpose of Adengi is to simplify and bridge the gap between consumers and companies.
Whenever a developer wants to have focused adverts into his application, Adengi shall be the first option that comes in mind.
Adengi can only exist due to a special relation between Crunchfish, developers and advertisers. Without the Adengi engine, the advertisers will not have the opportunity to pinpoint their adverts with adequate accuracy. Without developers, the advertisers will not have anywhere to show their adverts thus making Adengi a product that has no reason to exist. Without advertisers there will be no reason for developers to use the Adengi engine.

Suffice to say, there is a trinity between Crunchfish, developers and advertising companies where none can exist without the others.

This naturally requires substantial effort regarding usability and a user friendly design. This to make it as simple as possible to use the Adengi engine for all involved.

3.3 Today

Adengi as a whole is today very much a beta-test only. It is quite crude, does not contain all basic functions and is user-unfriendly. One major problem is the retrieval of your password, if you have forgotten it. As it is now, this function does not exist at all.

The design and logical flow of the Adengi website does not really help a customer to understand what is possible to do and how you do it. This is partly

due to illogical icons and buttons on the Adengi website, partly due to unclear design of icons and buttons.

The map functionality is very basic and limited to setting and moving 'markers' on the map. You cannot delete a marker once you have set it on the map.

The saving function is optimal and will not need much change, except for changes due to the Cassandra database management system.

Adengi of today uses MySQL as database management systems. The necessity for a better management system quickly arose because of the need for sharing large amounts of data between several servers and at the same time provide a service that has no point of failure. For more information regarding the database, please see section 7.3

3.4 Future

The design of the Adengi website must be completely redone, from logotype to design, coloring and logical flow of the Adengi website.

It is of utmost importance to implement the basic functions like retrieval of password, saving function of markers etc. It is also important to fully implement the new Adengi engine with Cassandra, especially concerning statistics. In the future there will be a possibility to see in a timeline how the advert statistics is changing, thus giving important hints and directions for later campaigns.

Another function to be implemented is dependent upon the level of zoom. Different level requires different actions regarding markers. One such action can be that a considerable amount of markers in a an area are being clustered together and shown as one if zoom level is lowest possible, thus saving valuable processing power and memory space of the end-users handheld devices.

The Adengi engine shall also fully utilize Cassandra as database management system, making clustering of information possible and gives considerably faster processing regarding information contained within several databases. A schematic figure of the Adengi system is shown on the next page.
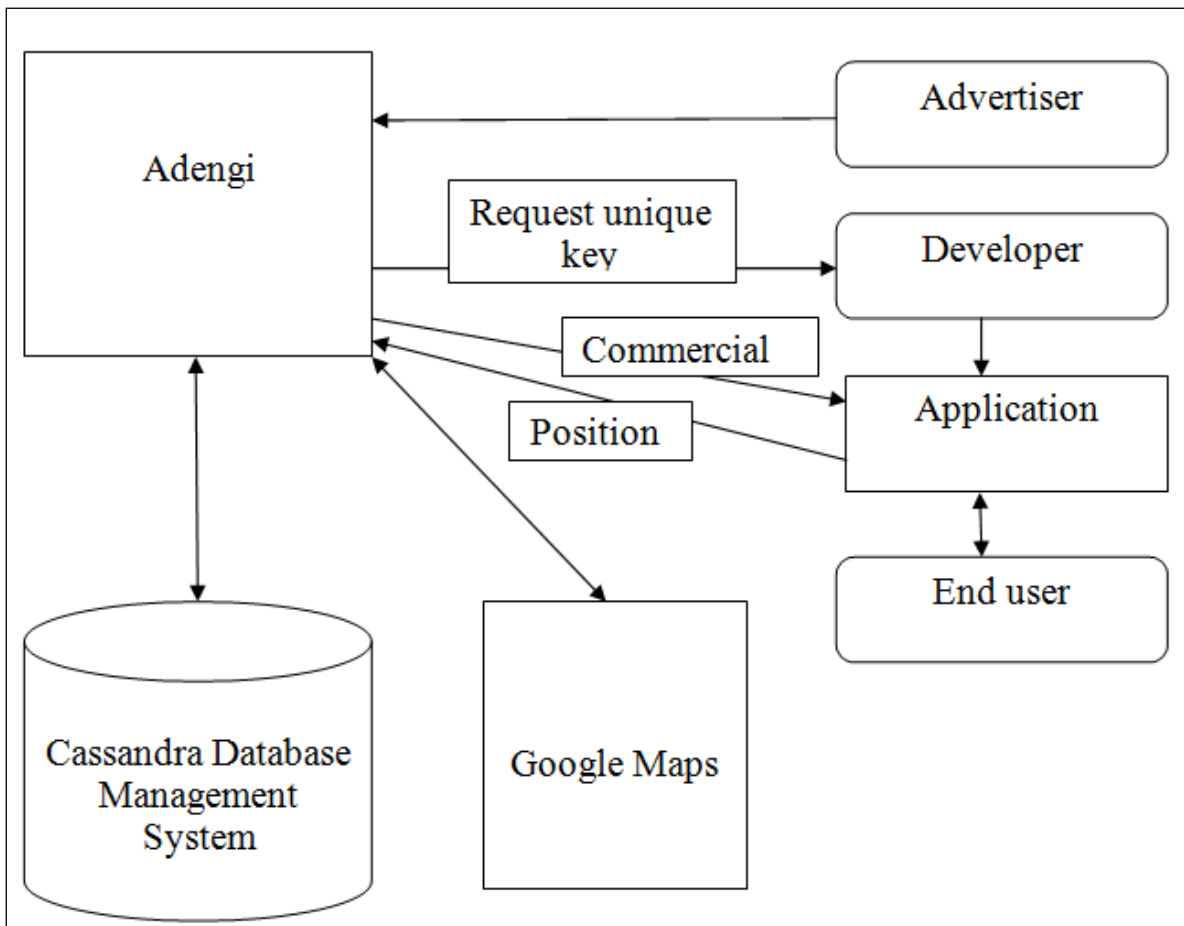
Figure 3-4: Schematics of the Adengi system

4 Technical background

4.1 HTML

HTML [16] is an acronym Hyper Text Markup Language and is a standard for how a computer unit is supposed to interpret an internet web page. A file meant for the web most often has the file ending .html or .htm
Html-code must almost always be capsulated by a start tag, <some tag> and an ending tag, </some tag>. A simple example depicting html code is shown below:

<!doctype html>
<html lang="sv">
<head>
<title>Here comes the title of the webpage</title>
</head>
<body>
<p>Here you write text to show in the webpage</p>
</body>
</html>

4.2 PHP

PHP [13], Hypertext Preprocessor, is a scripting language created in 1995 by Rasmus Lerdorf and designed for web development. PHP-code is embedded into a HTML source document, later interpreted by a server and finally being generated by a web browser.

A PHP-document has the file ending .php and has an initial starting marker, <?php> and an ending marker, ?> . The latest stable version is PHP 5.3.6 Below is an example of how php-syntax does look like (written in bold):

```
<html>
<head>
<title>PHP Test</title>
</head>
<body>
<?php echo '<p>Hello World</p>'; ?>
</body>
</html>
```

4.3 Javascript

Javascript [14] is a language developed by Netscape. Most believe that Javascript has ties with Java. That is erroneous, since the only connection between Java and Javascript is the "Java" in their respective name.

Because of the popularity of Javascript, many companies, including Microsoft (their version is called JScript) created their own versions. This naturally forced the necessity of a standard. This standard was named ECMA-262, also called Ecmascript.

Javascript as of today is an implementation of this standard (Ecmascript) and is primarily used in the client-side, thereby providing enhanced user interfaces and highly dynamic websites.

Javascript can also be used outside the web. Uses can be standalone applications, PDF-documents and desktop widgets.

The code sample exemplifies how Javascript programming code looks like. This code produces a button in a webpage that says "Click me". When a user clicks on the button, the message "Hello World!" is being shown in a popup message box. The actual code is written in bold:

```
<HTML>
<HEAD>
<TITLE>Hello World With JavaScript</TITLE>
</HEAD>
```

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```
<BODY>
<CENTER>
        <FORM Name="Form1" ACTION="">
        <INPUT TYPE=BUTTON VALUE="Click me"
NAME="BtnHello" OnClick="Hello()">
        </FORM>

</CENTER>

<SCRIPT LANGUAGE="JavaScript">
<!--

  function Hello ()
  {
    alert("Hello World!")
  }

//-->
<SCRIPT>

</BODY>
</HTML>
```

4.4 CSS

CSS [17] is an abbreviation for Cascading style sheets. This is a technique to describe the layout of an internet web page. This includes colorization, layout and even fonts.

CSS is mostly used to help web developers with optimizing their web page to different types of screens. A web page looks different in a full-HD (full High Definition) screen than in a smart phone screen. This technique is used together with HTML and XML.

CSS-files end with .css and their rule of use is that the syntax has properties which all have some value.

For instance, in the code example below, body is the syntax, background-color: is the property and #000000 is the value:

```
body {background-color: #000000;}
p {font-family: georgia, "Times New Roman", serif; font-size: 14px;}
```

5 Positioning with maps

5.1 Google Maps vs. Bing Maps

At the beginning of this bachelor thesis, there were a number of actors in the market. However, it was natural to concentrate on the two largest ones, namely Microsoft Bing Maps (henceforth BMaps) and Google Maps (henceforth GMaps).

5.2 Usability flaws and strengths

Both maps do have advantages as well as disadvantages.

The biggest disadvantage to BMaps is their dependency upon Silverlight [5], an add-on from Microsoft that enhances Internet experience. It is a type of replacement for today's AJAX [6]. This means that only Windows and Macintosh computers are able to use BMaps, excluding almost every non-Windows machine, like Linux and Solaris operating systems.

This disadvantage also means that most of the smartphones are not supported by BMaps (the exception being LG Optimus 7 using Windows Phone 7 OS [7]. The authors tried typing maps.bing.com into their smartphones (HTC Desire HD and iPhone 3GS) browsers, but were redirected to Microsoft's search engine, Bing.

Another great disadvantage of BMaps is that their maps are mostly on the basic-level (only major roads in a country etc.) They do have maps that cover the world, but not in higher levels of zoom.

A serious problem with GMaps is that as of version 3 of their API, the API code has been extremely slimmed down to better suit handheld devices. This means that many functions have been deprecated thus making it necessary to create custom made solutions to certain problems. This is a serious problem because the solutions may depend on functions later being deprecated in future versions of the API.

The biggest advantage of BMaps is that it seems to be much more exact concerning GPS-positioning. An article [8] concludes that BMaps positioning is often "spot on" whereas GMaps could be off with 10-20 meters. Unfortunately, the authors have not been able to verify this claim to a great extent, other than a small test with an iPhone 3GS and a HTC Desire HD. The result from this test proves somewhat the claim. GMaps seems not to be as exact as BMaps.

The importance of this matter is severe. The Adengi system aims at customers according to coordinates. If the coordinates are deviating too much, there will not be a match and certain conditions may not be met, thus leading the advertising company to miss a possible customer.

5.3 Performance

In a fairly recent test (22: nd February 2011) made by an independent company named Earthware [9], it clearly shows the superiority of BMaps [10]. The test records the amount of time needed to add between 1-1000 pins to respective map. The result is a clear victory for BMaps.

However, an alert reader of this report may oppose and claim that use of many pins on GMaps requires a MarkerManager (a GMaps community created add-on for handling large amounts of pins), which makes GMaps considerably faster than BMaps.

True as that is, one must not forget that the MarkerManager add-on is not an official add-on from Google, thus no support can be provided whatsoever.

5.4 Picture quality

Most of available maps to BMaps are extremely detailed. You can clearly distinguish rocks, boats, trees etc., in the highest level of zoom (7).

Two plausible explanations have come up. Firstly, GMaps uses satellite technology to acquire their imagery whereas BMaps uses aerial photography via airplanes to acquire their photography. This means that BMaps naturally has a higher level of resolution and quality.
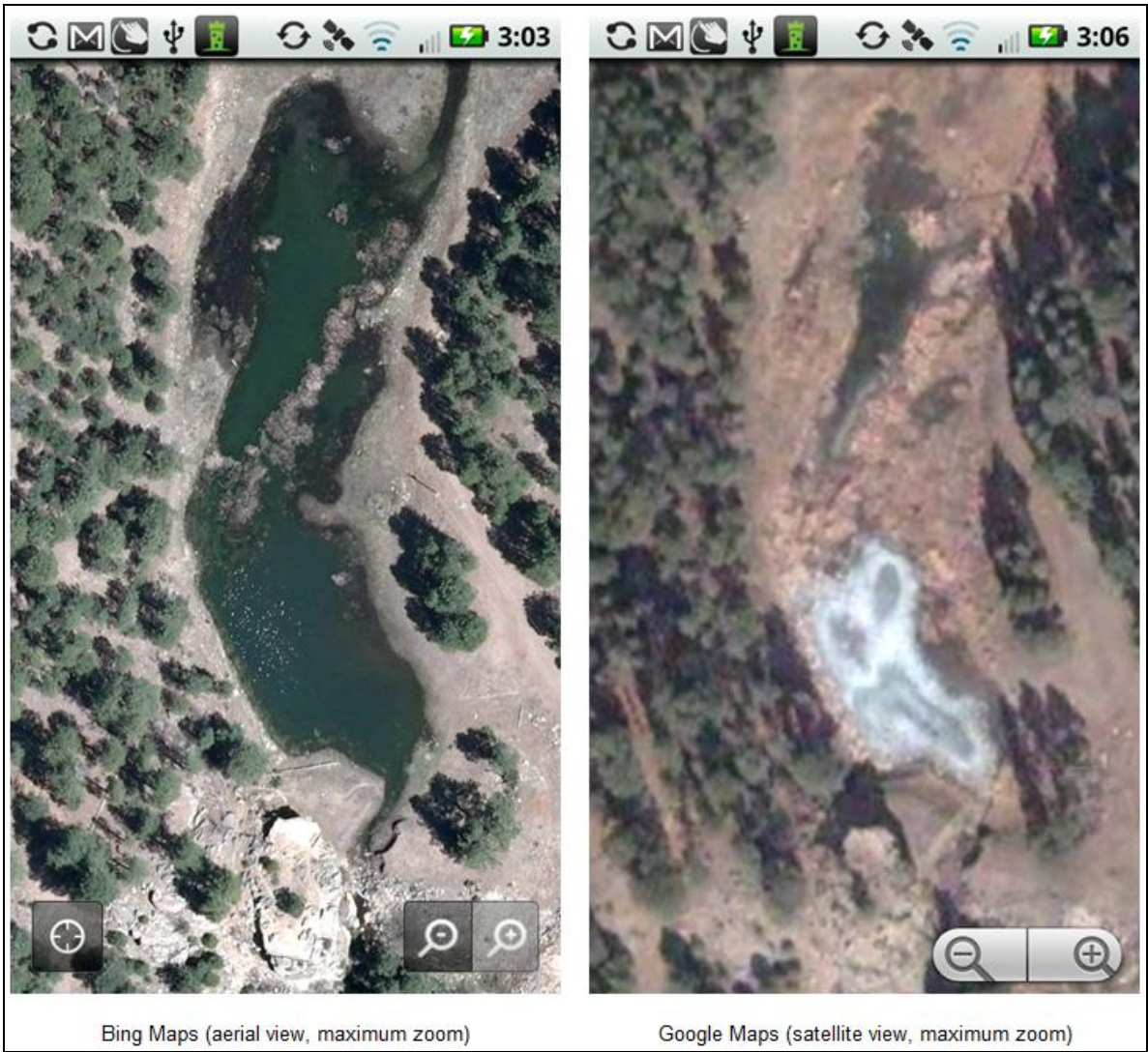
Bing Maps (aerial view, maximum zoom)   Google Maps (satellite view, maximum zoom)

Figure 5-1: Picture comparison between BMaps and GMaps

Secondly, for some parts of the world, GMaps do actually have better quality on the imagery of maps than its competitor. A logical explanation could be that it does not suffice economical to photograph all parts of the world as frequently. A city is a dynamically changing structure which requires frequent photography to be up-to-date whereas a jungle or desert does not need to be as updated.

Figure 5-2: Graphic comparison between BMaps (left) and GMaps (right)

5.5 API

BMaps API is undoubtedly the most developed API. Microsoft has released version 7 of their Bing Maps AJAX Control, whereas Google have not yet released version 4.

The main difference between these two API:s is that BMaps is extremely dependent upon Silverlight and other packages to function properly. This is not the case with GMaps, where their API works without special dependencies.

Another disadvantage to the BMaps is the requirement of creating an account at Microsoft to obtain a key to using and creating applications that uses BMaps. It is quite problematic to receive a key from the Microsoft website due to the many signups and the like. One of the authors had to sign up to three different websites before receiving a key.

As of version 3 for GMaps, a key is not necessary anymore to use and create applications that use GMaps [11].

5.6 Conclusion

It has to be concluded that BMaps does not fulfill the requirements, despite several great advantages to GMaps.

High image resolution, excellent map image quality, accurate GPS and fast performance are all factors that are in line with our bachelor thesis, but this all falls because of the Silverlight dependency, simply excluding too many users of other operating systems and almost all of the smartphone users.

The conclusion is that if BMaps would not have been so dependent upon Silverlight and have had support for more smartphones the authors would clearly have recommended Microsoft's Bing Maps as the natural choice for implementation.

6 Design of a user friendly portal interface

6.1 Logotype

6.1.1 Old logotype
The old logo for the Adengi prototype was lilac and did not have much to do with technology or Adengi at all.

Figure 6-1: The old Adengi logotype

At the beginning of the project, the authors were supposed to use the old lilac logotype. However, after a sudden change of plans, the aim was to create a completely new logotype.

The problems with this new approach were several. First and foremost, none of the authors of this report is a designer or have necessary education regarding design. Lack of experience with graphical tools was also a great hindrance. Even worse, the authors lack the "touch" that is severely needed when working with design. The authors can rate a design and evaluate if a design is adequate but not create designs. This is an ability that most engineers lack.

6.1.2 New logotype
The authors' inexperience with design and lack of education needed a new approach. The action that was taken was simply to browse through several websites and look for an inspirational design. After using a considerable amount of time, combining around hundred different fonts with different patterns and colors, several designs were created, as shown on the next page.

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Figure 6-2: Some of the logotype designs created by the authors

However, the project manager at Crunchfish was not content with the designs. The designs were adequate enough, but lacked the special "touch" that is so important when your marketplace is the whole world. You have great need to distinguish yourself from other brands.

No other choice was left other than to discard all designs and begin anew. According to the new directives, a great deal of effort was put into looking for a design that had something that would differentiate the Adengi logotype from other logotypes. A focus was made on the two last letters of Adengi, the "g" and "I" letter. A first approach was to try and combine these two letters in a unique design. Unfortunately, this made the name of Adengi unclear. It seemed as if the name actually was Aden, as the picture below shows.

Figure 6-3: Logotype design focusing on the two last letters

Once again the idea was discarded and approach was made to find another solution.

A last hectic effort was made to create two final designs. After many discarded suggestions the authors came up with the idea that doing a separate logo could be used both as a brand and as a "location-marker" in GMaps. These were presented to the manager for reviewing.

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Figure 6-4: The two final designs presented to the project managers at Crunchfish

One of the designs was accepted. The new Adengi logotype is being shown below.

Figure 6-5: Final chosen logotype for the Adengi project

6.2 Accessibility

6.2.1 Layout and design

The aim, already from the beginning of this project, was always an easy and user friendly system. The two aforementioned criteria are mostly synonymous with removing unnecessary steps from the procedure of performing an action in the Adengi system.

The first steps taken were to evaluate the current Adengi site and discover where flaws could be found.

The basic layout and design of the lists, icons and buttons were not logical or adequate. The authors discovered that the designed logo (see section 6.1.1) was never used in the Adengi system, only in a PDF-document on the front page.

When the authors began with the evaluation, there were major problems. The log out button was not present, despite being there. As the picture on next page shows, the buttons are unintuitive and hard to understand.

Figure 6-6: Picture of the old Adengi layout and colorization

The authors tried to separate the different steps and make the available options to the new user easy to understand. If the user places the mouse cursor over any button, an explanatory "pop-up" do appear.
The edit button was moved to the other side, all to make it difficult to accidentally pressing the delete button. This is important since no warning is given and no confirmation is required to delete a campaign.
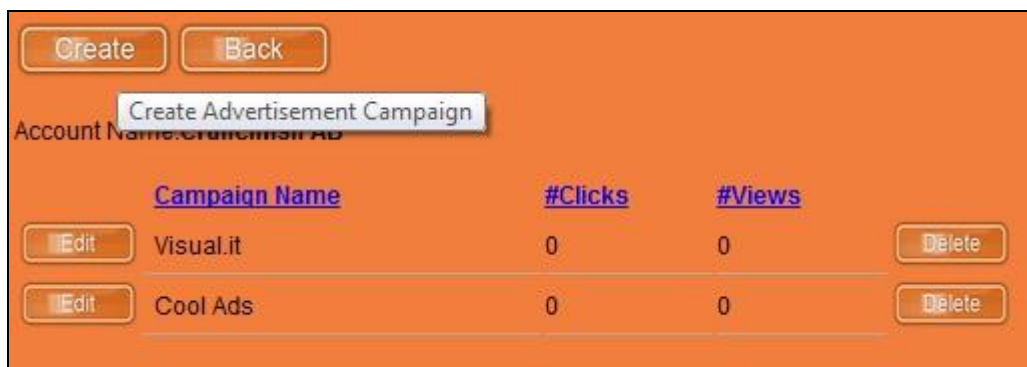

Figure 6-7: New design and layout for the Adengi system

6.2.2 Logic vs. amount of movements

The authors spent time testing the logic behind the Adengi website and realized that there was no necessity of further developing. Once the flaws with the old web portal were identified, they quickly realized that the flaws were connected to design and layout. The original logic behind the system was adequate despite being so hastily done.

That haste may have been an advantage in this situation since the Adengi system had to be set up as quickly as possible to ensure that Crunchfish was the company first out with this kind of innovation and idea, thus meaning no time for extravagance. This left the first version of Adengi crude but effective concerning amount of movements, meaning there was no necessity of further developing.

Another aspect the authors held in mind was the unofficial "3-Click-Rule" [12]. According to this rule a user stops using the website if they are not able to find the information or access features within three mouse clicks.

This rule emphasizes the importance of clear navigation, a logical structure and easy-to-follow site hierarchy. What is important to remember is that the visitors must always know where they <u>are</u> and where they can go <u>next</u>.

Even ten clicks are acceptable if the users feel that they have a full understanding of how the system works and what they are able to do with it.

The Adengi system can take pride in the fact that it requires only three clicks to get to the central of the Adengi system, which is the editing of any given campaign created by the advertiser (this claim naturally assumes that an advertiser is logged in and that there exists at least one campaign).

6.3 Graphics

6.3.1 Website design and background

The original Adengi website was a white background with black text and some touch of lilac and blue. Problems with this design were the fast solutions taken to simply make a functional system. Design was a secondary consideration, thus making the website unintuitive, illogical and just plain unattractive.

This is especially noticed when an advertiser makes new campaigns. Despite the basic idea behind this being adequate, the solution is illogical. To illustrate this, pone a fictional example. A company holds the rights to make commercials for the brand Nike. Once all formalities regarding sign up are

taken care of, they create one advertiser account for their brand Nike. Nike has several models of shoes, clothing etc. thus leading to the necessity of having multiple campaigns.

The flaws of design do show here. There is no way for an advertiser to understand how this works and how he is supposed to manage all different accounts and campaigns.

The design of the buttons is not helping either. The buttons are unintuitive since their design does not really help the advertiser to understand what they mean or the action they perform.

The authors of this report quickly realized the necessity to discard this design and make a new one from scratch.

Special consideration was taken regarding colors of the actual website. Color of logotype and color of website must have an appealing colorization to the eye.

The actual suggestion came from the project manager. The suggestion was to use the color scheme from an old Walkman music player, simply because of nostalgic memories. More important for the authors, this was a start and a direction of the overall "feel" of the new website. Naturally, a great deal of programming code could be reused into the new design.

The first step was to connect all that Adengi symbolizes into a simple design. Since the intention of the Adengi system is a worldwide system, first thought was to have a global map into the background of the main site.

Already on the main page the intention is to show the overall colorization of the Adengi website. Because of the managers wish for a certain color scheme, the authors chose the colors orange, white, grey and black. The orange greatly breaks up the website and makes it appear as if the sun is shining down on the map. A fitting symbol of Adengi as the sun shining down on the earth.

6.3.2 Buttons
The main color in the old Adengi design was dark lilac. New design forced the creation of new buttons to the webpage. Following the managers wish, the buttons also share the main orange color. The authors tried hard to find designs, symbols and inspiration to symbolize and differentiate actions as "Create new account", "Create advertisement campaign", "Logout", "Edit settings", "Delete an account" and "Back".

Most problematic was to find a logical symbol for "Create advertisement campaign". Inspiration came from Google Maps itself. The authors came to think of the markers. The step from a marker to a flag is not too far stretched and it fits excellent with the symbol, a plus sign, for "Create new account". When you add new accounts for advertisement, the plus sign is optimal. In the same way is a flag a fitting symbol for advertisement campaigns.

A small test with the test subject Mija showed that, despite the effort with creating fitting designs, symbols was the wrong path to follow, because it still was not clear exactly what was meant and what their functionality was. The authors decided to remove all symbols to avoid confusion and create buttons with corresponding text, which made the functionality of the buttons clear and less likely to be misinterpreted.

6.3.3 Text

Experimentation with different types of textual fonts and colors occurred. It quickly became evident that plain black with the fonts Arial and Times New Roman on the orange background (color code: #F17E3D) was most pleasant to look upon and read.

7 Implementation

Since any divulging of source code about the Adengi system and advertisement engine could impair security, the authors were strictly forbidden to reveal any source code whatsoever. This was taken to the extent that the authors had to sign a contract that no source code was to be divulged under any circumstances.

This naturally inflicts problems with this report since no possibility exists to write more about the programming code, the flaws and all the problems the authors encountered and solved.

7.1 Google Maps

The first version of Adengi used version 2 of the Google Maps API. Since version 2 has been declared deprecated, the authors were forced to translate the version 2 code that was already implemented in Adengi to version 3. This was not without problems, since the deprecation was due to the API being slimmed down to better suit handheld devices. This means that any function deemed "unnecessary" had been removed.

The original GMaps used in the old Adengi system is shown in the pictures below. Asking if the advertiser wants to place the marker at these coordinates is an unnecessary step.
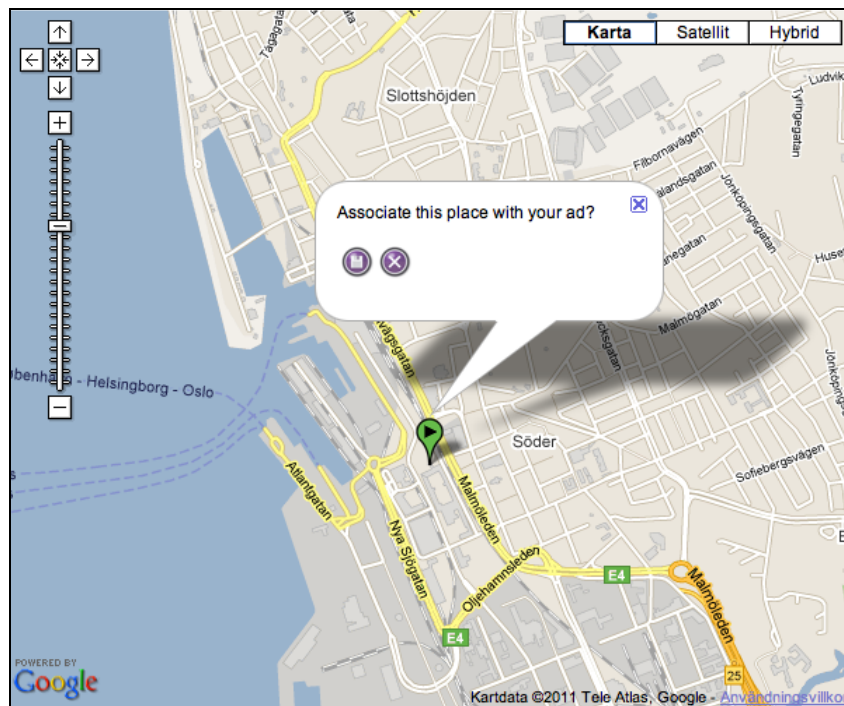

Figure 7-1: Old system requiring confirmation to place a marker

More adequate would be to add or remove a marker after the users' choice. Since the old Adengi system did not have a function for deleting placed markers, the creation of such a function was necessary.

The authors decided to completely rewrite the code from scratch using GMaps version 3 API and a much easier method of placing and deleting a marker.

One of the ideas was a list with all markers and then removing a marker inside the list. This idea was quickly discarded due to the complexity of this solution. Another idea was to left-click on a marker and then press a delete button. This idea was discarded for not being user friendly.

One of the authors realized then that a marker is being added to the map simply by left-clicking on the mouse. A removal of a marker should occur if the user right-clicks. This idea was selected for implementation.

After many issues regarding implementation of the "remove-function", a functional map was coded.

The map was now fully functional but it had not yet been connected to the designated Cassandra database. This was the next step of implementation and a problem since, as mentioned, Google had slimmed version 3 of the API to perform faster on handheld devices.

Research about connecting Cassandra and GMaps suggested many hindrances, thus making the authors to expect difficulties regarding this matter. Further research showed that during the design of the new Adengi website, the Google API had been updated with functions for connecting an optional database. The authors chose to use Javascript and AJAX for calling an external PHP-script making all the queries to the Cassandra database.

This update made it possible to implement the piece of code that connects Adengi to the Cassandra database. If a marker is being placed on a map, the marker is now also saved in the database. Only JavaScript and AJAX was used for this function since the website has need of communication with the database without the actual website being reloaded every time a new marker has been set.

The last function regarding markers to fully implement was the retrieval of eventual markers from the database. In this situation a combination of PHP and JavaScript was used. PHP was added inside the JavaScript tags for retrieving the information from the database and then set into arrays in Javascript to handle the insertion of the markers on the map.

An extra function for seeing the exact coordinates of the marker when holding the mouse cursor above the marker was also added.

The final result is seen in the picture below. More information about the picture below is explained in chapter 7.5.

Figure 7-2: New Adengi system

7.2 Realization of a complete portal

First of all was the need to have a web server where test of the implemented files could be done. This web server had to manage PHP 5. It was an obvious choice to choose a version of an AMP server. It contained all of the necessary programs needed to create the portal and it was supposed to be easy to install.

This was a problem at one of the authors' computers since the version for Macintosh MAMP did not want to load the necessary PHP files.
A trial was made to use WAMP server on the computer of the other author. This server configuration worked without the need of changing any setting at all.

The authors worked together with Ali Raghed and Mohammad Rahimpur (another bachelor thesis couple responsible for the creation of the new Adengi database using Cassandra) and created a WAMP server on Ali Raghed's computer that was always online.

This solution made sure the Cassandra database was running on the same computer as the web server was running. All of the necessary files were gathered in one place.

The completion of the web portal was the hardest part of the entire assignment. All of the different parts were supposed to be implemented into one functional unit. The Adengi system had to manage everything the old system could manage but with a better interface, a new design and a completely new database.

The need for a user friendly portal was the key and after some "brainstorming", an idea came up. This idea exists already and is called Highslide [15]. The entire concept with a functional test website was presented to Crunchfish and approved by the managers. A license is supposed to be acquired as soon as possible.

The authors had the opportunity to implement the window into the portal and it is going to be used on all buttons that redirects to only one page.
One simple example would be the log in screen on the front page. Another would be the creation of a new account or a new campaign. A preview can be seen in the picture below. This illustrates when an advertiser wants to log in to his account.
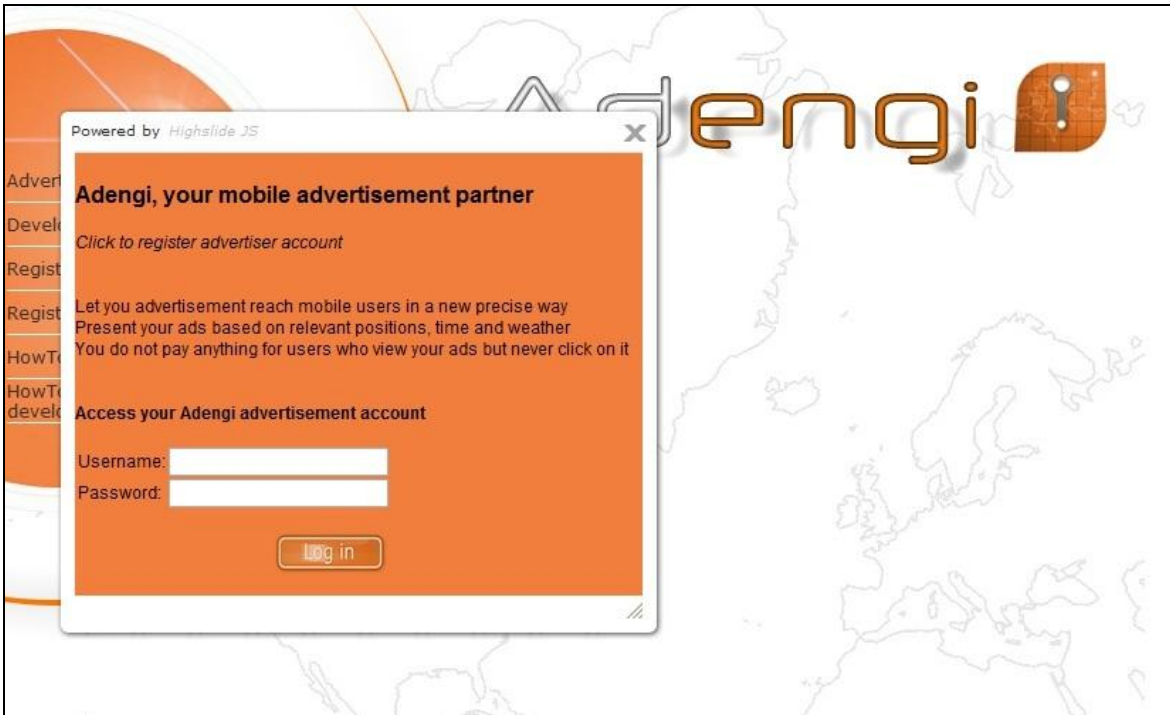
Figure 7-3: Login to a user account

The portal had to be dynamic. To be able to create a page that is dynamic the authors used PHP to generate HTML and Javascript code depending on how many objects were found in the database.

A major change was made in the account part of the portal. In the old Adengi system the accounts were shown in a big continuous list. This had to be redone because it was problematic to find an account if there was more than ten accounts on the page. On the next page is a picture illustrating this issue.
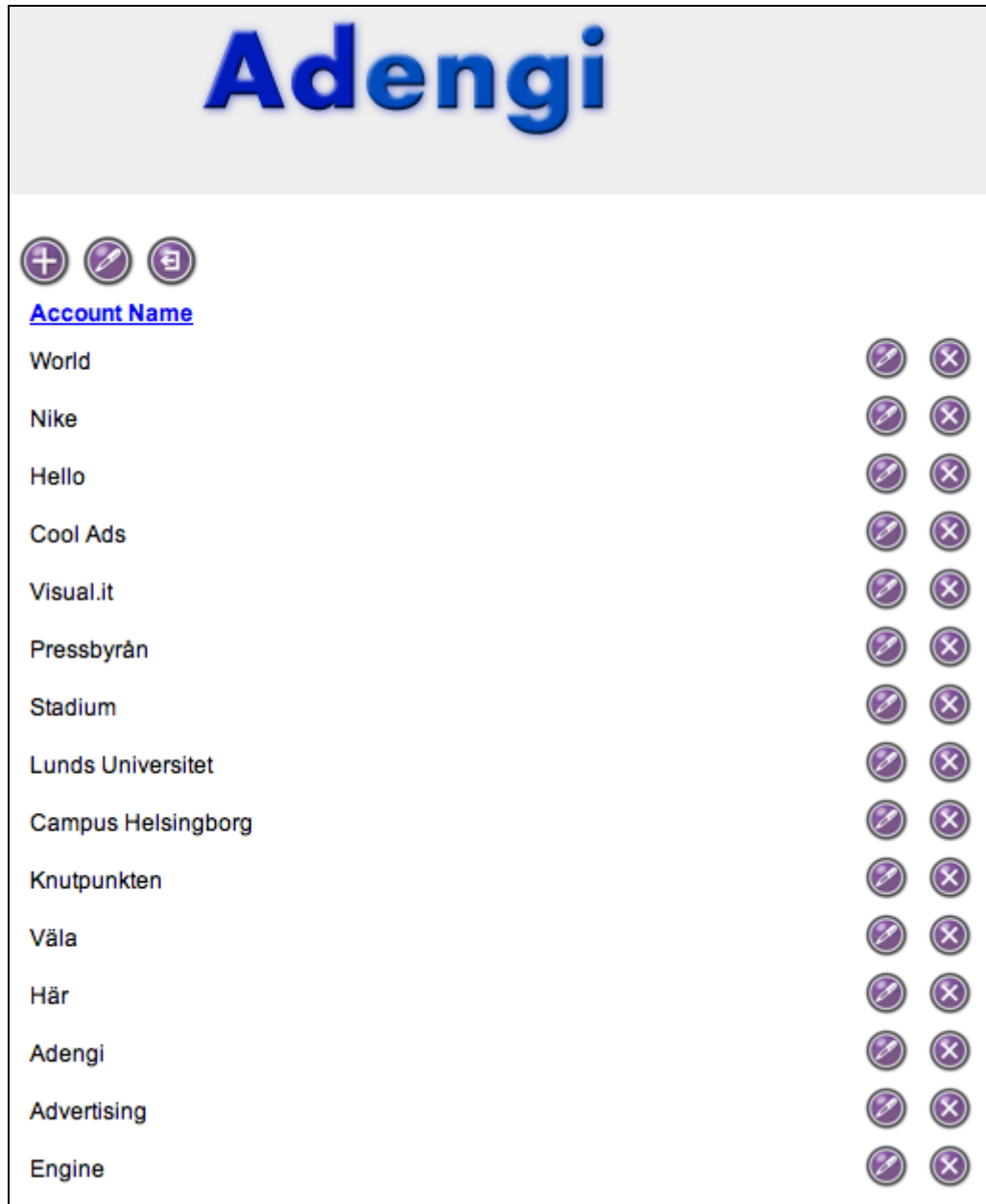
Figure 7-3: Illustrating the problem of having several accounts

It is problematic to find an account or campaign quickly. The original Adengi system does not have a function for searching. The authors decided to add this to the new system.

The search function is available immediately after the user has logged in and chosen the section "Advertise". To keep the page from being overpopulated with buttons and choices the authors agreed on making a search bar without a button.

Tests (please see section 8) showed that the users intuitively knew they had to

press "Enter" on the keyboard to begin the search.

The function behind the search bar is implemented so that the user does not have to search on the exact characters of the account name. If, for instance, there are multiple names that consist of the word Crunch, for example Crunchfish, Crunchtest or Fishing crunch, there is only need of searching for "crunch" and all of the different accounts that consist of the word "crunch" will be shown. Even a search for a single letter will show all of the accounts containing that letter.
This concept makes it very easy for the user to find the desired account quickly.

The search function was not the only necessary improvement to make the page user friendly. The list containing all the accounts had to be completely redone. After a thorough discussion with many different ideas, the authors came to suggest implementing "squares" that contain the account name, a picture (future implementation) and a delete button.

The reason why this was chosen was that even if the advertiser has many accounts, the idea is that the use of the search function for finding the account will make the task quick and easy. At the same time there is a clear distinction between the different accounts.
The result is illustrated in the picture below.

Figure 7-4: Two accounts illustrating the distinction between accounts

The "Create" and the "Options" buttons were also in need of updating since the old Adengi system redirected the page to a new one. The authors wanted this to be even more simplistic, all in the name of user friendliness. The solution would be to use "Highslide" on all of the buttons that only do lead to a new page and without compromising the "logic". Suggested buttons to use

this method on would be the create button, options button etc.

This was accordingly implemented and the final result for the options button in the account page is shown in the picture below.
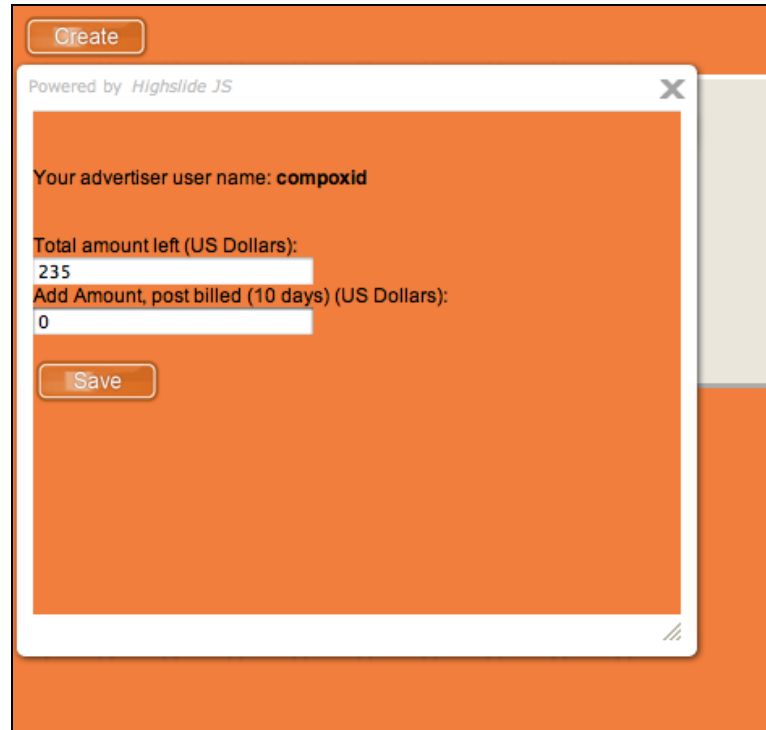

Figure 7-5: Options

The next major change had to be made in the campaign page. The old Adengi system also used a simple and long list and the authors believed the implementation of this section would be similar to the account page.

However, problems arose after consultation with Crunchfish. The authors were informed that the campaign page will consist of more objects than in the accounts page.

The uncertainty of the exact number of objects made the authors decide to not use squares in this page. It was decided to keep the list and change the "look" of the list somewhat, adding lines between each object, moving the edit button to the opposite side of the list and adding a popup window, asking the user for confirmation before deleting the chosen object.

The picture on the next page shows the created files and their internal relation. The items squared in the red area are all having a relationship to a CSS stylesheet whereas the files in the green area have a relation to the Cassandra database. Because of the written contract, any divulging of specific details is prohibited.
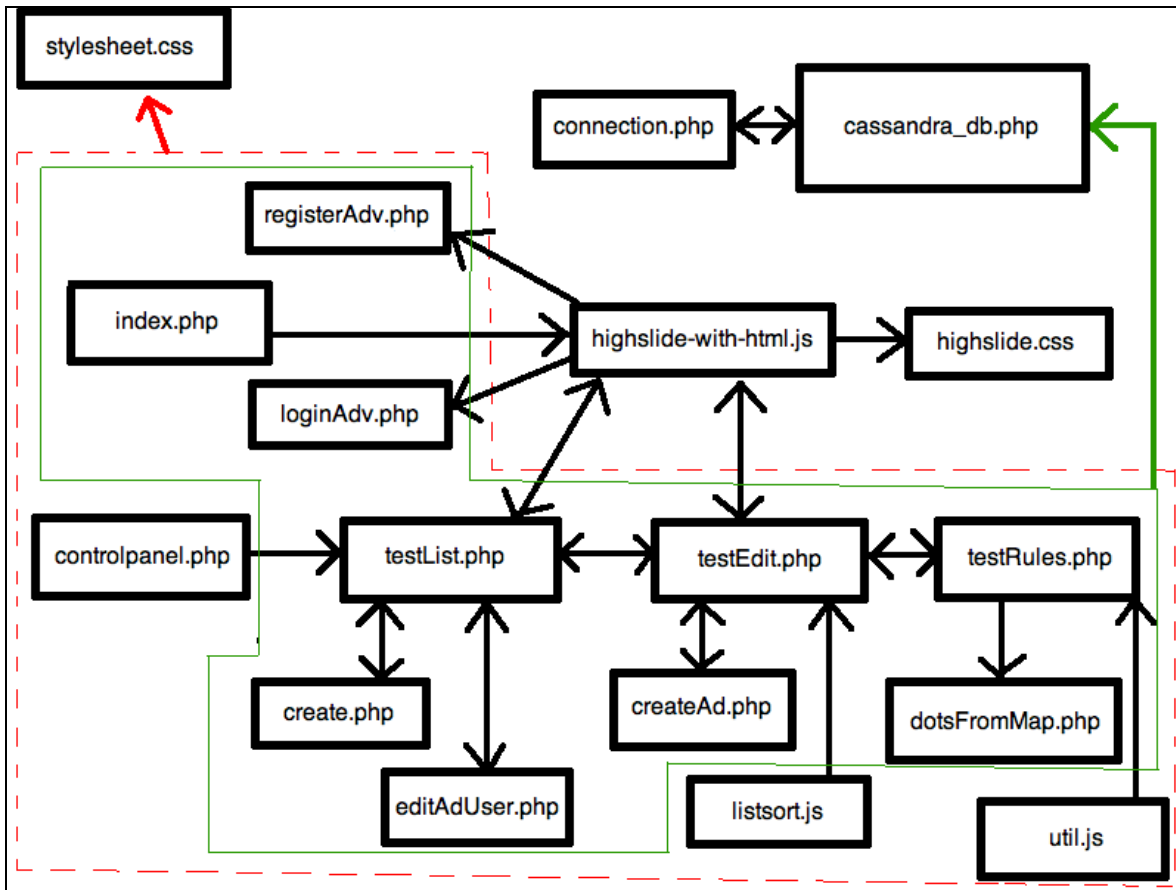
Figure 7-6: Schematics and internal relations between classes and files in the complete Adengi system

8 Test

Testing is an important part of creating an improved Adengi system. First task was to do prestudies on the old system to detect flaws. When test data was collected, analysis took part to find areas of enhancement.

8.1 Test method

The authors chose a method called "The think aloud method" [4], also known as the "Think aloud protocol", to receive input from both the old and the new web portal via test subjects.

This method emphasizes the test users' behavior and thoughts of how to perform an instructed action.

The test subject speaks out what he is thinking and what he will do when reading the instruction. The test manager(s) sits idly by and listens and times the actions.

The advantages of this test method are several. It will be possible to receive input in form of the test subjects' thoughts and how the subject does perform an action, and at the same time being able to measure the amount of time one particular action does take to perform.

Another great advantage is that the authors will have possibility to pinpoint difficulties with the old web portal and somewhat plan for the new portal design with these difficulties in mind.

Also, the authors will clearly see if a test subject is exaggerating his understanding of the portal. The test subject may claim to fully understand, but if the amount of time necessary to perform an action is prolonged and deviates from previous results, the authors will realize it immediately and understand that this requires particular attention.

For the test protocol used for the old system, please see section 13.1. For the new system, please see section 13.4.

8.2 Test result

8.2.1 Mohammad
The result for this test was expected since the test subject has deep knowledge regarding the Adengi system. This is because of the subjects' bachelor thesis regarding the Adengi Cassandra database management system. The subject has also many years of experience with computers and is currently doing the last semester before acquiring a bachelor in computer science. Thus, the test subject did not have comments about difficulties with either system.

8.2.2 Alexander
The subject has also many years of experience with computers and is currently studying to acquire a bachelor in computer science.
The only thing to conclude regarding this test case is that users with good knowledge about computers will not have any problems at all with this system.

Alexanders comments on the old system:
Step 1: Register as an advertiser.
Comment: When inserting a wrong value during registration, the error is not clearly shown.
Step 3: Create three (3) new accounts.
Comment: Text explaining the buttons would be a good thing.
Step 4: Add "money" to your account via "Options".
Comment: Confusing that you add funding to the account as a whole, but have a list of accounts in the account.

The only comment the subject had on the new system was that the describing text below the map was a good idea since the user could easily understand how to add and delete markers.

8.2.3 Mija

The subject does not have much experience with computers. This was obvious when doing the first test on the old system. Subject noticed things that none of the experts noticed.

Mijas comments on the old system:

Step 1: Register as an advertiser.
Comment: Found it inadequate that the user is not being prompted to type in their password a second time, as is customary in other systems and webpages. The subject also found it difficult to find the register link.

Step 3: Create three (3) new accounts.
Comment: The position and the icon of the diskette were not clear enough nor on the right place. The test subject would have preferred the position of the icon on the right side.

Step 4: Add "money" to your account via "Options".
Comment: The subject did not understand where to add the funding. Unclear whether to stay on this webpage or click on one of the "accounts".
A negative thing is also that the user is not asked whether they want to add the chosen amount or not, thus meaning a mistype could get expensive.

Step 5: Remove one (1) of the accounts.
Comment: Cross and the plus icons look alike.

Step 6: Click your way into one of the accounts.
Comment: The subject thought that clicking on the account name would get her there.

Step 7: Create two (2) new campaigns.
Comment: The subject got confused that it was still on the same page because the account list and the campaign list look alike. So the subject took a long time finding the add button again.

Step 8: Delete one of the campaigns.
Comment: Cross and the plus icons look alike.

Step 9: Edit the campaign.
Comment: The reason the subject understood this was because it had been done before.

Step 10: Place four (4) markers on the map.
Comment: The subject did not understand that to be able to save a marker, a little window had to be loaded first. If the subject was too fast with the clicking

on the map, the window would not show, thus not be able to save the marker.
Step 13: Log out.
Comment: Hard to understand the log out icon.

The only comments the subject had on the new system was that it was still a little bit hard to find the registering and the log in buttons. The design was later updated, due to this comment.

8.3 Test conclusion

The test subjects different experience with computers lead to a natural conclusion. Good knowledge with computers naturally means that minor difficulties are experienced with both old and new systems. The test shows that the experienced user will not have problems with the old system, although it has serious flaws regarding design and logic.

The situation is different with a user who does not have much experience with computers. Almost all of the input regarding the old system from test subject Mija, lead to new design and somewhat new logic. This test subject noticed valuable details that the expert users miss. Great effort was taken to review this test subjects comments and use them to redesign the new Adengi system.

9 Project conclusion

9.1 Result

There were many objectives to be fulfilled during this thesis, but the main one was always to create a user friendly portal that is easy to use for both clients and advertisers. This has proven to be a real challenge, giving the authors many issues to solve during development.

The first objective was redesign of the old system. This required substantial testing and reviewing to find design and logical flaws. This part also included new color schemes and a new logotype.
The colorization is appealing to the eye and layout does fulfill acceptable requirements of user-friendliness. This was also verified by the test (please see section 13.3-13.5 of this thesis)

Lack of time forced to authors to focus on the most important aspect of the Adengi system, the development of the basic advertisement engine together with the GMaps system and the overall design and colorization.
This means that the second objective, making it easy for the intended users to update information about their offers and the like, was not implemented.

Database migration and connection from MySQL to Cassandra is fully implemented and functions beyond expectations. This was the third objective and it was fulfilled beyond expectation.

The test integration with Highslide JS seems promising and fits nicely into the web portal. The purchase of a usage license will be a good investment for the benefit of the Adengi system.

9.2 Future development

An important matter to account for was the future of the Adengi system. The system will be further developed. After a discussion with the project leader at Crunchfish, sections like social media, statistics, coupons, applications and service was going to be added in the near future.

9.2.1 Social media
Social media regards the matter of how to spread information as quick and cheap as possible.

To reach a multitude of potential clients and customers and at the same time spreading the name of Adengi, there is no cheaper solution than using social media like Twitter, Facebook, YouTube, Flickr, MySpace etc.
A crucial possibility is that of a current user recommending via a social media an advert to their friends. This naturally means a higher possibility of a purchase, which is highly desired for all involved.

9.2.2 Statistics
The most important feature of the Adengi system is going to be the possibility of having real time statistics. This feature allows an advertiser to see how well an advert or campaign does generate income or revenue, thus receiving important hints for current or future campaigns.

This section will give an excellent opportunity for Crunchfish regarding price setting for their services. The more desirable a certain spot will be, the higher the price for that certain advertisement spot.

9.2.3 Coupons
This idea came up in concurrency with the social media section. If there is a possibility to have a coupon system, the end users may have a great benefit from this. The coupons section could be a system integrated with Adengi in the way that it sends out special deals as a powerful way of advertising.

Pone this example. Pressbyrån in Malmö central station wants to offer a

special deal as a part of a countrywide campaign. This deal shall only be valid from 08.00 to 09.00 The advertiser logs in to the Adengi system, creates the campaign and advert and sets all the necessary settings, settings like which store the coupon is valid in, time, day etc.

An end user is walking in the vicinity of the central station at this time. The end user is currently reading news in his favorite application. This application is free to download and use, but is using commercial as means of generating income.

The user receives this coupon directly into his smartphone because he fulfills all the necessary requirements and thus goes to take advantage of this coupon.

9.2.4 Service
If a problem with the system occurs or a "bug" is detected, the user of the system must have the possibility to quickly get in touch with someone who can help the user with this problem.

The user clicks on the service section and is automatically presented with a FAQ-page and all the necessary contact information if any further assistance is required.

9.2.5 Overall improvements
There was an idea of somehow integrating the main background live with the Adengi system statistics. This would show where advertisers have chosen to put ads and thus showing the clusters of adverts that exist today. Naturally this should only be basic information but it would greatly increase the willingness of a potential user becoming an advertiser or a developer using the engine of the Adengi system to show Adengi adverts into their own applications.

This idea could naturally be transformed into an earth globe where the user could interact by using the mouse to make the earth spin and thereby self-choose where to see the advertisements spots.

Design is a matter that can be perfected for all eternity. The design is somewhat adequate right now, but it can still be perfected.

The PDF: s showing potential clients how they can use the Adengi system to the fullest will need to be edited with a new logotype and new pictures.

Another situation to be improved is if it is possible to combine the buttons with adequate and explaining symbols as of what the buttons do.

The basic web portal has to most part been completed. Future development will include the ability to upload a banner, a movie or a sound for the advert. Also, the application part (in section advertise inside edit of a campaign) of the engine needs to be implemented.

Later development will include sections such as applications, coupons, statistics, social media and services.

One situation the authors discovered (during creation of the tests) that had not been taken into account, was the need to create a campaign and make it valid first when some certain time criteria are met. For instance, an advertiser may want the campaign to begin at a special time and date in the future.

9.3 Discussion

The discussion is the authors personal reflections and comments and will aim at how well they managed to fulfill the goals set up, what could have been avoided, done in a better way and recommendations to future developers.

Despite our careful planning, the lack of time had a major impact on our bachelor thesis. For instance, we did not manage to fully implement the advertisement part of the Adengi system, despite our intention.

Also, we were determined to at least begin implementation of the statistics section and applications part, but failure to comprehend the complex issues concerning these matters made us realize that we would need more time. Especially since the statistics also should include a timeline showing how the revenue has developed since start.

The most problematic part of this thesis, as expected, had been the design part. This solely depends on the authors lack of necessary education regarding design and the graphical tools used.

We wish for this project to be a guideline for the future regarding smart business opportunities and how to use maps as a mean of advertising. We have shown the way for future developers, be it ourselves as future employees of Crunchfish or other people. A lot of effort has been made to make the programming code as easy and "clean" as possible. It will be very interesting to see how well we have managed to do this.

The only thing we can see that we could have made better is the part regarding design. Therefore, if there is any recommendation or advice we can give to any future developers, it must be to cooperate with designers who have the necessary education regarding this matter. You will save a lot of time and

effort by doing this.

Perhaps a better solution would have been to cooperate with the designers at Crunchfish as suggested by Thomas Gårdängen. However, after a thorough discussion, we realized that we were reluctant because of uncertainty of whether or not to be dependent on other individuals for the completion of this important part. Our decision was to complete the design ourselves.

We had the "core" nature of Crunchfish in mind. The company's direction is joint ventures with people willing to spend their time on their assignment. How were we supposed to take their valuable time from their project and force them to cooperate with us? No, we believe we made the right choice here. After all, being an engineer simply means facing a problem and solving it best, easiest and quickest way possible.

We believe we managed to do this in an adequate way given this short amount of time. This is the impression we want to give to our instructor, our examiner and naturally, to Crunchfish.

10 Dictionary

GMaps	Google Maps
PHP	Hypertext Preprocessor
JS	JavaScript
JSON	JavaScript Object Notation
Cassandra	Apache Cassandra (a database management system)
Adengi	An advertising system to quickly create adverts for use in handheld devices such as iPhone, iPad, Android phones etc.
IE	Microsoft Internet Explorer
FF	Firefox
GC	Google Chrome
HTML	Hyper Text Markup Language
AJAX	Asynchronous JavaScript And XML
AMP	The common name for the server packages that include Apache, MySQL and PHP.
WAMP	Microsoft Windows Apache MySQL PHP
MAMP	Apple Macintosh Apache MySQL PHP

11 References

1. http://www.facebook.com/note.php?note_id=24413138919&id=944554719&index=9
   (Read: 2011-03-28)

2. http://www.businessweek.com/technology/content/aug2005/tc20050817_0949_tc024.htm
   (Read: 2011-03-28)

3. http://www.ibm.com/developerworks/rational/library/4626.html
   (Read: 2011-05-23)

4. http://staff.science.uva.nl/~maarten/Think-aloud-method.pdf
   (Read: 2011-04-11)

5. http://www.microsoft.com/silverlight/what-is-silverlight/
   (Read: 2011-04-04)

6. http://www.adaptivepath.com/ideas/ajax-new-approach-web-applications
   (Read: 2011-04-04)

7. http://www.microsoft.com/windowsmobile/sv-se/devices/details.mspx?id=1610
   (Read: 2011-03-28)

8. http://androgeoid.com/2010/08/bing-maps-goes-native-on-android/
   (Read: 2011-04-11)

9. http://www.earthware.co.uk
   (Read: 2011-04-11)

10. http://www.earthware.co.uk/blog/index.php/2011/02/ajax-mapping-apis-google-maps-vs-bing-maps-update-pushpin-display-performance/
    (Read: 2011-04-11)

11. http://code.google.com/intl/sv-SE/apis/maps/documentation/javascript/basics.html
    (Read: 2011-03-28)

12. http://www.uie.com/articles/three_click_rule/
    (Read: 2011-04-11)

13. http://php.net/manual/en/intro-whatis.php
    (Read: 2011-03-28)

14. http://developer.mozilla.org/en/About_JavaScript
    (Read: 2011-03-28)

15. http://www.highslide.com/
    (Read: 2011-05-30)

16. http://www.w3.org/People/Raggett/book4/ch02.html
    (Read: 2011-03-28)

17. http://www.w3.org/Style/LieBos2e/history/
    http://www.w3.org/People/howcome/p/cascade.html
    (Read: 2011-03-28)

12 Picture references

13 Appendix

The test subjects performed a test on the old and new Adengi system. Their opinions and comment, if any, are written in the part called "Result".
First column describes which step the subject is performing, second column the amount of time it took the test subject to perform the action described in the step. Column three to five is the test subjects' personal opinion on the level of difficulty performing the designated step.

13.1 Test "old" system, subject one

Date: 2011.04.06
Name: Alexander Mitrovic
E-mail: drubo3@hotmail.com
Technical skills: Expert computer skills, no knowledge about Adengi.

Test:
Your task is to follow the guidelines below. Before you start with the test, try to remember to speak out your every movement (the mouse movement, why you chose a certain button and what your thoughts are during the process). You will not be able to ask any questions about how to perform a task, so think "loud" and look closely.
One of the authors will be the instructor, listening and looking at how you perform the different tasks.
Step 1: Register as an advertiser.
Step 2: Log in as an advertiser.
Step 3: Create three (3) new accounts.
Step 4: Add "money" to your account via "Options".
Step 5: Remove one (1) of the accounts.
Step 6: Click your way into one of the accounts.
Step 7: Create two (2) new campaigns.
Step 8: Delete one of the campaigns.
Step 9: Edit the campaign.
Step 10: Place four (4) markers on the map.
Step 11: Fill in the different options.
Step 12: Save the options.
Step 13: Log out.

Result:

Step:	Time:	Easy:	Medium:	Hard:
Step 1	1min 23sec		X	

Step 2	8 sec	X		
Step 3	13 sec	X		
Step 4	25 sec		X	
Step 5	2 sec	X		
Step 6	3 sec	X		
Step 7	8 sec	X		
Step 8	2 sec	X		
Step 9	4 sec	X		
Step 10	20 sec	X		
Step 11	21 sec	X		
Step 12	2 sec	X		
Step 13	4 sec	X		

13.2 Test "old" system, subject two

Date: 2011.04.08
Name: Mija Månsson
E-mail: mijamanson@hotmail.com
Technical skills: Minor computer skills, no knowledge about Adengi.

Test:
(Please see instructions for "Test" in section 13.1)

Result:

Step:	Time:	Easy:	Medium:	Hard:
Step 1	1min 48 sec		X	
Step 2	15 sec	X		
Step 3	30 sec	X		
Step 4	1min 3 sec			X
Step 5	6 sec	X		

Step	Time	Easy	Medium	Hard
Step 6	10 sec		X	
Step 7	25 sec		X	
Step 8	4 sec	X		
Step 9	3 sec	X		
Step 10	40 sec		X	
Step 11	30 sec	X		
Step 12	3 sec	X		
Step 13	6 sec	X		

13.3 Test "old" system, subject three

Date: 2011.04.08
Name: Mohammad Rahimpur
E-mail: mohammad@rahimpur.se
Technical skills: Helping developing Adengi, expert computer skills.

Test:
(Please see instructions for "Test" in section 13.1)

Result:

Step:	Time:	Easy:	Medium:	Hard:
Step 1	58 sec	X		
Step 2	8 sec	X		
Step 3	28 sec	X		
Step 4	15 sec	X		
Step 5	2 sec	X		
Step 6	1 sec	X		
Step 7	8 sec	X		
Step 8	1 sec	X		
Step 9	2 sec	X		

Step 10	25 sec	X		
Step 11	19 sec	X		
Step 12	1 sec	X		
Step 13	5 sec	X		

13.4 Test "new" system, subject one

Date: 2011.05.19
Name: Mija Månsson
E-mail: mijamansson@hotmail.com
Technical skills: Minor computer skills, no knowledge about Adengi.

Test:
Your task is to follow the guidelines below. Before you start with the test, try to remember to speak out your every movement (the mouse movement, why you chose a certain button and what your thoughts are during the process). You will not be able to ask any questions about how to perform a task, so think "loud" and look closely.
One of the authors will be the instructor, listening and looking at how you perform the different tasks.
Step 1: Register as an advertiser.
Step 2: Login as an advertiser.
Step 3: Choose the advertise tab.
Step 4: Create three (3) new accounts.
Step 5: Add "money" to your account via "Options".
Step 6: Remove one (1) of the accounts.
Step 7: Click your way into one of the accounts.
Step 8: Create two (2) new campaigns.
Step 9: Delete one of the campaigns.
Step 10: Edit the campaign.
Step 11: Place four (4) markers on the map.
Step 12: Fill in the different options.
Step 13: Delete two (2) of the markers.
Step 14: Save the options.
Step 15: Go back to your accounts.
Step 16: Search for one of your accounts.
Step 17: Log out.

Result:

Step:	Time:	Easy:	Medium:	Hard:
Step 1	39 sec	X		
Step 2	16 sec		X	
Step 3	4 sec	X		
Step 4	18 sec	X		
Step 5	8 sec	X		
Step 6	2 sec	X		
Step 7	3 sec	X		
Step 8	13 sec	X		
Step 9	3 sec	X		
Step 10	3 sec	X		
Step 11	9 sec	X		
Step 12	10 sec	X		
Step 13	7 sec	X		
Step 14	2 sec	X		
Step 15	4 sec	X		
Step 16	4 sec	X		
Step 17	2 sec	X		

13.5 Test "new" system, subject two

Date: 2011.05.20
Name: Mohammad Rahimpur
E-mail: mohammad@rahimpur.se
Technical skill: Helping developing Adengi, expert computer skills.

Test:
(Please see instructions for "Test" in section 13.4)

Result:

Step:	Time:	Easy:	Medium:	Hard:
Step 1	32sec	X		
Step 2	15 sec	X		
Step 3	3 sec	X		
Step 4	30 sec	X		
Step 5	17 sec	X		
Step 6	4 sec	X		
Step 7	2 sec	X		
Step 8	19 sec	X		
Step 9	5 sec	X		
Step 10	2 sec	X		
Step 11	9 sec	X		
Step 12	23 sec	X		
Step 13	5 sec	X		
Step 14	1 sec	X		
Step 15	1 sec	X		
Step 16	10 sec	X		
Step 17	3 sec	X		

13.6 Test "new" system, subject three

Date: 2011.05.20
Name: Alexander Mitrovic
E-mail: drubo3@hotmail.com
Technical skills: Expert computer skills, no knowledge about Adengi

Test:
(Please see instructions for "Test" in section 13.4)

Result:

Step:	Time:	Easy:	Medium:	Hard:
Step 1	34 sec	X		
Step 2	11 sec	X		
Step 3	2 sec	X		
Step 4	13 sec	X		
Step 5	9 sec	X		
Step 6	1 sec	X		
Step 7	1 sec	X		
Step 8	7 sec	X		
Step 9	1 sec	X		
Step 10	3 sec	X		
Step 11	6 sec	X		
Step 12	12 sec	X		
Step 13	4 sec	X		
Step 14	2 sec	X		
Step 15	3 sec	X		
Step 16	4 sec	X		
Step 17	1 sec	X		