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Improving SME business with web development technologies at Asian Food Market Oy

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Improving SME business with web development technologies at Asian Food Market Oy

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With the increase in computers and smart devices consumers are spending more of their time in the internet than ever before. A functional marketing website can be a great competitive advantage especially for small and medium sized businesses. This was one of the reasons why a small food retailer in Espoo called Asian Food Market decided that they needed a new website for their company.

The aim of this Bachelor's thesis was to develop a well designed and functional website that would potentially improve the business of a small enterprise. The aim of the website is to increase customer awareness of the Asian Food Market store and increase the number of visitors therefore potentially increasing sales.

The development of the website followed a modified version of the Waterfall software development process. The development tasks were divided into phases based on the Waterfall model and the tasks related to the phases can be seen in chronological order. All design and development choices of the website are explained. The website development was done with a web development content management system called Drupal.

The thesis project ended with a marketing website for Asian Food Market. Since the new website could not be launched in time for this thesis, data about the increase in customers or sales could not be collected. However, based on the interview with the CEO of Asian Food Market the website has all the requested features and will potentially bring in more customers.

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Tietokoneiden ja älylaitteiden määrien kasvaessa yhä useammat kuluttajat käyttävät enemmän aikaa internetissä kuin ennen. Käytännölliset markkinointiverkkosivut voivat olla suuri kilpailullinen etu etenkin pienille ja keskisuurille yrityksille. Tämä oli yksi syy miksi pieni ruokakauppa Espoosta nimeltä Asian Food Market päätti tarvitsevansa uudet verkkosivut.

Tämän opinnäytetyön tavoitteena oli kehittää hyvin suunnitellut ja käytännölliset verkkosivut pienen yrityksen liiketoiminnan parantamiseksi. Verkkosivujen tavoitteena oli lisätä asiakkaiden tietoisuutta yrityksestä ja sen sijainnista sekä lisätä kävijämääriä. Tämä kaikki tehdään yrityksen myynnin kasvattamiseksi.

Verkkosivujen kehitys perustui muokattuun versioon Vesiputousmallista. Kehitys tehtävät jaettiin vaiheisiin Vesiputousmallin mukaisesti ja vaiheisiin liittyvät tehtävät löytyvät opinnäytetyöstä kronologisesta järjestyksestä. Kaikki verkkosivujen suunnittelu ja kehitys valinnat käydään läpi. Verkkosivujen kehitys suoritettiin sisällönhallintajärjestelmällä nimeltä Drupal.

Opinnäytetyöprojektin aikana Asian Food Marketille valmistettiin verkkosivut. Uusia verkkosivuja ei kuitenkaan ehditty viimeistelemään julkaisukuntoon ennen opinnäytetyön kirjoittamista, joten kävijämäärän tai myynnin kasvusta ei ole saatu kerättyä dataa. Asian Food Marketin johtajan kanssa käydyssä haastattelussa kuitenkin kävi ilmi että kaikki halutut ominaisuudet löytyvät verkkosivuista ja omistaja uskoo sivujen tuovan lisää asiakkaita.

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1 Introduction

The importance of having a website for companies rises every year as customers are becoming more and more adjusted to using the internet for searching information. Customers use business websites to find information about the location, opening hours and products of the business (Nickerson, 2010). It is almost becoming a necessity for businesses to have their own websites, since without the visibility and credibility that having a website provides a company, competitors that do have a website are given a big advantage. According to a survey done by Yodle (2013) around half of small and medium enterprises henceforth called SMEs do not have websites. This figure is backed up by another survey done by Weebly (2013). The survey done by Weebly also shows that 56% of consumers do not trust companies without a website. Having a well developed website is a cost effective and efficient way of promoting your business as well as getting into contact with the company's customers (Sterne, 2002).

This thesis is divided into six main sections the introduction, methodology, theoretical background, the development of the website, the evaluation and the conclusion. In the introduction the report will present the company, the background and reasons for the thesis project as well as the objectives, the scope and limitations of the project. The second main chapter will discuss the research approach and various research methods used in the thesis project. The third chapter will set a knowledge base for the rest of the thesis and go through concepts related to the project. The fourth chapter covers the design and development of the asianfoodmarket.fi website. The final two chapters wrap up the report and evaluates the success of the project.

1.1 Company background

Asian Food Market Ltd. is a small Finnish food retailer located in Suvela, Espoo. Their business consists of importing Asian, African and South American food produce and other goods into Finland and selling them in their store. The company was established in 2010 as a sole trader by Juha Korpela and his wife. The company is owned by Mr. Korpela's wife but he is the acting chief executive officer henceforth called CEO of the company. The company was converted into a limited liability company in 2014. He and his wife are the only ones running the store. However, their business is steadily growing and Mr. Korpela has been thinking about hiring employees to help him and his wife. The company is currently without dept and the estimated turnover for the year 2014 is 450 000 € (Pers. com., 2014). They wished to have a new website developed to increase knowledge about the store and its products hopefully leading to an increase in sales.

1.2 Project background

Asian Food Market used to have a website but there were some negative issues that Mr. Korpela wished to have removed by developing a new website. Firstly the old website was based on a free hosting site called Nettisivu.org which had advertisements placed around the pages. Secondly the web address used to be `www.asianfoodmarket.nettisivu.org` and Mr. Korpela wished it to be a cleaner and more professional `asianfoodmarket.fi`. Thirdly the site was poorly designed as well as visually unappealing and unprofessional, since Mr. Korpela is not trained in web development technologies. Fourthly the free hosting service was changing its policy and becoming a paid service. This prompted Mr. Korpela to find a developer to create his store a new website.

During the thesis project and the development of the website students from Laurea University of Applied Sciences Leppävaara on an IT web development course were used as a focus group. We will discuss more about them later in chapter 2.2 Research methods and in chapter 3.4 Students from Laurea University of Applied Sciences.

1.3 Objectives

The aim of the thesis is to develop a well designed and functional website that will potentially improve the business of a small enterprise. This is done by developing a website and showing how each part of the website can be designed into guiding potential customers to visit the store. The idea of the new website is to increase awareness of the store and increase the number of visitors. Ultimately this was done to increase sales and therefore the profits of Asian Food Market Ltd.

The development work was based on web development best practices and the data found with the research methods. The wishes of the company CEO was also taken into consideration. If the CEO's wishes collided with the best practices or the results suggested by the research methods, the CEO's wish would supersede the other alternatives. However, usually Mr. Korpela agreed with all the suggestions. The website had to be developed so that a person with little IT skills can maintain and modify the site if they so wished. We will discuss more of the requirements in chapter 4.1. Customer requirements.

The success of the thesis project would be evaluated based on an interview with the CEO of Asian Food Market as well as an analysis of how well the site meets web development best practices and the requirements set by the CEO.

1.4 Scope and limitations

The thesis focuses only on improving an SME through web development only. Other improvement methods are not included in this thesis. Also the development focuses purely on Asian Food Market and thus all design choices will be made based on their requirements. These requirements may not be similar for each SME.

During the writing of this thesis the new website is still in the testing phase and thus the increase in visitors or the amount of sales cannot be confirmed. The website had to be designed as simple as possible to maintain. This can limit the use of some Drupal modules or features.

2 Methodology

This thesis uses mostly qualitative methods in the research for the development of the website. The research methods used in this project include interviews, a focus group, analysis, benchmarking and wireframing. Although wireframing is not usually counted as a research method I have added it here, since it does play a big role on the visual and functional outcome of the website. Results gathered from the research methods effects the thesis project and therefore building of a better website.

2.1 Research approach

This thesis project uses constructive research as the research approach. Constructive research aims to solve problems and bring new knowledge by inventing and developing new artifacts. Since the artifacts created are new, new knowledge solving a particular issue is created (Metodix, n.d.). Constructive research suits best development projects as it is used to produce a concrete product, in this case a new website. Data gathered by the research methods will be analyzed and used in the construction of the website.

2.2 Development process

The development process chosen for this project is based on the Waterfall model with some features from agile development added. Waterfall model is a very basic development life cycle and thus it is easy to understand and execute. The development is divided into steps and the development is focused on each step in order. However, in a traditional waterfall model following steps cannot be started without the completion of the prior steps and steps cannot be revisited (Westfall, 2008). This makes Waterfall model very rigid, which is why this project those to integrate features from agile development models to allow more space for changes during the development.

The web development for this project followed clear steps as show in Figure 1 but the development steps could overlap each other and a step could be revisited if new information was found. This new information could be feedback from the thesis customer or new data from some of the research methods.

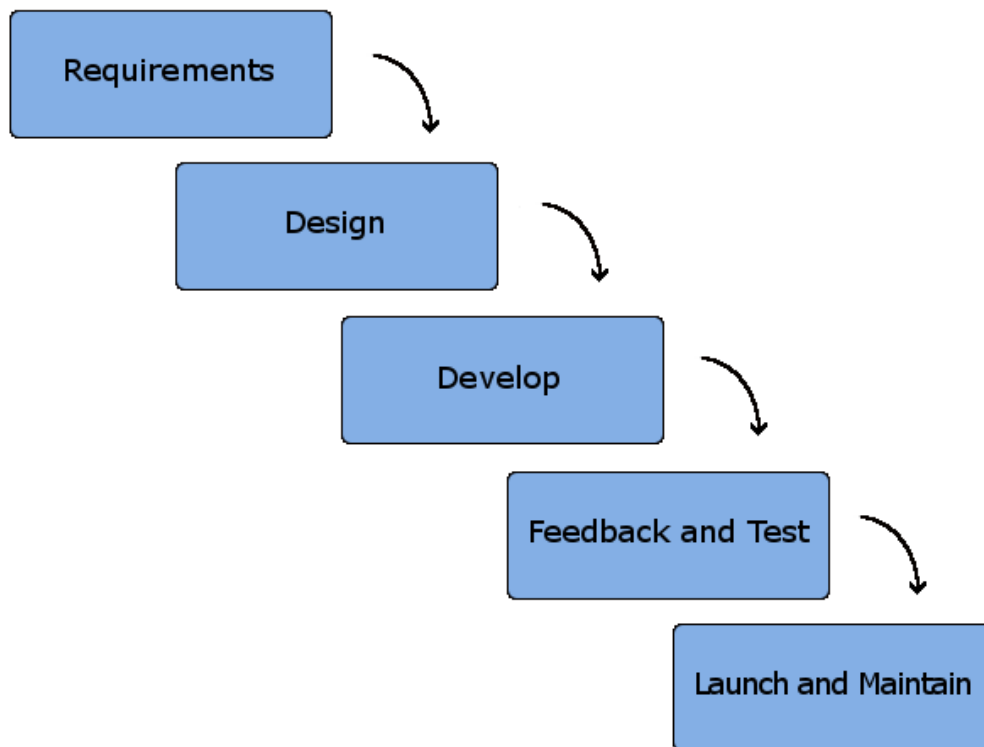


Figure 1: Waterfall model

2.3 Research methods

Two structured interviews as well as multiple unstructured meetings and email discussions with the CEO of Asian Food Market were held during the project. The first structured interview was used to gather the requirements for the website and to gain a general understanding of his wishes towards the site. The second structured interview was to get feedback on how satisfied the thesis customer was and what his future plans for the website are. Design choices and development feedback were discussed in face-to-face meetings and email conversation as this was a much faster and easier way to approve certain designs.

As briefly mentioned in the introduction students from a Laurea University of Applied Sciences Leppävaara web development course were used as a focus group for this project. A focus group is qualitative research method where a group of six to ten people gather to discuss a

certain topic usually about new products or to test concepts (Edmunds, 2000). However, instead of discussions the course actually developed their own simplified versions of the Asian Food Market website based on the requirements gathered in first interview with Mr. Korpela. Some of these findings and design choices made by the students were then used in the later stages of development. Many of these can be clearly seen on the final Asian Food Market website.

Analysis of web development books and web sites were used to find out what the current web development best practices are and what design choices would be the best option for the website. Analysis was also used to see if certain design choices were compatible with current best practices. All the documents done by the students from the focus group were analyzed and compiled into a greater list. This list was then used to justify certain development choices. Generally analysis was embedded in each part of the development as well as in some other research methods.

Benchmarking is a research method that allows improvement by comparing your service to similar services around the internet that are already recognized as great services. The idea is to learn from these already established sites that what makes their service the best in their field and use similar yet improved features in your own site (Andersen & Pettersen, 1996). Benchmarking was used to compare the websites of companies similar to Asian Food Market and see what features their websites had and how the site was visually presented. These features were marked down and the list was analyzed to see which of the features were necessary to be implemented to the Asian Food Market website. Benchmarking was also used when I went through the website created by the focus group comparing various areas of the websites.

Wireframe is a visual representation of the layout and features of the future website. It is an easy method of gathering early feedback from customers by actually showing the customer how the site would look when it is finished (Wulf, 2012). Wireframes were used in this project to create visibility for the thesis customer to see the design of the website before development and allow him to make suggestions and changes to the original designs. The created wireframes were analyzed and sent to Mr. Korpela with my suggestion to see which he preferred to most.

3 Theoretical background and knowledge base

In this chapter several related supporting concepts are explained to provide a deeper understanding of the project and the choices made in it. Some of the concepts may be necessary to understand to gain a full understanding of the project.

3.1 SME

SME stands for small and medium enterprise. According to the European Union (2003) a business can be considered medium sized enterprise if it has been verified as an enterprise, it has fewer than 250 employees and its annual turnover is less than 50 million Euros. The thresholds for small enterprises are fewer than 50 employees and less than 10 million Euros of annual turnover. The company this thesis project is developing the website for, Asian Food Market, is a small enterprise.

3.2 Web marketing

Marketing is the action of presenting a product or service in such a way that customer will wish to buy the product. Web marketing is trying to achieve this via the Internet. This includes web pages, social media, blogging, email campaigns, search engine optimization and so forth (Michie, 2006). Traditional marketing and web marketing are essentially working towards the same goal to get a consumer to buy the product or service. The means to achieve this goal are different.

The Internet has brought great changes to the way companies market themselves. The websites of a company are available for millions to access for a very affordable price. Essentially web marketing allows a company to market for a bigger audience for a smaller price. However, the visitors themselves must come to the website to see the information. Web pages cannot be broadcasted like television or radio commercials (Sterne, 2002). This means that websites must do everything in their power to be interesting and useful for the visitors, since the visitors can easily leave anytime they wish.

Web marketing is also more personal than traditional marketing as messages and advertisements can be tailor-made for specific customers or groups. Customers can also leave feedback, comments or even open a chat with an employee. Successful web marketing relies on similar aspects as traditional marketing but in addition to that one must take into consideration additional facts such as search engine optimization, social media, user friendly design and fast loading times. Successful web marketing is exactly what this thesis is trying to achieve by developing the website for Asian Food Market.

3.3 Web technologies and related concepts

The following chapters will go through web related concepts that are tied into this thesis. This is to give you a basic understanding of the concepts before they are used later in the

thesis. Web technologies are numerous and it is a very wide topic to discuss. Web technology is a topic that includes various web development languages, servers, software, tools and protocols. This thesis will only focus on areas that are intimately related to the project.

3.3.1 Software development process

Software development process is a process that is used to give a software development project a plan and the structure it needs to be successful. There are multiple different software development processes that all fit various needs for different types of projects. All the multiple development processes have their own strengths and weaknesses (Department of Health & Human Services, 2005). These strengths and weaknesses govern what process should be used for what kind of project. The development process is divided into phases that guide the project forward until the goal is met. These phases are different for all development processes. Although the name of the framework is software development process it can also be used for other project as well, such as web development.

3.3.2 Web development

Web development refers to the tasks related to developing a website. This includes designing, programming, publishing and maintaining the website. There multiple ways to develop websites and web services. Websites can be coded with HTML and CSS straight with text editor software, developed with a program such as Dreamweaver, programmed with ASP.NET or developed with a content management system like Drupal or WordPress (TechTerms.com, 2013). These methods have their own benefits and drawbacks. The general idea is that the simpler the development tool is to use, the less customization options it has. This thesis project uses a content management system approach because the maintaining of the site is easiest for someone who is not trained in web development technologies when using a CMS.

3.3.3 CMS

CMS is an abbreviation of the term content management system and it means just that, a system managing the content of a website. In a content management system content, layout and functionality are all separated from each other and only put together for display in a browser (Hauschildt, 2011). This is to limit extra workload for developers, to allow experts of a certain field to focus on their own respective areas and to easy the modification and deletion of content without affecting the rest of the site. CMS's are especially used in marketing websites for their ability to control and organize large amount of content such as products.

The greatest benefit of CMS's is that the user of the system does not need web developer skills such as knowledge about programming languages. The user must only know how the interface of the specific CMS chosen is used. Other benefits include remote access to the development interface, automatic search engine friendliness and developer access rights allowing different amount of rights for specific persons (University of Kansas, n.d.). Some drawbacks include recent security issues and possible slower loading times in larger CMS's. According to BuiltWith (2014) the most popular web CMS's are WordPress, Drupal and Joomla with WordPress as the clear leader. Drupal and Joomla switch places depending on the sample size. The popularity of Drupal and Joomla heavily depend on the size of the website with Drupal being favored by bigger sites with more content and more traffic.

In the case of this thesis project the visual design, layouts, site functionality and basic page structure was developed for the thesis customer. All content such as products, images and company introductory texts are left for the thesis customer to add. Mr. Korpela will be taught how to use the system properly and the administration will be left for him once the final site is ready.

3.3.4 Drupal

Drupal is an open source community created CMS with built-in tools that allows web developers to create and organize content on their web pages. It is written in PHP, a server-side scripting language used for web programming (Melancon et al., 2011). The base version of Drupal called Drupal Core can be modified and extended with multiple different readymade community modules. These modules can be used to create various functionalities or features for a website. Similarly themes that dictate the visual appearance of the site can be downloaded readymade. Added modules and themes might need to be set up properly to provide the value expected of them.

Drupal was originally developed by Dries Buytaert as a web board for his student friends. In 2001 Drupal went open source and the first version was released (Drupal, n.d.). Currently Drupal 7 is the newest version with Drupal 8 in development. Drupal requires a web server and a database where it can store content and settings as well as an operating system that supports PHP to function. Figure 2 shows the technology stack of Drupal (Tomlinson and VanDyk, 2010).

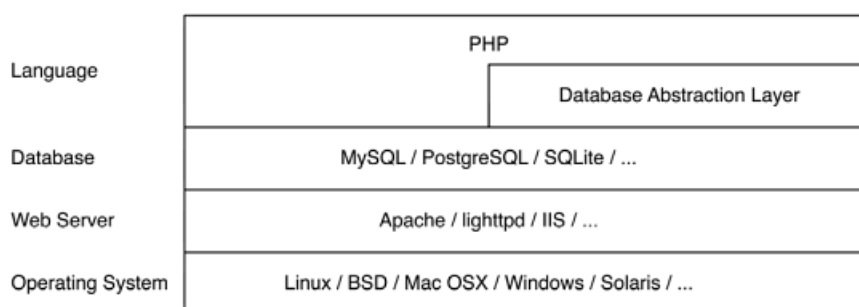


Figure 2: Drupal Technology Stack

Community created modules and themes are Drupal's greatest asset as developers can focus on building the unique aspects of their site instead of recreating features that have already been created by others (Drupal, n.d.). The scalability and versatility of Drupal make it one of the best free CMS's around for developing commercial sites. However, Drupal might not suit well smaller sites as the learning curve for Drupal is quite steep compared for example to WordPress.

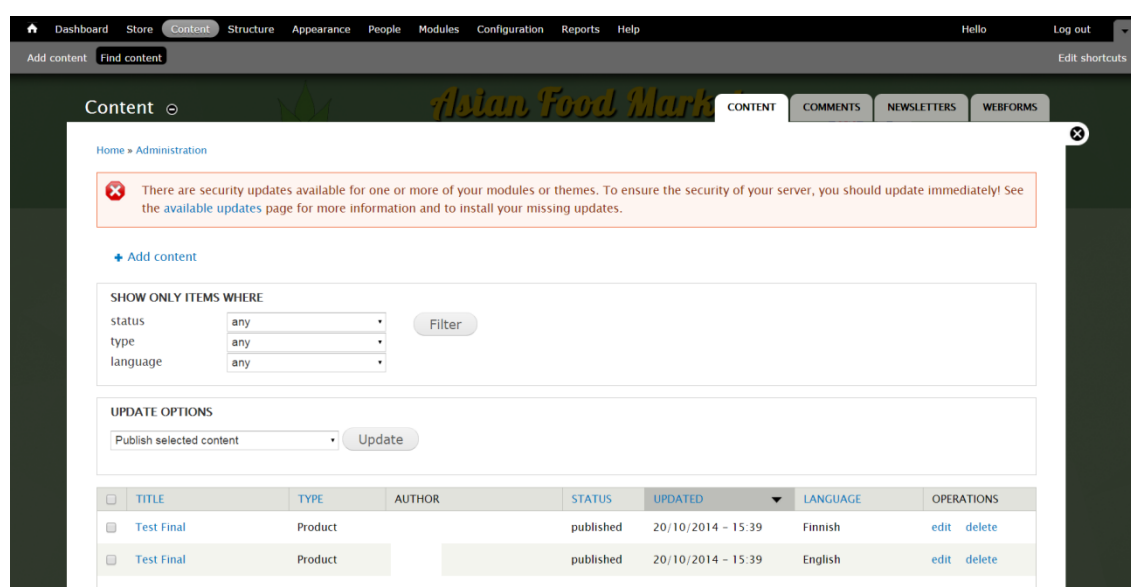


Image 1: Drupal Interface

In the Image 1 below the content creation screen of Drupal 7 can be seen. For more on why Drupal was chosen for this project please see chapter 4.2.1 Choosing the CMS.

3.3.5 HTML

HTML stands for hypertext markup language and it is used to develop web pages. All web pages are basically text documents that are available online. They are made out of HTML even though some web development tools do not require the developer to actually write the

HTML markup themselves. HTML can be written in any text editor and be displayed in a web browser (Duckett, 2004).

HTML documents are written with keywords called tags that give the document a tree like structure. These tags have an opening tag and ending tag with text or other tags inside. Attributes can also be added to the tags to give the browser more detailed information on how to render the information between the tags (W3C, 2014). Depending on the tag text or attributes within the tag will be rendered differently by the browser.

In this project there were only a few occasions when HTML was written by hand as Drupal automatically provides the HTML based on the settings given to it. However, it is important to understand the HTML code of the site especially for troubleshooting problems.

3.3.6 CSS

CSS is an abbreviation of the words cascading style sheets. CSS is used to provide visual styling and layout to the web documents created with HTML. CSS can be written inside HTML documents or it can exist in its own document. CSS allows designers to quickly stylize all the pages of a website to a similar style in one document. Basic CSS rules consists of two parts a selector and declarations. Selectors refer to the elements or tags inside the HTML document. The declarations will override the default styling present in the HTML element or tag chosen by the selector (Duckett, 2004). Two different elements and their CSS code are shown in Image 2. The element on the left is how the Facebook link appears on the final website and the one on the right has had its CSS modified. The selector in this case is `a#footerfacebook` an element created by the developer. The texts below the selector are declarations.



Image 2: Effects of CSS

Unlike HTML CSS was used heavily on this project, because a basic adaptive theme on Drupal was used. This theme had barely any visual design and the website needed to be modified to support the visual identity of Asian Food Market anyway. New CSS code was first tested with

either Firebug, a free developer tool for Mozilla Firefox, or inspect element in Google Chrome. After these pieces of code were found suitable they would be added into the CCS files inside the theme.

3.3.7 Web Hosting Service

Web hosting is a service offered by hosting companies that provides storage and services necessary to be able to publish your own website online. Having your website in a hosting service increases the availability of your website as web hosting companies usually use backup generators. If a good web hosting company is used, their server and internet connection also might be faster. Availability and fast connections are crucial for a business website as consumers are not willing to wait. Using web hosting services is not mandatory for a website, but it eliminates the need for owned servers and complex setups (Pollock, 2013). However, using hosting services also denies access to these setups. If changes are required, they can only be changed by the hosting company responsible and some companies are not willing to change these settings.

There are three main types of web hosting: dedicated hosting service, shared hosting service and virtual dedicated hosting service. A dedicated hosting service includes a server and its resources are reserved only for the user of the dedicated hosting service. On a shared hosting service multiple different sites are stores on the server and the server's resources are shared between the sites based on the needs of the individual sites at all times. Virtual dedicated hosting is a mix between the first two. Multiple sites reside within the same server but resources are pre-distributed and sites cannot access the resources of the other sites (Partner, n.d.).

3.4 Students from Laurea University of Applied Sciences

I was given the opportunity to work with a Laurea web development course as a customer for the students for their practical development project. These were students studying for an information technology degree, but were still learning web development. The students were used for brainstorming new ideas and features for the website. They were divided into groups and assigned to develop their own simplified versions of the Asian Food Market website based on the requirements I had gathered with the interviews. These interviews were trimmed down and simplified before they were handed to the students. Since the students developed the websites from scratch, every student group had varying design and features based on their own idea. The students from the web development course will be called support group henceforth in this thesis.

The ideas, features, technical solutions and designs were later incorporated into the new Asian Food Market website. Image 1 displays the home page of one of the student group's website.



Image 3: A student group developed home page

4 Development of asianfoodmarket.fi

The following chapter will discuss the development of asianfoodmarket.fi, the website developed for Asian Food Market Oy. I will talk about the development phase by phase following the waterfall model in chronological order. I will explain design choices of the site and why the site was developed the way it is. The development choices were based on the findings of the various research methods.

4.1 Customer requirements

The development project started by collecting customer requirements for the website. This was done by interviewing the CEO of Asian Food Market, who would later become the site administrator. The whole interview can be found in Appendix 1. More in-depth knowledge about the requirements was gathered with email conversations after the interview had taken place.

According to Mr. Korpela (2014, Pers. com.) the most important task the site should accomplish is to increase sales. This is done by increasing the visibility of the store and products as well as guiding more potential customers to the store. The site should be made simple and clear yet professional in its appearance. Since Mr. Korpela does not have a technical background the administration of the site should be made as simple as possible. He needs to be able to add, remove and modify products, product groups, images, page content and offers. Two accounts were created for Mr. Korpela. One with the necessary rights to handle the tasks mentioned above and one account with full administrator rights just in case. This was done to prevent Mr. Korpela from accidentally editing settings or configurations of crucial areas of the website.

Requested Feature	Reasoning
Company introduction	Gives visitors an overview of the company.
Company location displayed on a map	Helps customers to navigate to the store.
Products should be categorized	Eases product searching and site navigation.
Products should have images and product descriptions	Allows customers to check products on the website in advance before visiting the store.
Products on sale should be promoted separately	Allows for more visibility for the products on sale.
Visitors can write feedback	Allows customers to involve themselves with the company. Can improve company services.
Visitors can leave comments	Allows customers to involve themselves with the company. Can improve company services.
Visitors can subscribe to a newsletter containing news and offers	Keeps customers coming back to the store in search of new offers.
Promoting RIA money transfer service	Brings more customers to the store
Available in both English and Finnish	Increases the amount of potential customers and eases the navigation of visitors from their respective languages.

Table 1: Customer requirements

Above in Table 1 is a list of features that the website should have according to Mr. Korpela (2014, Pers. com.). The reasons why these features should be included are shown as well. After discussing with Mr. Korpela it was decided that a few of the features mentioned in the interview would not be developed. An online store would not be developed alongside with the basic website, because of potential difficulties with money transfers, order handling and time constraints. Another feature that was dropped was the recipes feature. The idea was that recipes would have been shown for specific products to show what kind of dishes could be made from the produce on sale. This feature was dropped as it was not deemed worth the time it would take to develop and more important features took its place. However, social networking such as links to the company's social media pages in Facebook and Twitter were added to the requirements later on.

4.2 Choosing the development method

Using a CMS was chosen as the development method for this website because of the following reasons: security, ease of creating new content, scaling to various screen sizes, content management and remote controlling. CMS's have in-built security. This lets the developer focus on building the website and with the proper access rights administration of the site can be done anywhere. The most important reason was the ease of creating and modifying content. Using a CMS eliminates to some extent the need for the administrator to know web development languages. This is important for asianfoodmarket.fi since the future administrator is not trained in these languages. All the new content created will automatically be created with the same visual design as the others only the content itself is different.

4.2.1 Choosing the CMS

Now that CMSs' had been established as the best development method for this project, the best CMS for the task had to be chosen. The CMS had to be open source to cut unnecessary costs. This still left a lot of open options. Mr. Korpela did not have any preferences as long as he was able to administer the tasks mentioned before. Drupal was chosen over other CMS's for two main reasons. It was the only web CMS that I was familiar with and because the support group was developing their websites with Drupal as well. Drupal also is able to meet all the customer requirements.

4.3 Choosing the design

This chapter discusses the design phase of the development project. The design phase included benchmarking websites of companies similar to Asian Food Market as well as the websites of well established Finnish food retailers. This was done to see the visual layout and design as well as features of similar industry websites and imitate the strengths of their websites. Multiple wireframes of the basic pages were made based on the benchmarking in order to see what layout Mr. Korpela preferred for his website. The navigational structure of the website was decided after the amount of main pages was decided and product categories had been discovered from Mr. Korpela. After the layout was settled the color design of the website was next in line. Finally the work of the support group was looked into and best features and design ideas were added to the design of the website.

4.3.1 Benchmarking

The aim of benchmarking is to identify the best features and designs from various sites and incorporate them in your own website. These areas must be modified to fit the design of your website. During this benchmarking it was especially important to see how food retailers had displayed the features that the owner of Asian Food Market had requested instead of finding new features. Based on the benchmarking the design choices in Table 2 were found.

Feature	Findings
Language selection	Language options will be represented by flags instead of text.
Search function	The search button will be represented by a magnifying glass instead of text.
Feedback form	Feedback form will be added to a page dedicated for feedback alongside the customer comments. The feedback form is used for longer and more important customer messages that require a response from the company. The form requires some personal information from the sender such as a name and an email address.
Customer comments	Customer comments will be added to a page dedicated for feedback alongside with the feedback form. Customer comments are to

	be designed as an easier and faster alternative for the feedback form. Anyone can leave a comment without registration or leaving contact information.
Newsletter	Should be designed as simple as possible to encourage customers to order the newsletter. Requires the customer to enter their email address and click the order button.
Offers	Has its own dedicated page.
RIA money transfer	Has its own dedicated page with more information. The service is promoted on the front page.
Company introduction	Has its own dedicated page with a Google map that is automatically centered on the store.
Products page	Products are divided into categories and some larger categories are further divided to subcategories.
Individual products	Every product has an image, a product description, a category, a product number, a country of origin and an indicator whether the product is currently on sale or not.

Table 2: Benchmarking features

To give an example of one of the sites used in the benchmarking called Spices of India can be seen Image 4 below. This website had a large impact on the Asian Food Market site as the wireframe based on the site was chosen as the base layout for the Asian Food Market site. The way different features are divided into boxes was seen as a clear and compact way to display content on the front page. It was added to the list of layout solutions to be wireframed. The front page has short teasers for content on the site such as offers and customer reviews. This approach was used on the asianfoodmarket.fi site as well. Also the three column approach of the layout was added as a layout solution to consider. However, the clarity of the site could be improved as there is currently too much for the user to take in at once. Currently the user can miss some features as they are overclouded by others.

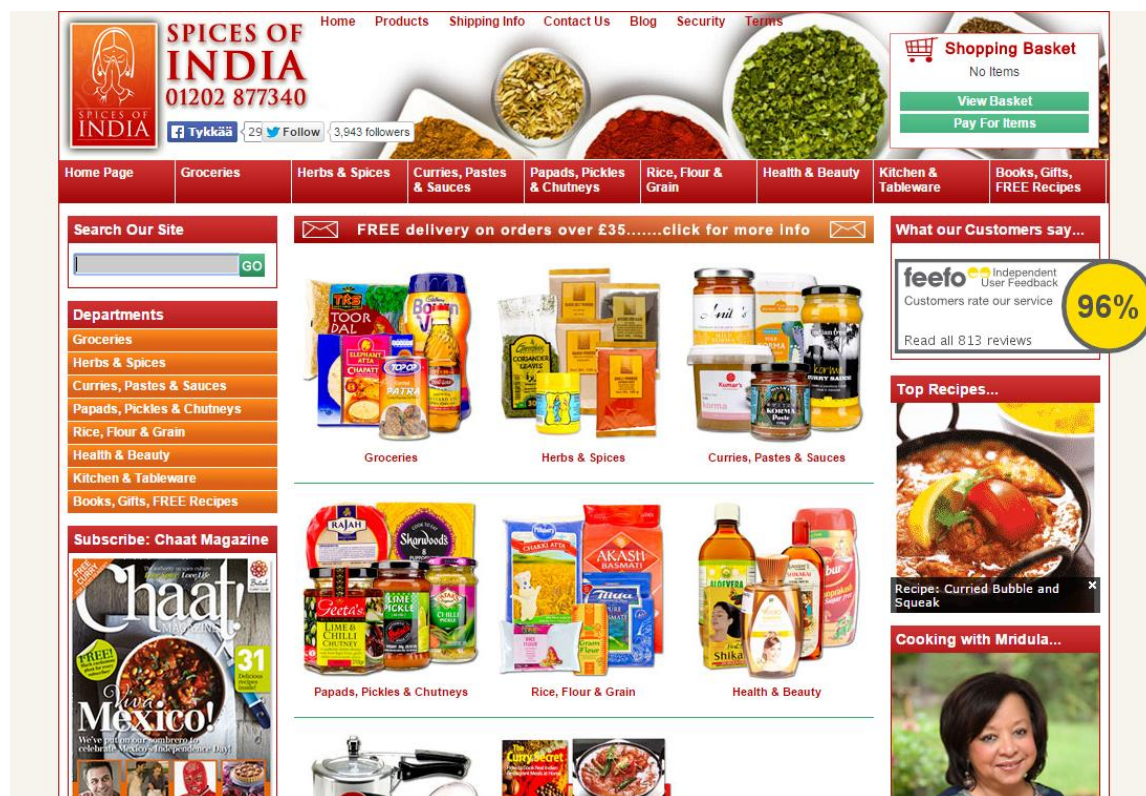


Image 4: Benchmarking Spices of India

4.3.2 Creating wireframes

Simultaneously with the benchmarking wireframing was underway. Based on the findings so far from the benchmarking and customer requirements I created multiple wireframes to show possible layouts of the website and asked Mr. Korpela which one he preferred. The layout chosen for the website can be seen in Figure 3 below. This layout was considered best by both me and Mr. Korpela (Pers. com., 2014).

The reasons for this were the amount of content that could be fitted to the front page without compromising the clarity of the site and the use of images instead of text areas. Content on the front page was deliberately divided into columns depending what the content was related to. Site navigation tools such as the search bar and the alternative navigation menu were placed on the rightmost column. The alternative menu that was later changed to a product menu. The product and service promotions were placed in the leftmost column. The Facebook like box was added to the rightmost column to balance the lengths of the columns. All in all the three column approach is a modern way of displaying content on a retailer website.

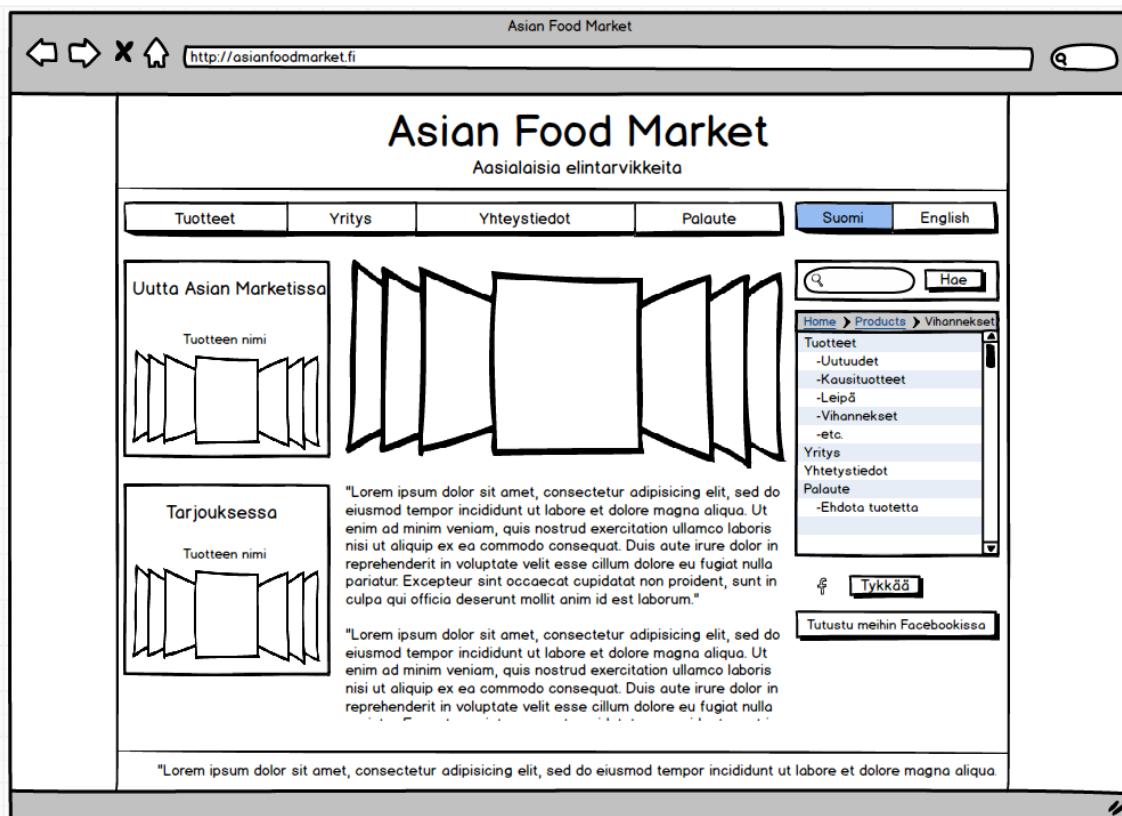


Figure 3: The chosen wireframe of the home page

In Figure 4 is the wireframe chosen for the product page. This page saw more change as after discussing with the CEO of Asian Food Market it was decided that only the name of the product and its picture would be shown in the teaser. However, the placing remained the same. All the pages excluding the home page have a two column layout with one larger column on the left and a narrower one on the right side. This was done to provide more room for the content. The header, footer and right column remains the same on each page of the website even though they are different in this picture compared to the previous picture.

The layouts are not exactly the same as on the final site but they acted as a guideline for the development. The header and footer sections especially have later changed. Some features are still missing from the wireframes such as the newsletter. Other iterations of the wireframes can be seen in Appendix 2.

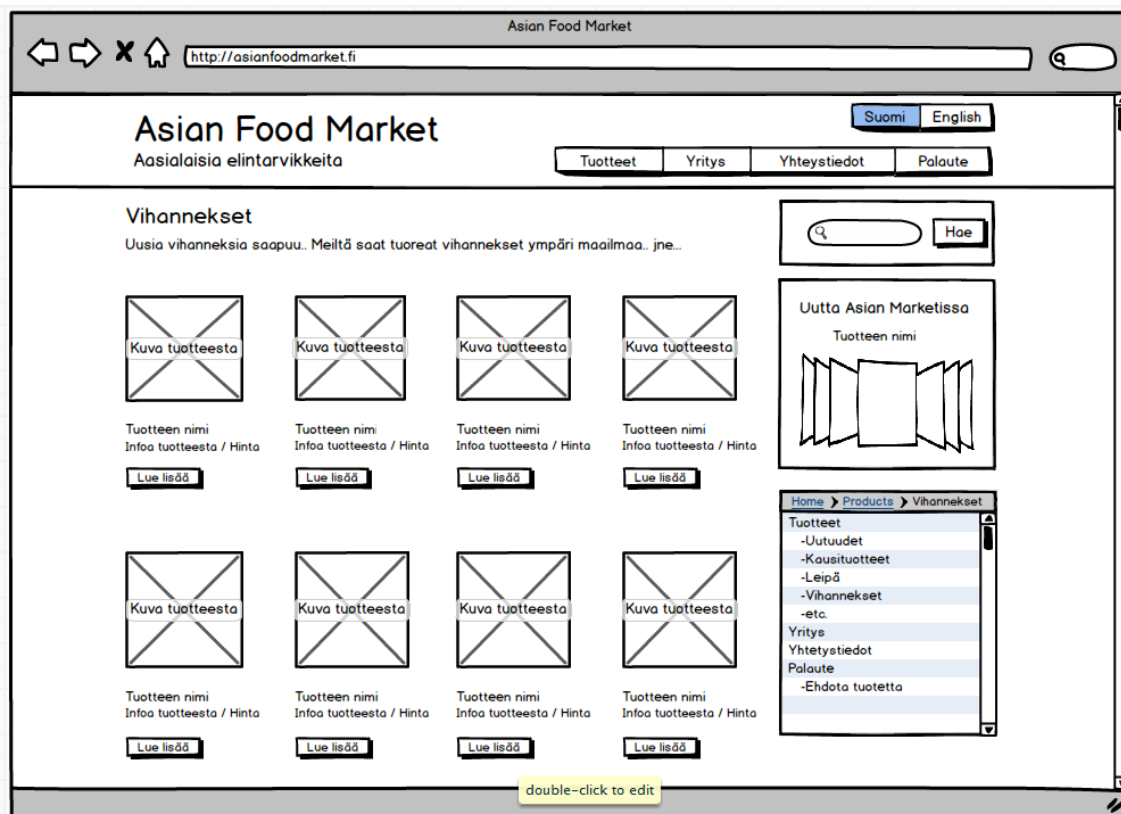


Figure 4: The chosen wireframe of the product page

4.3.3 Navigation structure

Navigation affects search engine optimization and the usability of the site. Simple and descriptive links are better for search engines as well as visitors and overloading navigations with links should be avoided (Crestodina, 2012). This in mind the site navigation was made as fast and simple as possible. All the pages have the main navigation at the header as well as the product navigation on the right side column. The number of links in the main navigation is five which is under the recommended maximum of seven. The product menu has more than seven but this is acceptable as there are a set number of product categories. The website is designed to allow users to get to any destination on the site with only three clicks. The website navigation structure is shown in Figure 5 below.

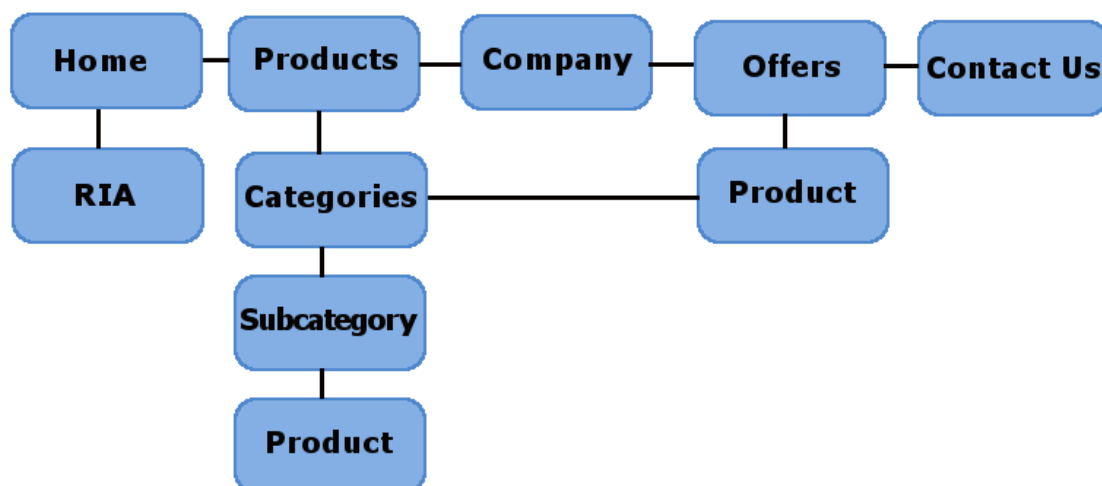


Figure 5: Navigation Structure

The five pages at the top are the pages that are linked by the main navigation menu. Pages below them can only be accessed via that page. The reason the product page is displayed twice on the figure above is because individual products can be accessed from both products page and offers page. Individual products also have links back to both the categories page and the offers page in case they are currently on sale.

4.3.4 Choosing the color scheme

Creating a working color scheme for a website is especially important for marketing websites as colors can be used to represent or create certain emotions in the visitors. However, Asian Food Market already has a green color scheme on the exterior of the shop and Mr. Korpela wished to use the same color scheme on the website. Using the same color scheme will allow for the store and the website to share a similar identity as well as have visitors recognize one via the other. The shop exterior can be seen in Image 5 below. The shop interior is quite bland and has no specific colors so the interior was not useful when figuring out the color design of the website.



Image 5: Shop exterior

At first the website's color design consisted only of various shades of green. This wasn't enough variation according to Mr. Korpela (Pers. com., 2014) and he wished to incorporate a little more vividness to his future site. The business card in Image 6 was used as the basis of the secondary color for the website. Also the yellow color of the name of the company was also used for the company name in the header of the website.



Image 6: Asian Food Market Business Card

The shades of green were still used of the background of the site and the new orange color was added to the content boxes of the website. In Image 7 the old green and new orange versions of the search bar can be seen. The effects this had on the home page and color iterations of the whole front page can be seen in Appendix 3.

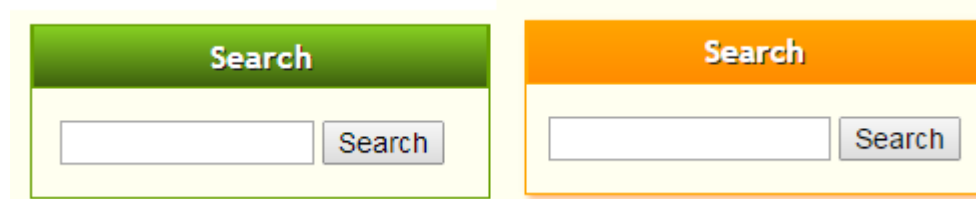


Image 7: Color variations of search bars

The colors chosen for the website have symbolic meanings. According to Color Matters (n.d.) green color represents nature, growth, safety and luck. For a food retailer the image of pure and safe products and a link to nature in general is important. Orange color signifies health, energy, excitement and warmth. It can also be associated with nature as well. Not only do green and orange visually fit well together, ideologically they are rather similar as well since both have ties to nature, health and food.

4.3.5 Improving designs with support group findings

The support group was simultaneously developing their own websites as I was. The existing website was improved based on the best ideas and features the student groups had developed during their course. There were three main design choices that were taken from the sites developed by the support group.

The header design was changed to look appealing by moving the navigation and language selection to the header section since there was ample space there. This also gives the web pages a better balance. The design of the footer was mimicked from one of the students groups since it was clear, concise and fit a lot of information. Also it fit the design of the website as the three column design also appears on the front page. The footer has the contact information of the company for visitors to see them quickly on any page they are visiting further lowering the barrier of visiting the store. Also social media links were added to the footer because of a recommendation by the support group. The promotion of offers and RIA on the front page was originally a support group idea as well. Having the offers and RIA teasers on the front page allows for a shortcut to more information on these services.

4.4 Functionality

This chapter talks about the Drupal themes and most important modules that were required for the functionalities of the site to be implemented. I will only discuss about the modules that were specifically chosen to handle a feature requested by Mr. Korpela. This is because the project currently has 130 active modules.

4.4.1 Choosing the theme

The Drupal theme chosen for this project was AdaptiveTheme, since I had previously used this theme in another web development project using Drupal. The theme had worked well then and I now had experience on how that theme worked. As the name of the theme implies the theme is adaptive allowing the website to show properly on any browser or screen size. This is the main reason it was chosen for this project as it limits the time used for optimizing the site for various devices and browsers. However, some modifications still are necessary.

4.4.2 Choosing modules

Modules are used to extend the Drupal core and add functionality to the website. The following modules were used for the most important features. There are two e-commerce modules for Drupal that are more popular than the others Ubercart and Drupal Commerce. Ubercart is currently the more popular of the two. This project needed an e-commerce module that was simple, fast to set up and could set up products and product categories. The payment and order processing normally required for e-commerce sites was not necessary as no web store would be developed. Ubercart is simpler and faster to set up as it has a lot of features set up ready right after installation. However, Drupal Commerce allows for more customization and control over your e-commerce features (Ryoko, 2011). Ubercart was designed for smaller stores with simple products with little variation in the attributes of the products. Ubercart was chosen for this project as the extra customization options and controls were not needed for the website. Ubercart also allows for the website to transition to an e-commerce site in the future. Ubercart was the most used e-commerce module among the support group as well.

The Google map on the Company page was created using the Geofield and OpenLayers modules. These modules were chosen since I had used them in a previous web development project and I was already familiar with them. The Facebook like button was created with the Facebook Likebox module. This module was chosen over other social media modules due to its simplicity. Other social media modules offered unnecessary features such as post walls or social media sites that Asian Food Market was not involved in. The Facebook Likebox module was also easy and fast to set up. Similarly the Simplenews module was chosen to handle newsletters as it was the simplest to configure and use out of its competitors.

The feedback page uses a Captcha module and a module called Webform. The Webform module allows for visitors to fill out a form crafted by the developer and send it to the website administrator via email. The Captcha module was used to prevent spam by having visitors authenticate themselves as human with a visual mathematical task before they could send the

feedback form or add comments on the website. A module called internationalization and its submodules were used to allow the site to become multilingual.

4.5 Setting up features

I will not go into detail about the actual development work as the set up itself does not provide much new information for improving the business of the company. The designs and features mentioned in previous sections were implemented using the modules mentioned before as well as other supporting modules. In the image below the current state of the home page during the writing of this thesis can be seen. All the main pages can be seen in Appendix 4.



Image 8: Home page of asianfoodmarket.fi

Products were given attributes such as category and whether the product was on sale or not. Based on these attributes the product would show up within a certain category, inside the offers page and/or the currently on sale block. Newest products would show in the new products block as well.

The new products and current offers blocks on the front page were made to show a slideshow of teasers of the products that are new or in sale respectively. Arrows were added to allow visitors to move to previous or next product if they wanted. Clicking the product name would take them to that product's own page with more information. This allows for better promotion

of these products increasing customer awareness thus increasing sales. With a slideshow approach more products can be promoted in a smaller space.

The newsletter gathers a list of all the email addresses of the subscribers and the administrator can send email that is content straight out of the website such as products in sale or he can generate an email by himself. The email for sending the mass-emails was set to info@asianfoodmarket.fi.

The feedback form the visitors can fill is sent as an email to Mr. Korpela's email address and the administrator after the user has passed the captcha and the form is correctly filled out. The message details are also stored within the Drupal database and can be accessed with administrator rights. Comments can be written by anyone without login. However, a captcha must be passed and the administrator has to verify the comment before it is visible for other users. These steps are done to improve the customer experience by reducing spam and hateful messages.

Language versions are handled so that duplicates of most content exist, one for each language. The versions of the content are shown based on the active language. Even though this creates more work when adding new content such as products it also allows for more customization and easier translation of whole entities. This allows for translations to link to other translated versions instead of the original ones from a different language making exploring the website much easier for visitors.

4.6 Transferring to a live environment

After most of the features had been added, the website had to be moved online, since until now the website had been available only on my computer. There were basically two options, hosting the website on Asian Food Market's own servers which they didn't have or use a web hosting service. Since Asian Food Market did not wish to buy new servers and have them configured, the web hosting service approach was used.

4.6.1 Choosing the web host

The web hosting company was chosen by Mr. Korpela as Asian Food Market was the one paying for the service. However, I gave Mr. Korpela some tips and requirements. After some bad experiences with foreign hosting services I suggested that a Finnish based company would be used. The hosting servers should work with Drupal, MySQL and have an email service. Also since the monthly cost is quite low, it would be better to take enough disk space and traffic usage so that the website will not run into problems right when it is launched undermining

the whole website project. Mr. Korpela finally chose a hosting company called Louhi Networks that is in line with my suggestions.

5 Evaluation

The website is currently in the testing phase and it is not yet available for the public to access. Because of this data about the increase of visitors to the store or the increase in sales could not be gathered for this thesis and these factors cannot be used for the evaluation of the project. This is why I had a discussion with the CEO of Asian Food Market, Juha Korpela, on how he thought the web development project had gone and what would happen in the future.

The main aims of the new website were to increase knowledge of the company and about the location of the store as well as increase the sales. Mr. Korpela informed me that when the website launches it will be promoted with Google AdWords hopefully bringing visitors to the website and increasing knowledge about the store (Pers. com., 2014). This is why Mr. Korpela also expects that the amount of customers will increase after the website is launched. He also believes that since the customers can send feedback on the website, the selection of goods sold will probably increase. Mr. Korpela is delighted that the website has all the features that were agreed upon and he especially enjoys the layout and colors of the website (Pers. com., 2014). All in all Mr. Korpela has been very satisfied with the development process.

6 Conclusion

I believe the project has been successful and that the sales of Asian Food Market will increase in the future. However, the future success of the website requires Mr. Korpela to keep the content of the website updated and fresh to bring visitors back to the website and therefore possible bringing them to the store. I will keep developing the website until it has been thoroughly tested and launched successfully. The following areas still require some work before the site can be launched: search engine optimization, screen size optimization, mobile device testing and security testing.

Mr. Korpela has plans for an online store to be built alongside the current website. This could be built on top of the original website as it uses the Ubercart module that is designed for handling online stores. However, a lot of modifications would be needed. This task could be a perfect thesis task for an information technology student.

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Appendix 1: Gathering customer requirements, Interview with Juha Korpela

Asian Food Market

Interviewer: Tommi Kujanen

Interviewee: Juha Korpela, Owner of Asian Food Market Oy

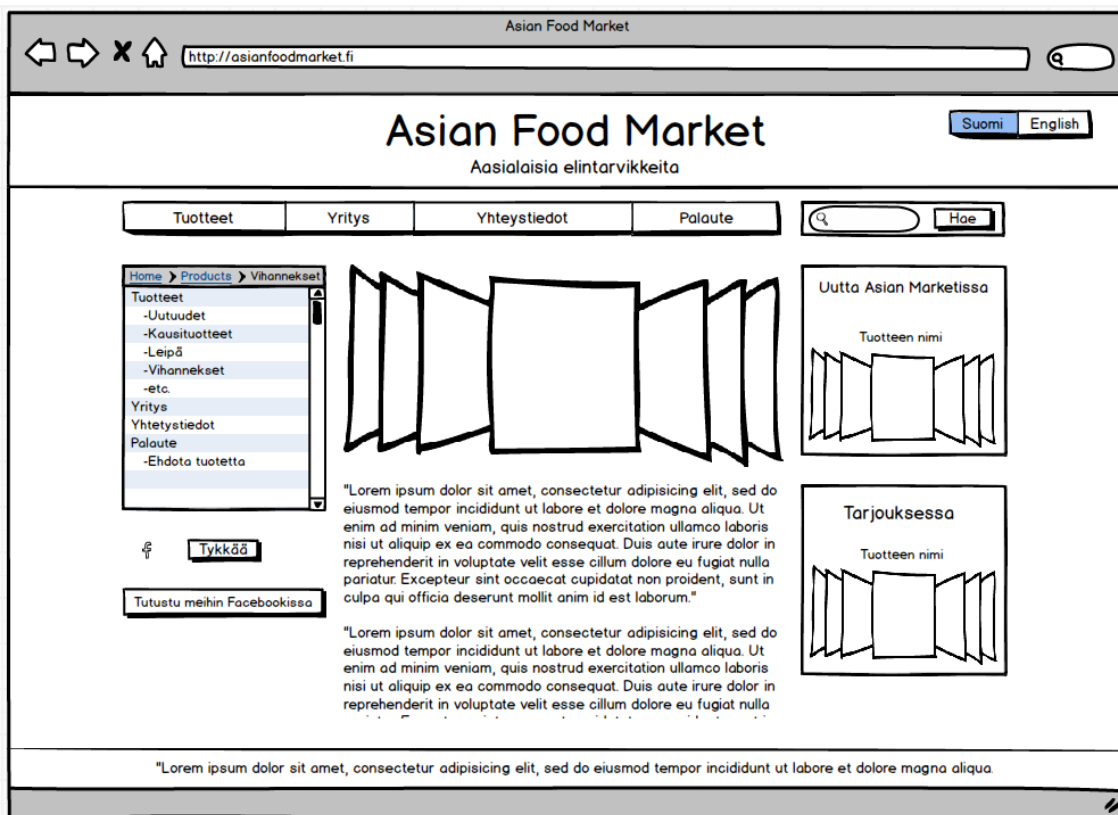
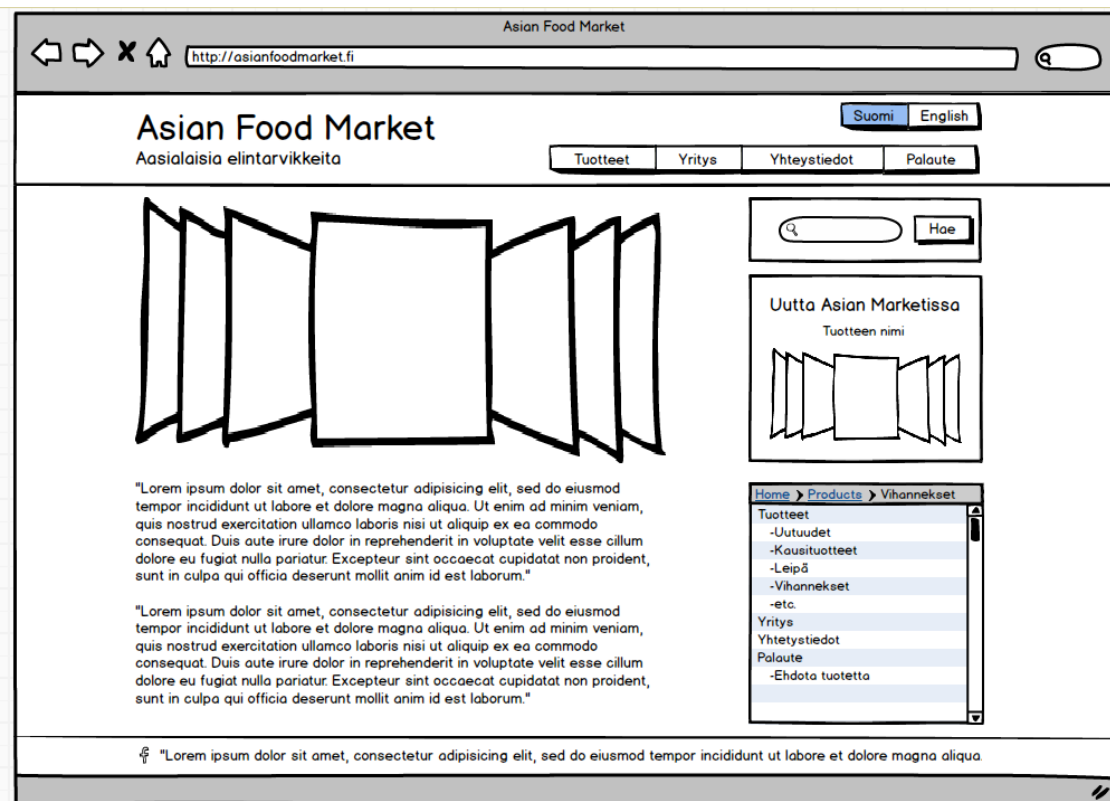
Topic: Customer Requirements

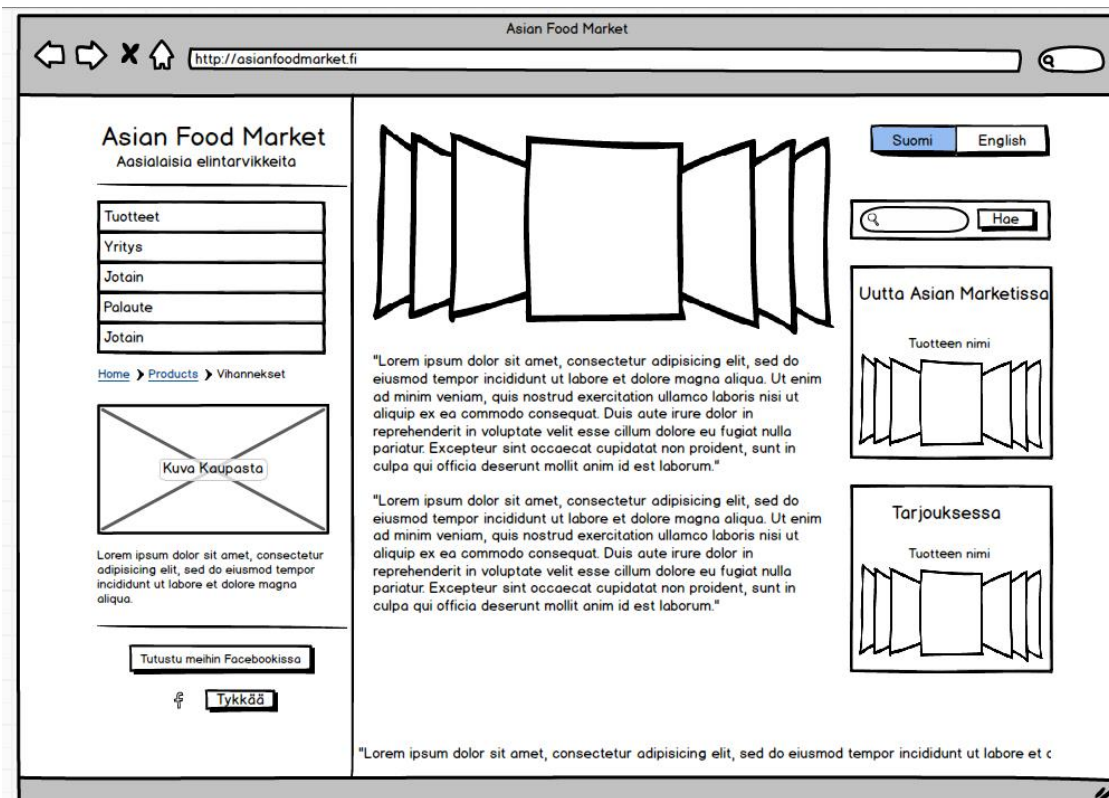
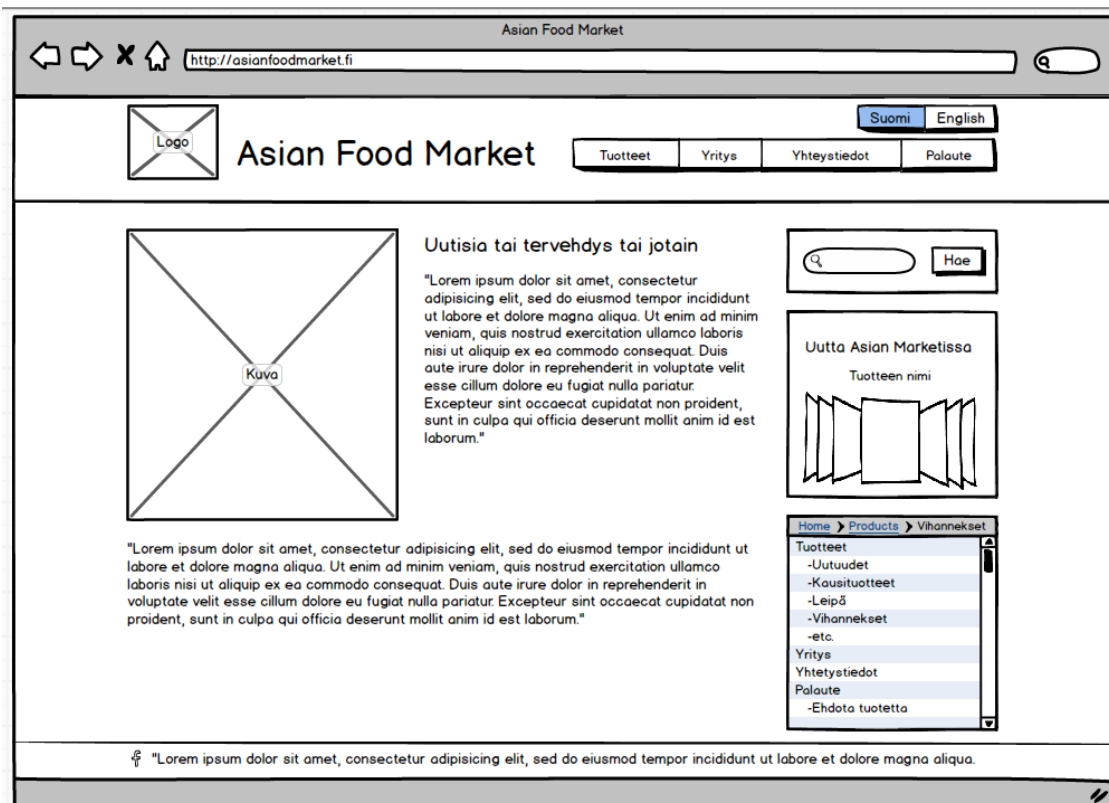
Date: 7.2.2014

	Questions
1	What is the main customer group of the site? Should they be taken into consideration when designing the website?
Answer: The main customer group is private consumers. Due to the large variability in customers, product information must be provided in a way that is clear for everyone.	
2	What is the purpose of the site?
Answer: The purpose of the site is to help customers hear about the site, to guide the customers to the store and to provide information about the products. All of this is done to increase the visibility of the store and thus increase the sales.	
3	What features should the site have? What can the user do on the site?
<p>Answer: Any of the following features would be great:</p> <ol style="list-style-type: none"> a. Company introduction page b. Contact details c. A map showing the store location d. Introduction to the RIA money transfer service and links to their service e. Information page for customers f. Products with descriptions g. Pictures, videos, music h. Recipes i. Online shopping, payment options, delivery options, orders must be accepted by the store j. Registry of customers k. Monthly offers l. Newsletter 	

<ul style="list-style-type: none"> m. Search engine optimization n. Google Analytics o. Google Adwords p. Feedback (feedbacks are published) q. News (recalls, oiva-report) r. Search feature inside the site s. Languages (at least Finnish and English) 	
4	What is the user searching for from the site? Why would he visit the site?
Answer: The customer comes to find exotic food produce.	
5	What should you as the owner be able to do on the site?
Answer: Be able to add, remove and modify product information, product groups, images, news, page content, recipes and offers. Read and accept feedback.	
6	What are the three most important things to take into consideration?
<p>Answer: a. The pages work smoothly (on mobile devices as well)</p> <p>b. They are clear and good-looking</p> <p>c. The upkeep of the site is not too difficult</p>	
7	Other wishes? Ideas?
Answer: The color scheme could be similar as in the store. The exotic nature of the products could affect the design of the website.	
8	What should the website address be?
Answer: asianfoodmarket.fi	
9	Who will be administrating the website?
Answer: I will (Juha Korpela)	

Appendix 2: Wireframes

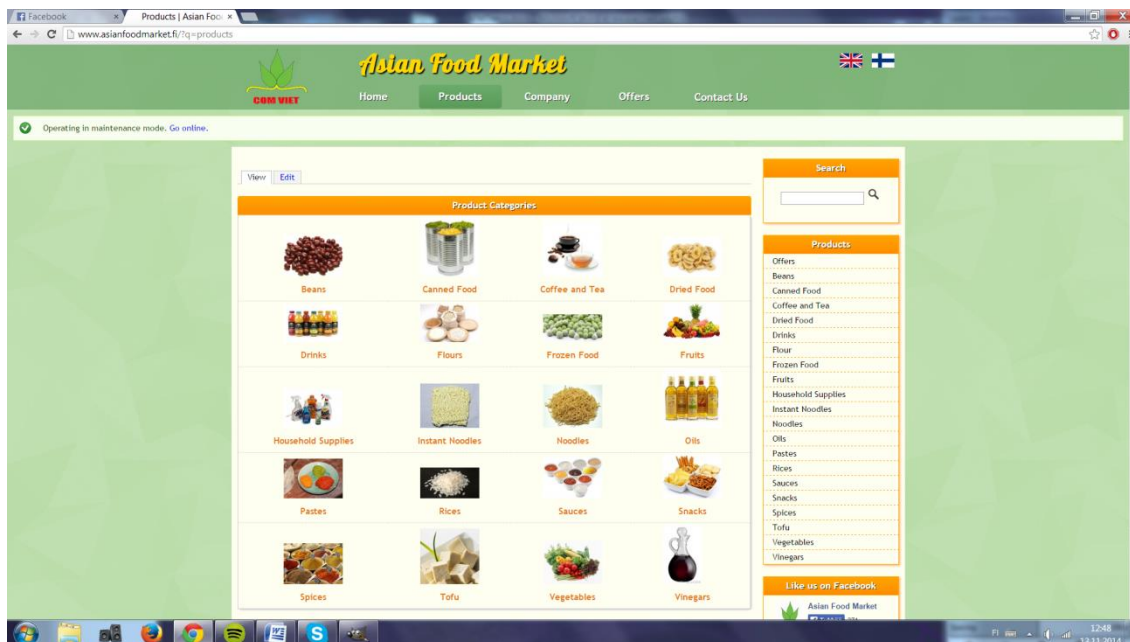


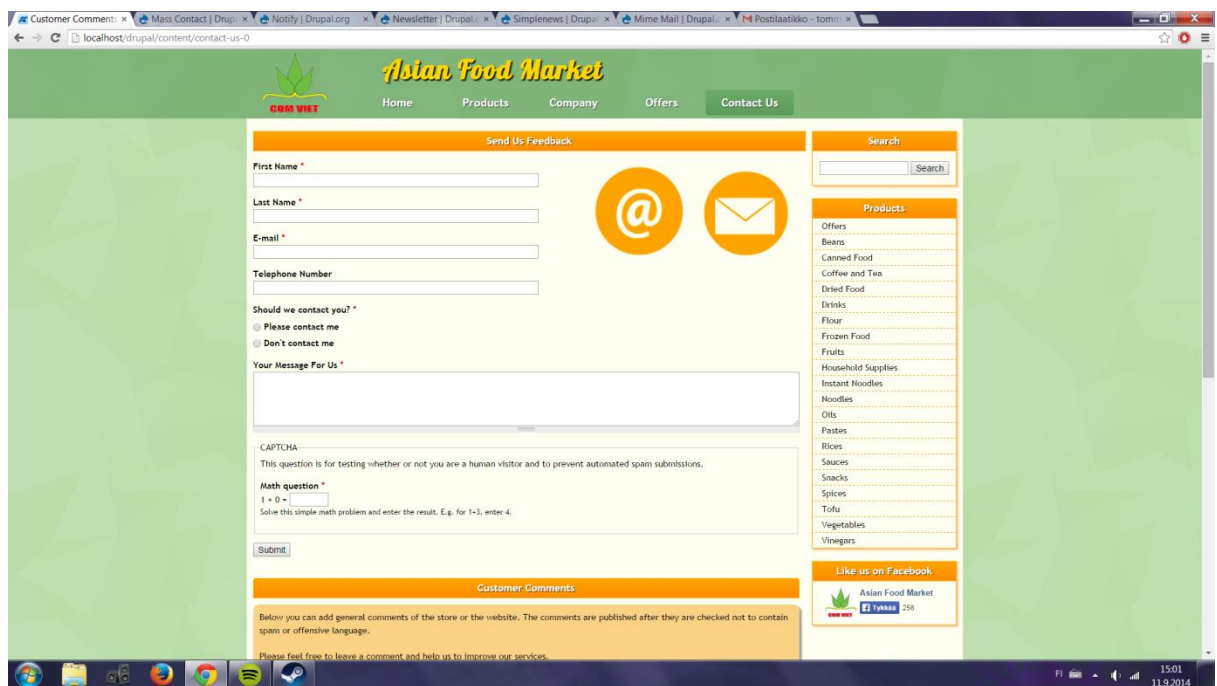
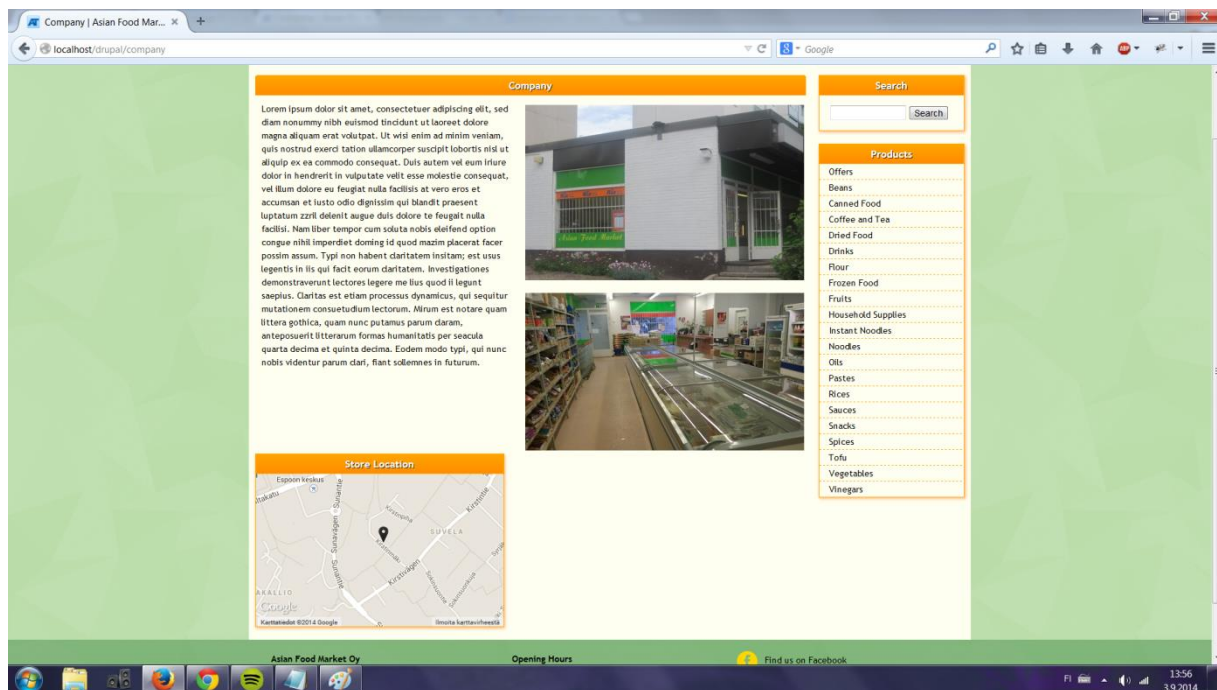


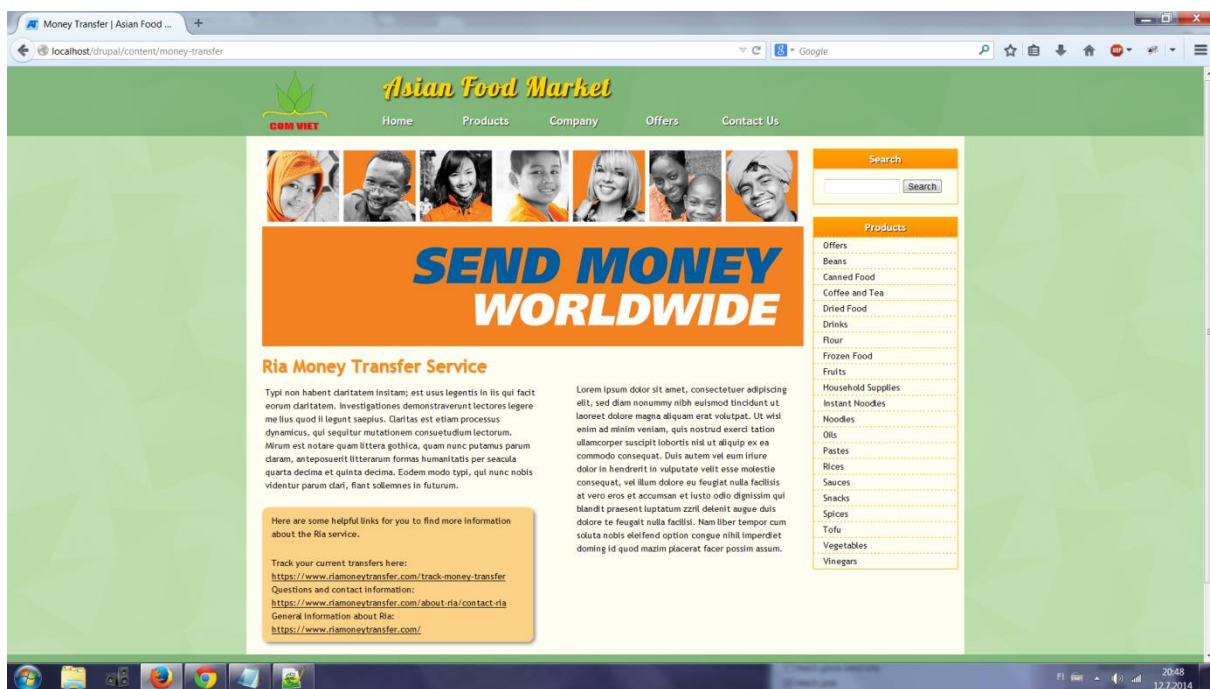
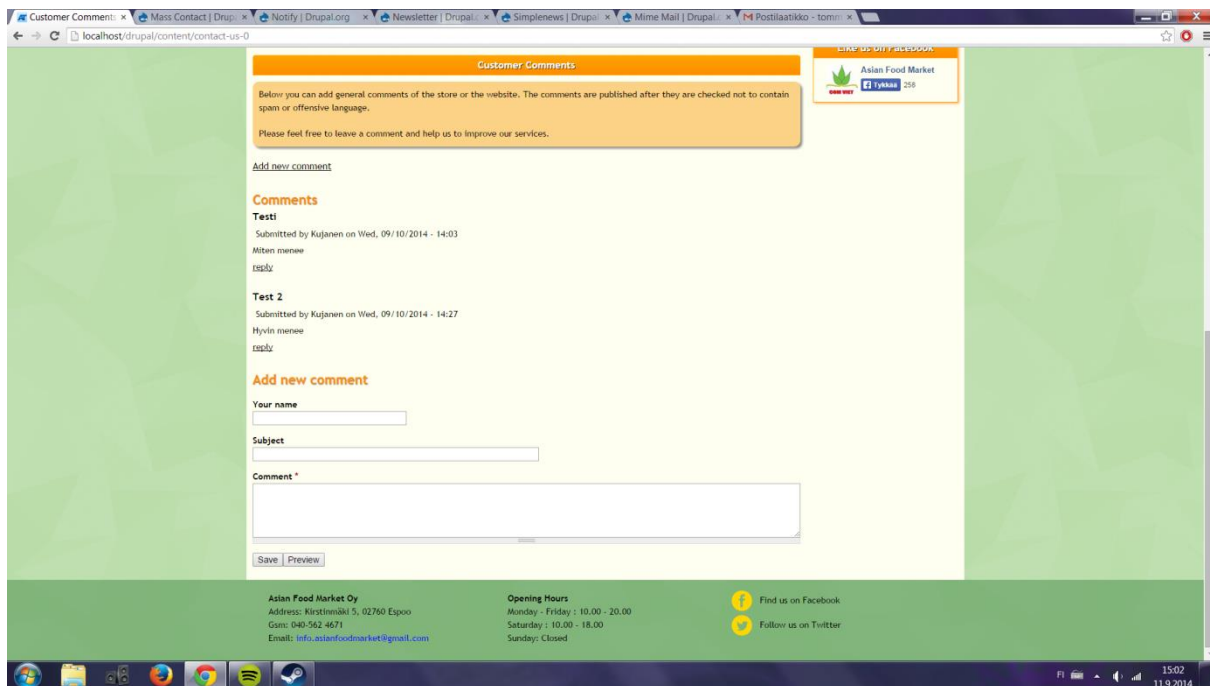
Appendix 3: Color iterations of the home page



Appendix 4: Main pages of asianfoodmarket.fi







Lee | Asian Food Market | localhost:drupal/content/jee

Asian Food Market

Home Products Company Offers Contact Us

COM VIEI

JEE



Catalog: Vinegars
Country of origin: Finland

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Search

Products

- Offers
- Beans
- Canned Food
- Coffee and Tea
- Dried Food
- Drinks
- Flour
- Frozen Food
- Fruits
- Household Supplies
- Instant Noodles
- Noodles
- Oils
- Pastes
- Rices
- Sauces
- Snacks
- Spices
- Tofu
- Vegetables
- Vinegars

Asian Food Market Oy
Address: Kirjstinnäki 5, 02760 Espoo
Gsm: 040-562 4671
Email: info.asianfoodmarket@gmail.com

Opening Hours
Monday - Friday : 10.00 - 20.00
Saturday : 10.00 - 18.00
Sunday: Closed

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