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BUILDING E-COMMERCE SOLUTIONS WITH WOOCOMMERCE

Case: Eshop "Lähetäkukkia"

Bachelor's Thesis
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ABSTRACT

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This Bachelor's Thesis aims to redesign and building an e-commerce site by using the Wordpress Content Management System (CMS) and Woocommerce plugin for an online flower shop named Lähetäkukkia.

The project is built as the first trial with Woocommerce for an e-commerce site with an own development Wordpress theme from scratch of Creamedia, the company who made their customization template. The development process for the website should be built based on the Creamedia Stater Theme.

The process started with getting to know the existing website, wireframing and interface prototyping with the improvement of visual design. The procedure proceeds with improving the experiences for users. In addition, the project got involved in Woocommerce features and implementing the custom PHP functions. The new outcome version should be compatible with the Creamedia Starter Theme and the features available at the old site should be appropriate with the new version. The thesis is the process which engages the commissioning party- Creamedia Oy- the author and the supervisor of the thesis.

Key words
Wordpress, Woocommerce, PHP, CMS, Laragon, Tailwind CSS, HTML

CONCEPT DEFINITIONS

CMS	Content Management System
HTML	Hypertext Markup Language
PHP	Hypertext Preprocessor
CSS	Cascading Style Sheets
UX	User Experience
UI	User Interface
SEO	Search Engine Optimization
RGBA	Red-green-blue-alpha
URL	Uniform Resource Locato
SQL	Structured Query Language
GUI	Graphical User Interface

ABSTRACT
CONCEPT DEFINITIONS
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1 INTRODUCTION

Nowadays, multi-media communications are developing and growing rapidly. That is the reason more and more companies or even small businesses would like the help of Internet to advertise their product. Most of the enterprises already have their own website. It is an easiest and fastest way for customers to know what they are looking for with enough information on the website.

Furthermore, electronic commerce or E-commerce is becoming a vital element for businesses. As the result of the highly successful operations such as Amazon and Ebay. Using E-commerce, either customers or merchandisers can save time. The customer can spend their time home or anywhere to shop or search the products and the business. The enterprise from a small company or a startup do not need to worry that they can not serve the customer sufficiently by offering products 24 hours and online customer service or the social media. Time is a key point for E-commerce market, which means not only about shopping wherever customers are but the payment also plays an important role. The payment process only takes several minutes to finish from choosing the purchase types instead of spending an hour or more just for the transaction.

Lähetäkukkia (Sending Flowers) is an online flower shop which offers the service for customers who want to send flowers in the convenient way. They offer flowers for all events such as Christmas, birthdays, Easter, Women's Day, Father’s day, Mother’s day, funerals and all the other special occasions. The Internet service is maintained by Vakurin Kukka whose operations extended uninterruptedly over 30 years. (lahetakukkia, 2019). Lähetäkukkia has their own active E-commerce site offering delivery flowers service accompanies with a quick payment service. It shortened the order process which create the smoothly experience for users.

Creamedia is a Finnish advertising and marketing agency which is located in Kokkola, Finland. The company is an independent part of Keski-Pohjanmaan Kirjapaino Oyj. Creamedia services include marketing planning, website and SEO, printing, 3D and animations. They provide their clients with all marketing and communications services with quality and passion. (Creamedia 2019)

This Bachelor’s Thesis focused on the process of building e-commerce solutions with Woocommerce plugin and Wordpress platform. Besides, the project was built based on the Creamedia Stater Theme which is developed by Creamedia Oy. The company uses their customized template without installing any third-party template from the repository.

2 THEORETICAL BACKGROUND AND TECHNICAL TOOLS

The theoreotical part consists of 10 sections and this whole chapter gives the general overview about technical tools which has been used to support for completing this thesis project. The definitions and how it was applied to the project are mentioned in detail in the following chapter.

2.1 Content Management System(CMS)

CMS is an abbreviation for Content Management System which is devised to support the users managing and creating websites. The users want to showcase their services or products and CMS is the platform that provides all the tools to manage the content type and data. It moreover changes the websites into attractive layouts. Content types include its design, graphic and even coding. CMS is in use for both users without any technical expertise and developers who use open sources CMS for building and customize dynamic websites for someone who is not familiar with technology. There are multiple CMS platforms designed which are available for general websites and web blog users. It depends on the user's requirement whether they want to have a static, dynamic website or an E-commerce store. This thesis was developed using Wordpress Content Management System for lähetäkukkia which is an online store offering delivery flower service.

WordPress is a popular open source platform that allows thousands of software engineers from around the world to make it better everyday with improvement contribution. The users are able to choose from a big stock different themes, template layouts that determine the apperance and styles, plugins, widgets which help to optimize the functionality of the website. (Kumar 2019.).

2.2 Woocommerce Plugin

The project has Woocommerce plugin installed. Woocommerce is a free Wordpress's versatile plugin which is used for selling products or services. It is an open-source, completely customizable E-commerce platform with additional extensions. The plugin is created and owned by a company called Automatic with the contributions from developers around the world. Woocommerce powers over 28% of all online stores. It enables both store owners and developers complete control. The plugin gives the possibility to a quick set up as well as manage products or stock even without coding experience. People can sell their digital or physical product, manage their inventory and shipping options, create coupons which give

discount on products to increase sales, choose the suitable secure payment method and handle sales taxes. (Woocommerce 2019.). The setting up process will be explained in detail in the following chapters.

2.3 HTML5

HTML is an abbreviation for HyperText MarkUp Language. It is used for creating web pages and web applications. As a computer program executes code written in programming language, a web browser will take HTML and interpret it. Therefore, it is ended up as a shiny web page on screen devices. The organization that takes care of HTML standards is The World Wide Web Consortium (W3C). The newest HTML standard version is 5.0 and it represents for HTML5 (Mozilla 2019.).

HTML5 is a big improvement with the technology resources compare with the older versions such as HTML 4 and XHTML. HTML5 supports multimedia which has new elements for video and audio. Furthermore, new page structure which has semantic elements is also enhance the content such as <section> <nav>, <header>, <footer>, <figure>, <figcaption> <main>. Those are used in the thesis project. Even though Wordpress supports user in creating the interface with the selected theme, the company uses their own templates which are developed from scratch. Therefore, the coding knowledge is necessary to modify and customize the content (Mozilla 2019.).

2.4 TAILWIND CSS

Developers in Creamedia Oy use Tailwind CSS for styling instead of CSS classes or style attribute to design the visual part of webpages. It is pointless to struggle in upgrading a single elements of style attribute in a set of components. Styling with CSS should be fast-forward and iterative. It is a waste of time to build a page from scratch. Therefore, it is indeed to get deeper into what Tailwind can deliver and how to construct as well as configure it with Tailwind.

Tailwind CSS is a highly customizable, utility based low-level CSS framework which can be used to quickly build the user interface. There is a fundamental difference between Tailwind CSS and the other frameworks. Whilst Bootstrap (one of the CSS framework) is based on components predefined and it is easier for developers or designers to apply it on the webpages. Nevertheless, Tailwind CSS is used in this thesis due to its customizable. Tailwind is not a framework that has premade or predefined components but it has extensive resources of utilities classes and sets which let people create any design they could think of or build their own components. That is the reason all of the components are easy to custom

and manage. The framework is mainly based on the utilities and it is more lower-level than the other frameworks (Tailwindcss 2019.).

```
<div class="p-8">
<span class="p-4 bg-white text-grey-darker border rounded shadow">
  Welcome to my site!
</span></div>
```

FIGURE 1. An example of the Tailwind CSS utilities set.

An example in Figure 1 indicates the set of utilities, looking attentively and breaking down the class. “p-8” controls 2 rem of padding on all side of an elements which is included padding top, padding bottom, padding left and padding right. The inline elements of the term “Welcome to my site!” also contain the class of utilities list. As mentioned above, “p-4” has the same connotation but has a padding value of 1 rem. “bg-white” is fully understandable which gives white background - the background is customizable for any shade of color. Controlling the text color of the term using “text-grey-darker” utility, #606f7b9 (color-hex code) is applied in the given example. Set the 1px border width with border utility for all sides of the term. “rounded” is a border width utility which its property is “border-width: 1px;”. The effect of box shadow is shown at the bottom of the list, “shadow” is used as the following property “box-shadow: 0 1px 3px 0 rgba(0, 0, 0, 0.1), 0 1px 2px 0 rgba(0, 0, 0, 0.06);”.

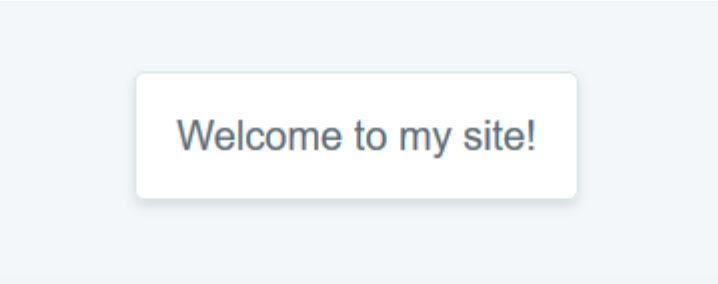

FIGURE 2. The result of the code example in FIGURE 1.

Those are applied for the “Welcome to my site!”. Therefore, it is more convenient to code using Tailwind instead of CSS classes or style attributes. It would be too long and get more complicated within a long

webpage. Furthermore, it can get a lengthy utility list but everything takes time for the better and rapid improvement. Tailwind has it all with the consistency and its quality (Tailwindcss 2019.). The result is shown in Figure 2.

2.5 PHP

PHP is called a server-side scripting language and is is used for web development. PHP is one type of back-end programming languages. PHP originally derived from *Personal Home Page* Tools and nowadays it stands for PHP Hypertext Preprocessor which the PHP FAQ describes as a "recursive acronym". Embedding PHP code dynamically generate in HTML; the web server request PHP to execute the operations in the PHP script. Formerly, the web site will be sent to users that has called for.(Rouse 2019.) While HTML and CSS could help developers create websites that enable users to interact with link, text, video, audio or image, PHP could transform and assist to make a website more dynamic.

Wordpress CMS platform uses PHP as a core for the system development. Although Wordpress is able to use without coding knowledge, it is neccessary for everyone to know the fundamental knowledge in PHP as well as HTML and CSS once they desire to develop the theme or plugin or modify default behavior (Wpbeginner 2019.). That is the case with Creamedia Oy, the developer of the compay built their own template for the customers website. Therefore, the company's web designer can implement particular features and user interface based on the theme itself. This project has been built and designed based on Creamedia's template.

2.6 Laragon

Laragon delivers very fast, easy-to-extend and powerful universal development environment for PHP, Ruby, Python, Java, Node.js and Go. Laragon impresses users with its features such as with just a mouse click, the Wordpress site will be created quickly and the URLs will be shown for visiting site; furthermore, pretty URLs is also one of Laragon's features, it uses "app.test" while "app" is user's project name and "test" - the last segment of the domain name. (Laragon 2019.).

Laragon is free for downloading and it is easy to set up and to use. They come with a bundle of package contains Apache, MySQL and PHP which help to take the pain out of the set up process. The program come with an installer and pre-configure all the settings for the users. It shows how simple it is to install and the flexibility to update the dependencies. The thesis's project uses Laragon as a tool for Wordpress

development. It allows people to develop and build the site in the local server without affecting to the live version. Afterwards, the Wordpress site can be uploaded to go live. Figure 3 shows how the graphical user interface (GUI) of Laragon looks.

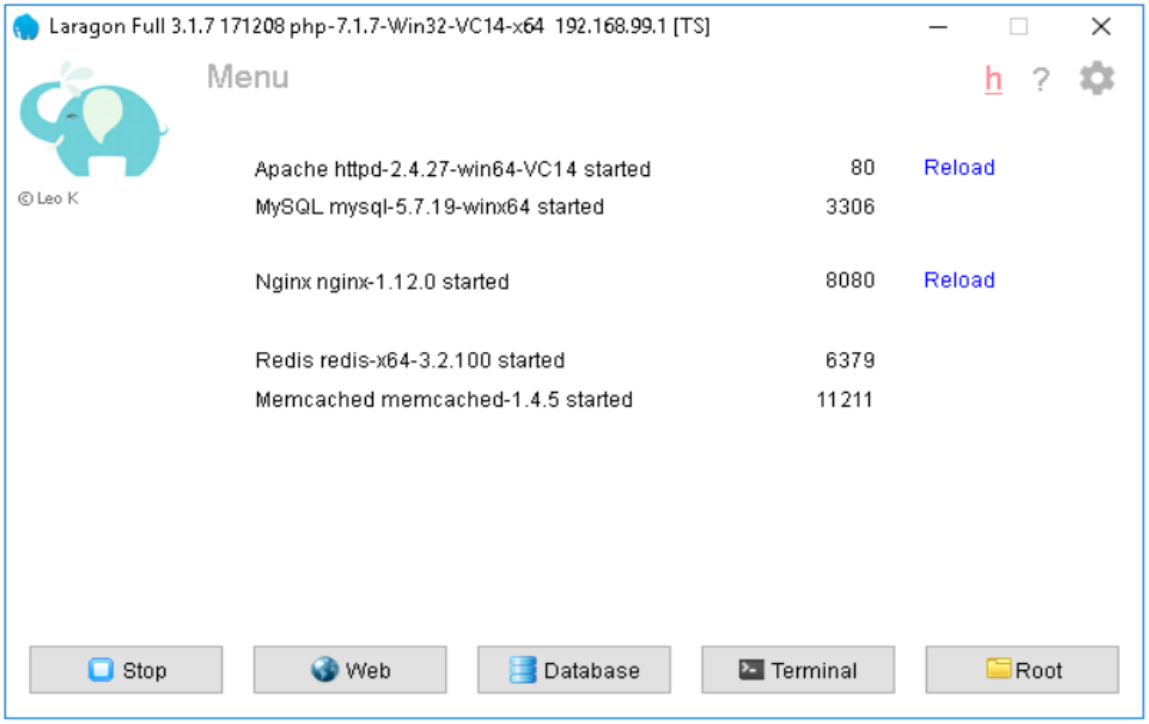

FIGURE 3. The GUI of Laragon (Screen capture from the application Laragon 2019).

2.7 phpMyAdmin

phpMyAdmin is an open source software written in PHP and it is available as a free version to download and easy to use. A native tool for accessing MySQL or MariaDB databases administration. The web interface is used with ease and comfort that helps to create databases, tables, executing MySQL querries and it runs in a web browser which easily access for users. (phpMyAdmin. 2019.)

2.8 User Interface (UI) Design

User interface (UI) is the the interaction between users and computer, it is visual which contains screens pages, visual elements that enable the user to interact with the technology or application, such as layout, buttons, how it looks and how things are like. (Ewer 2019.). In the last chapter, it has been mentioned about low-fidelity user interface. Moving on to this chapter, the website will be evaluated properly for instance user-flow, UI and graphic elements, design hierarchies, image and interaction with the high-fidelity version as an attractive visual quality and after that proceeding with interactive prototype

(clickable workflow). The users will get the insights more optimally by using high-fidelity prototypes. The more interactive the prototype is, the more realistic the user will interact with the prototype and they will deliver optimal insight as when they interact with the actual app (Mardita 2019.). The flower shop website is redesigned based on the same old structure user-flow so that the process is done rapidly. The new design needs to be appropriate with all of the new elements, patterns and categories which will be created.

2.9 User Experience (UX) Design

UX stands for User Experience – user-focused product design, it is a part of design that is created to be meaningful and intuitive for users, it focuses on how something works, how users interact with it and it adopts the users perspective and aims to answer the question how would a first time users approach the product. UX design is more about analytical, focus on researching, deeply understand user behaviors, fulfill user's needs and objectives. It is the process for designing system that improve customer satisfaction, ease of use and providing pleasures interaction with a product or service. It can be said that the process has no ended-point from seeing the entire experience of the customers' perspective as well as working to improve the quality of service or product. (usertesting 2019).

3 DESIGN PROCESS

An elegant design will give the users the first impression which attract them at the first sight. A quality website is the one can inspire the visitor to do the business with the merchandiser. A quality website is also well-polished, clean, styling, consistency that make it easy for visitor to perform their interaction with the products or services available on the website. This chapter demonstrates how it has been styled to appropriate with users interaction and curent trend.

3.1 Analysis

FIGURE 4. The official site of Lähetäkukkia (Screen capture taken from lähetäkukkia.fi 2019).

Exploring in more detail in Figure 4 – The home page of the flower web shop Lähetäkukkia. They have the list of event category on the left side such as Christmas, Birthday, Woman's Day, Easter, Father's Day, Congratulation occasions and more. The menu bar demonstrates five sections which includes customer service, Term and Conditions, Verses and About the service. The company wants to deliver to their customer some main information which is shown on the right side. "How the flower web shop works?" with the fast and easy check-out which only takes 2 minutes with only three steps: Step 1 - Choose flower, Step 2 - Fill in the information and Step 3 - Payment with online banking. The products have been listed in the center of the main page which could direct customer vision in product selection. In general, all the information is shown in detail and carefully. Therefore, the customer can get adequate information and get themselves the product from the merchant. In this project, the flower shop will be focused on the visual design by tactically implementing color, image and other elements as well as restructured all the contents (Lahetakukkia 2019).

3.2 Website Wireframing

The first stage of web design process is getting started with wireframing. The main purpose of it is to represent in a minimal way without spending too much time on details but mainly emphasis on organizing the information, avoiding misunderstanding and figuring out the flow of a page. Wireframing aims to demonstrate the general layout and commonly do not pay particular attention on color or lettering or making everything perfect. There are two types of wireframming: paper and digital wireframes. In this thesis, the user workflow is mainly hand sketched on a piece of paper. Creating a low-fidelity wireframe is cheap and fast, with a pen and a sheet of paper then the work will be done more quicker. This option helps designers save time before they begin making the digital version of the design. Any wireframe file can be rapidly shared and given feedback across teams; moreover, everyone in a team can do ongoing modifications to it, so that it is able to meet the needs and being known what has been done in real-time (Costa 2019.). The design will vary more or less in some small elements and details to compare with the wireframe and the interactive prototype in the next chapter. However, the main core is kept and it does not afftect other elements but helps to improve the user experience.

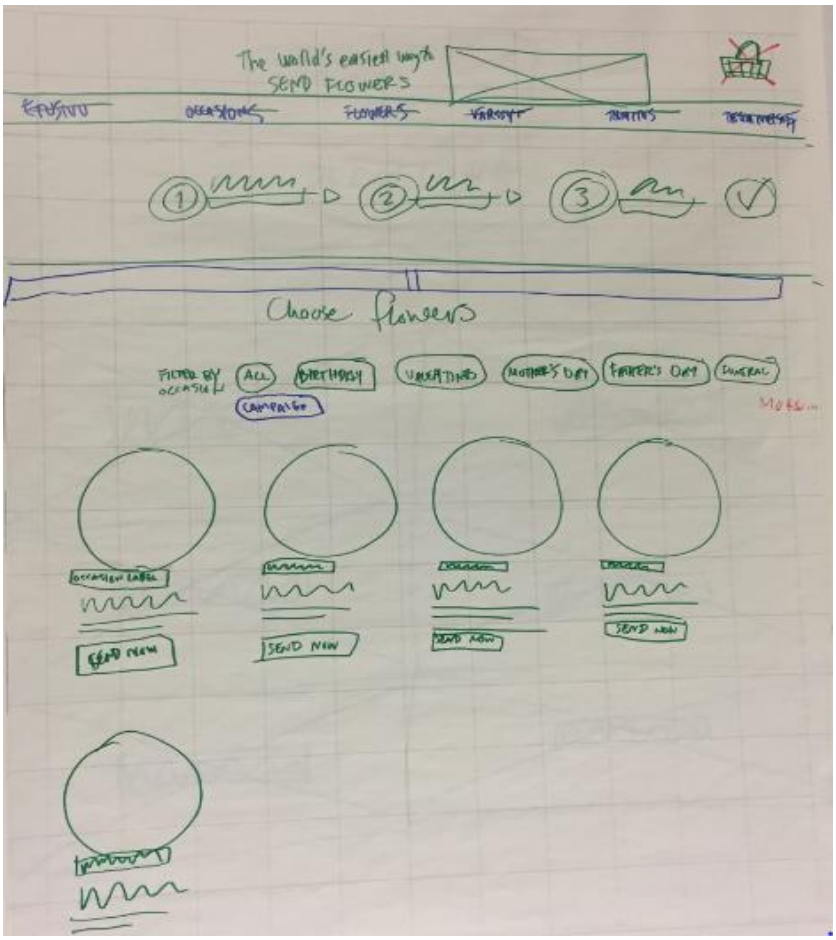

FIGURE 5. Lähetäkukkia's home page paper wireframe(Picture was taken in Creamedia and drawn by Tytti Karanka).

In Figure 5, the homepage content as well as all the elements are arranged well and being placed in the appropriate position so that it can deliver the most significant information to the customer. Starting from the top of the wireframe, it has the logo which is located in the center and the cart on the right side. Going down one level, it moves forward to the navigation bar. The sections is changed to Home, Occasions, Flowers, Verses, Delivery and About us. It is important to build a persistent navigation bar because it manifests for the first time on the wireframe and assists in improving smooth process for the user experience. Along with that, the hero area which showcases the full-width banner image illustrates the three steps of the main service of the flower shop with quick and fast payment. Furthermore, the new feature has delivered with the occasion product filter which means it allows customers to sort out and get the product based on their needs (Figure 5).

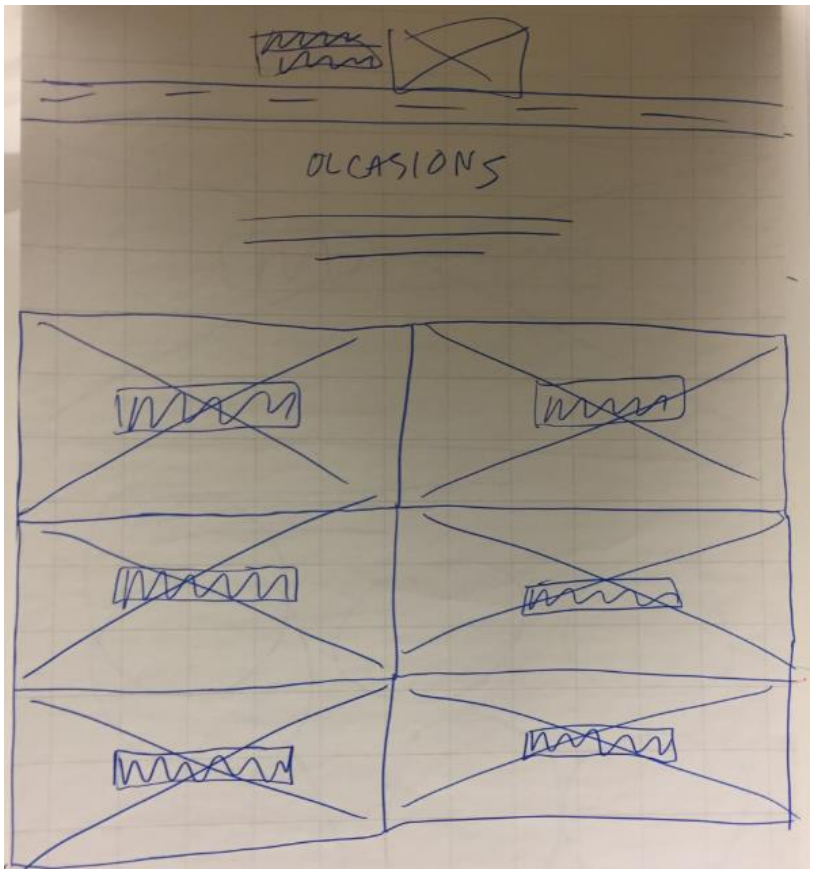

FIGURE 6. Lähetäkukkia's subpage paper wireframe(Picture was taken in Creamedia and drawn by Tytti Karanka).

The Figure 6 depicts the subpage of Lähetäkukkia – Occasions. Instead of placing it in the left side of the old design, it has its own page which is listed into all occasion as shown in figure 6. Customers could easily clarify things they want to know and get the product based on their needs. The rectangle with an "x" through middle of the box represents an image and each rectangle is a single event offered by the flower shop.

3.3 Tools for UX/UI Prototype

XD stands for experience design and it is a part of Adobe suite which is mainly focused on UI (User Interface) design and UX (User Experience) design. It is available for both Mac and Window operating system as long as the device has the Adobe CC subscription. Adobe XD CC is a complete end-to-end solution for designing user experiences for mobile apps, websites, and more. It is a powerful tool for

working quickly and efficiently during the design and prototype phase of the web or app development process (XD 2019.).

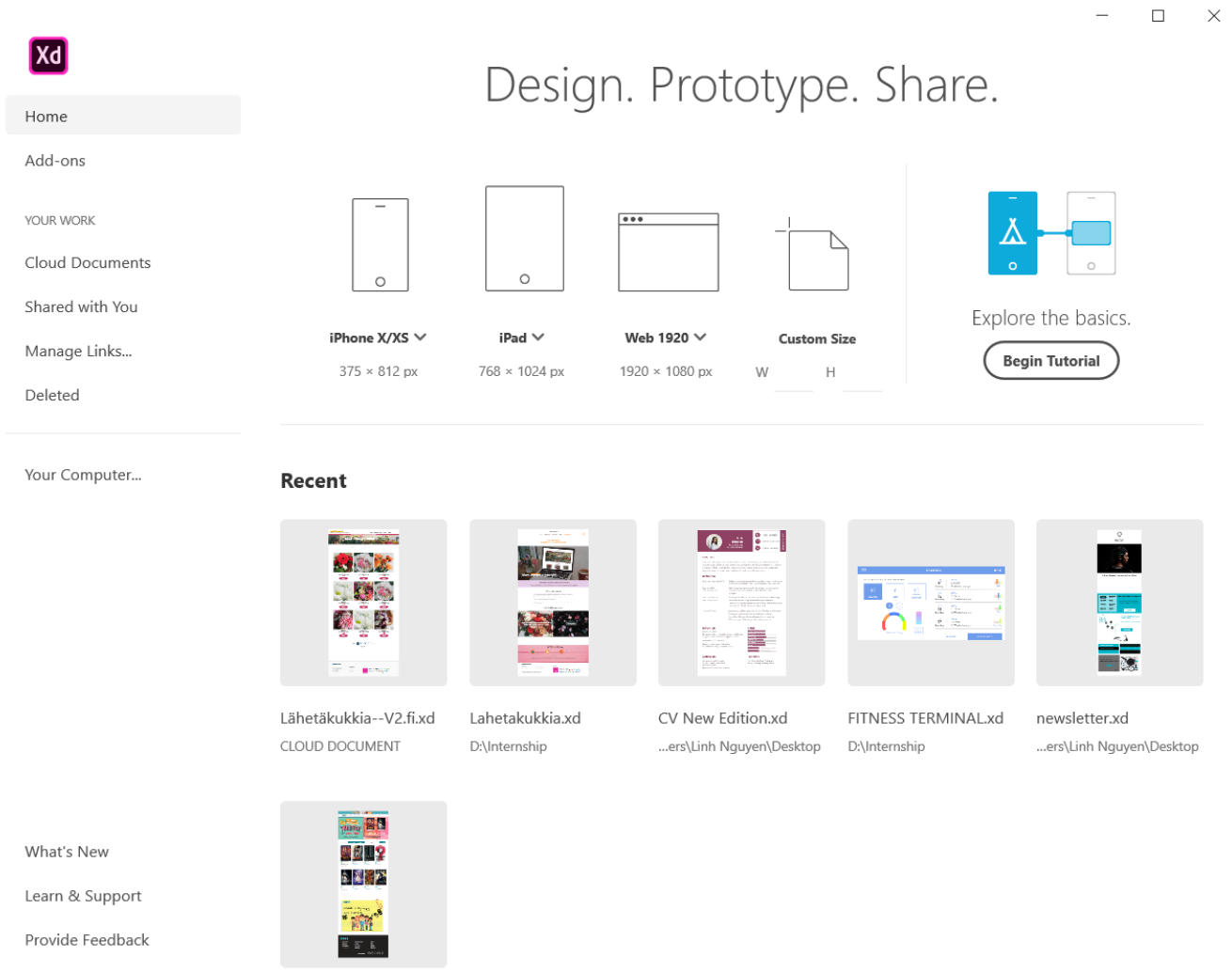

FIGURE 7. First launch home screen of Adobe XD.

There is the option to begin with the tutorial if people are new to the Adobe XD or have the first know-how about the application. It offers many different screen resolutions such as mobile, tablet, standard browser size and custom size which depends on the needs of users. The home screen also gives the user an easy access to preset and a list of recent files (Figure 7). On the right panel, a menu panel has a selection for add-ons if the user prefers to extend the feature of XD with plugin, get the material design with UI Kits and intergrate with third-party applications (Wood 2019.) In this thesis, there will be no third-party plugin or UI Kits installed, everything is done manually with all the elements.

3.4 Creating Prototype

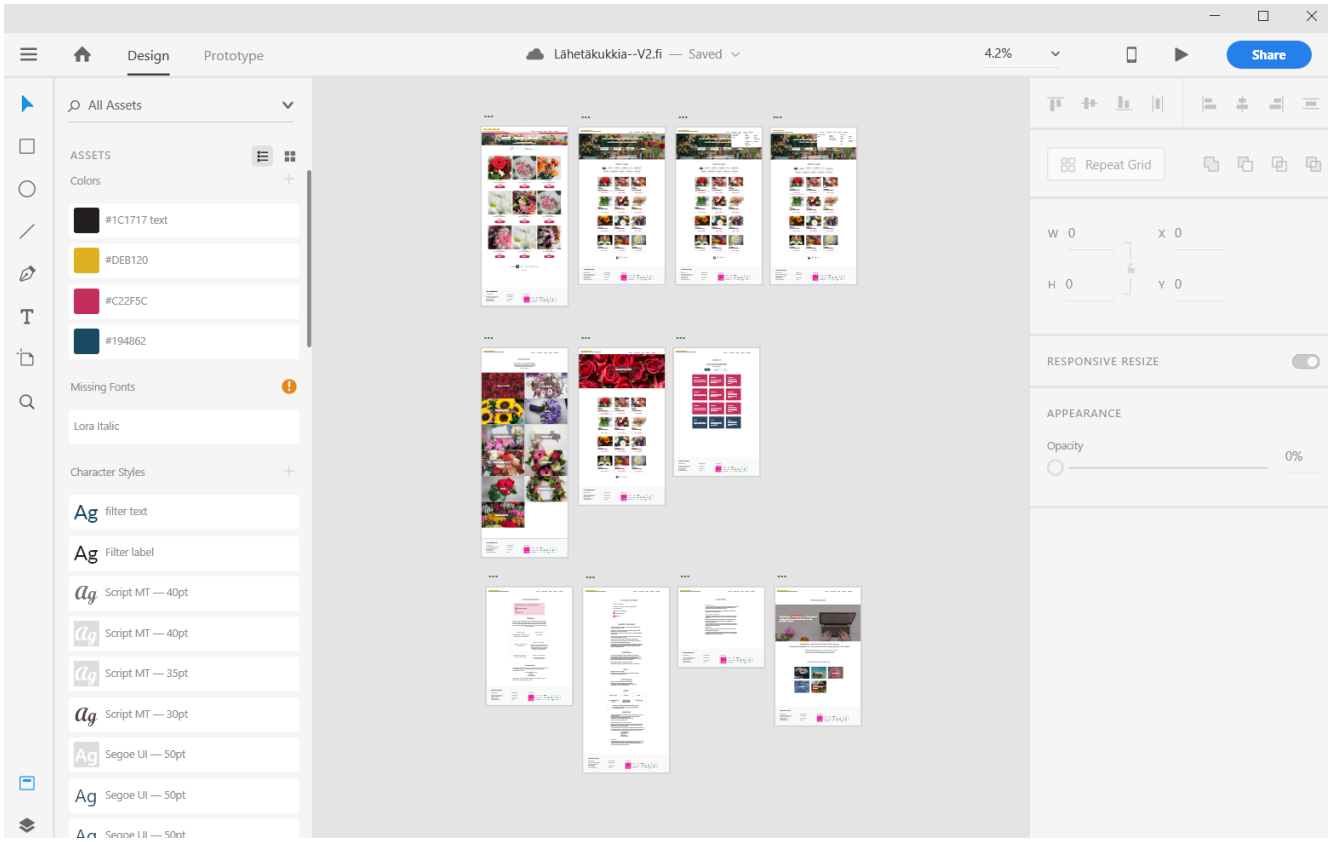

FIGURE 8. Adobe XD workspace with Window OS version.

The project's prototype has been started with the standard browser size – Web 1920 (1920 x 1080 px). Then a default XD workspace is opened as shown in the Figure 9. Taking a closer look on the screen capture of the figure above, the application has no top-level menu bar, XD on Windows has a "hamburger" menu instead in the upper-left corner with the icon ☰. It allows to create or open files, save, export assets, and more. Below the "hamburger" menu icon is the set of vertically tool bar includes select tool, rectangle tool, ellipse tool, line tool, pen tool, text tool, artboard tool, zoom tool. The bottom has layers panel and assets panel. The assets panel is selected which shows the colors and fonts are used for the prototype. The horizontal bar which is next to the home button has the application modes (Design and Prototype) provides a way to switch between Design mode and Prototype mode. On the right side of the application window there is a dock which is called the Property Inspector (Figure 8). Adobe XD consolidates many of the most frequently accessed options in the Property Inspector. Users can adjust all of the properties based on the content selected in the document. Adobe XD uses artboards to represent the screens in the app or website. The project prototype artboards are shown in the center of the workspace. The designed artboards primarily are the home page and main sub-pages (Wood 2019).

FIGURE 9. The first version of hero area.

Lähetäkukkia's main service is offering flowers with quick payment service which delivers the best experience for the user. Their three primary steps will give the visitor the possibility to instantaneously start using the service without any further ado (Mittal 2019). The steps are assigned in the full-width image banner which specifies the info in a way that makes it most accessible and easy to comprehend by the visitor. (Kai, 2019). The tricky part for the author was the lengthy sentence on top in Figure 9 because of the unknown arrangement. Hence, David Prescott, a Graphic Designer of Creamedia, found a way and solve the problem with the perfect visual for the hero area.

FIGURE 10. The final version of hero area (The designed was created by David Prescott).

Both Figure 9 and Figure 10 indicate the hero area of Lähetäkukkia and the section locates right below the navigation bar. A hero area serves several purposes on a website. It is entirely an appropriate place to catch visitor's attention with catchy content and it is typically a full-width image background of the webpage. The hero image is consisted of text and image, it can be static or dynamic which captures the visitor's attention. It is an important factor which is needed to cautiously focus. In web design, the hero image is consider as a key element. A good one can build up trust among visitors and attract their interest in what the website is offering, while a bad one can drive the visitors away. As shown in two figures above, the first version has been fixed and transformed to the final version with a completely consistent layout which best fit with the content.

4 Development Environment and Process

The chapter consists of 5 individual sections which showcases the development environment for the whole project. The implementation covered mainly on the appearance customization part based on the design in the previous chapter. However, there are also part of feature functions were built to appropriate with the current running site of lähetäkukkia.

4.1 Install Laragon and set up for running Wordpress

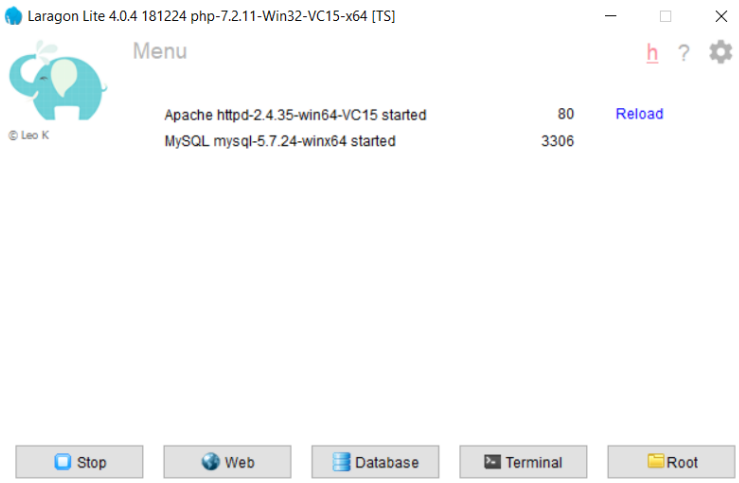

FIGURE 11. Running the webserver and database (Screen capture Laragon Application 2019).

After successfully downloading the application to the PC or laptop, Laragon will be launched with the admin panel for the starting display. The downloading process is fast forward without time consuming and very easy to go with the flow. Visiting Laragon's official site to get the application downloaded https://laragon.org/download/ and it is free of charge. The users can use PHP, Ruby on Rails, Node.js/MEAN, Python Django/Flask, Java Spring/SpringBoot, Golang; it is a universal development environment. Getting started by clicking Start All button and it will run the web server - Apache and the MySQL database as the Figure 11.

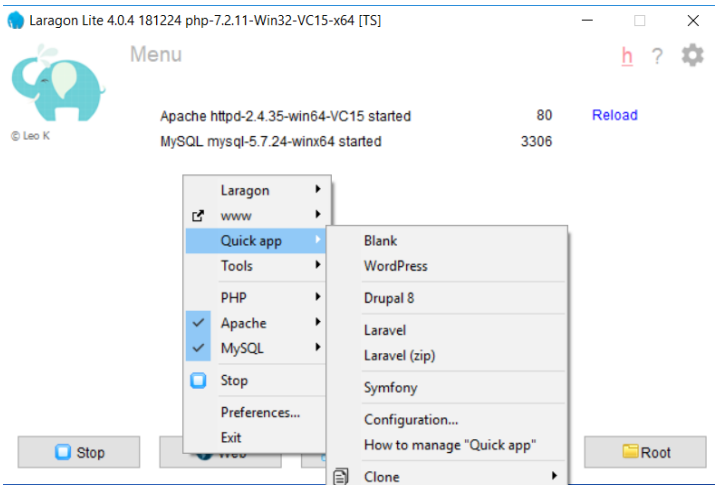

FIGURE 12. Laragon's side menu (Screen capture Laragon Application 2019).

Moving to the next step, we already can run the first local Wordpress web page within a few clicks. The users can do right click anywhere on the control panel, it will pull up the small side menu (Figure 12) and there are so many options to go with depend on user needs. However, we select Quick app and follow up after that we choose Wordpress. The Wordpress page is named lahetakukkiasite, it is an example because the existing project was created during the project process which is called lahetakukkia.

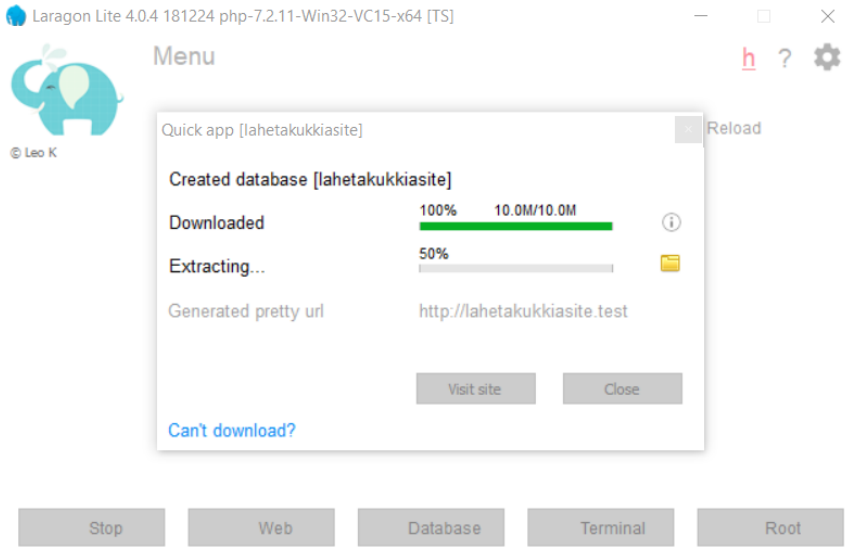

FIGURE 13. Quick app for Wordpress (Screen capture Laragon Application 2019).

As Figure 14, the page is on the downloading progress. When everything is loaded, we will have a pretty URL to access to the Wordpress page – http://lahetakukkiasite.test with just a simple click onto Visit site button (Figure 13). In addition, there are 5 buttons at the bottom. The Start button was chosen to start the program which contains the Laragon package and it had been changed to Stop at Figure 14. The Web button navigates users to their default browser and loads the homepage of localhost. The Database button launches the phpMyAdmin to manage and config the database. The Terminal Button will open a

command prompt window. Lastly, the Root button navigates the users to the Windows File Explorer where the Laragon file locates.

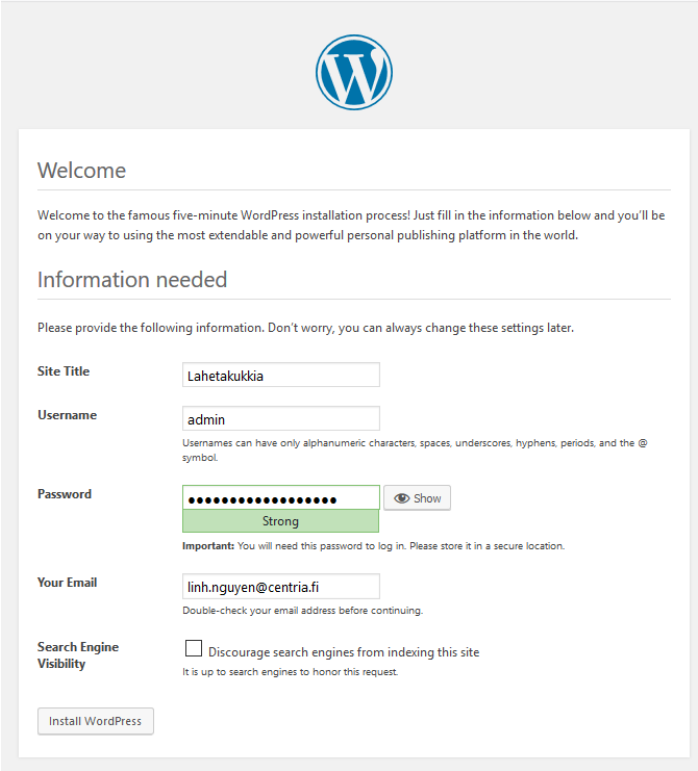

FIGURE 14. Wordpress set up site (Screen capture from localhost Wordpress site 2019).

After proceeding with the last step from Quick app, it is going to set up Wordpress page with all the needed information as seen in Figure 14. Figure 14 shows the installation progresses where users enter the information needed contains site tile, desire username, password, email and the search engine visibility check box. All information should be filled in this step and it can be easily changed later in the Administration Screen.

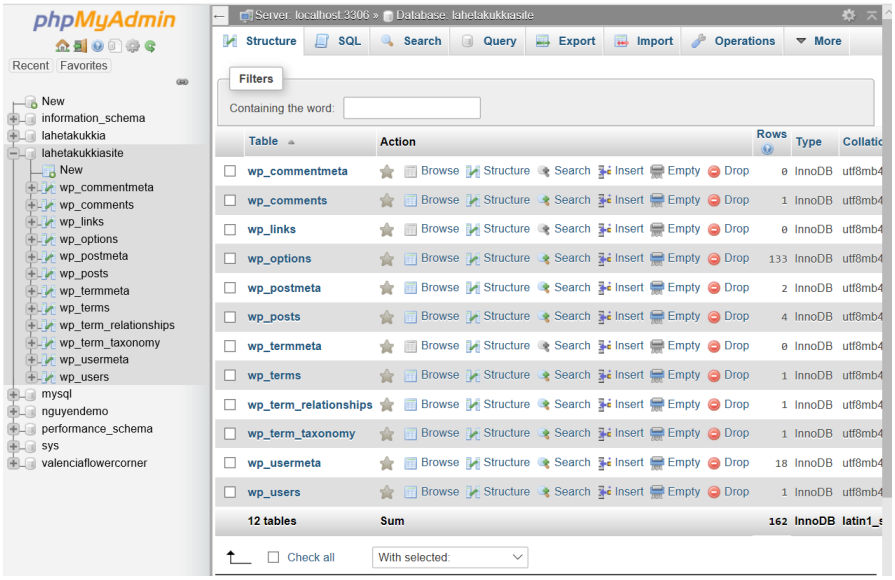

FIGURE 15. Lahetakukkiasite's database (Screen capture from phpMyAdmin 2019).

Figure 15 indicates the database information from phpMyAdmin. The web application delivers the GUI to work with MySQL database management system. There are general features that phpMyAdmin provides to the users which are manage user permission, import, export data in different formats, execute custom SQL queries, objects searched in the particular table or in the database, create tables, alter fields and drop rows.

4.2 Creamedia Starter Theme

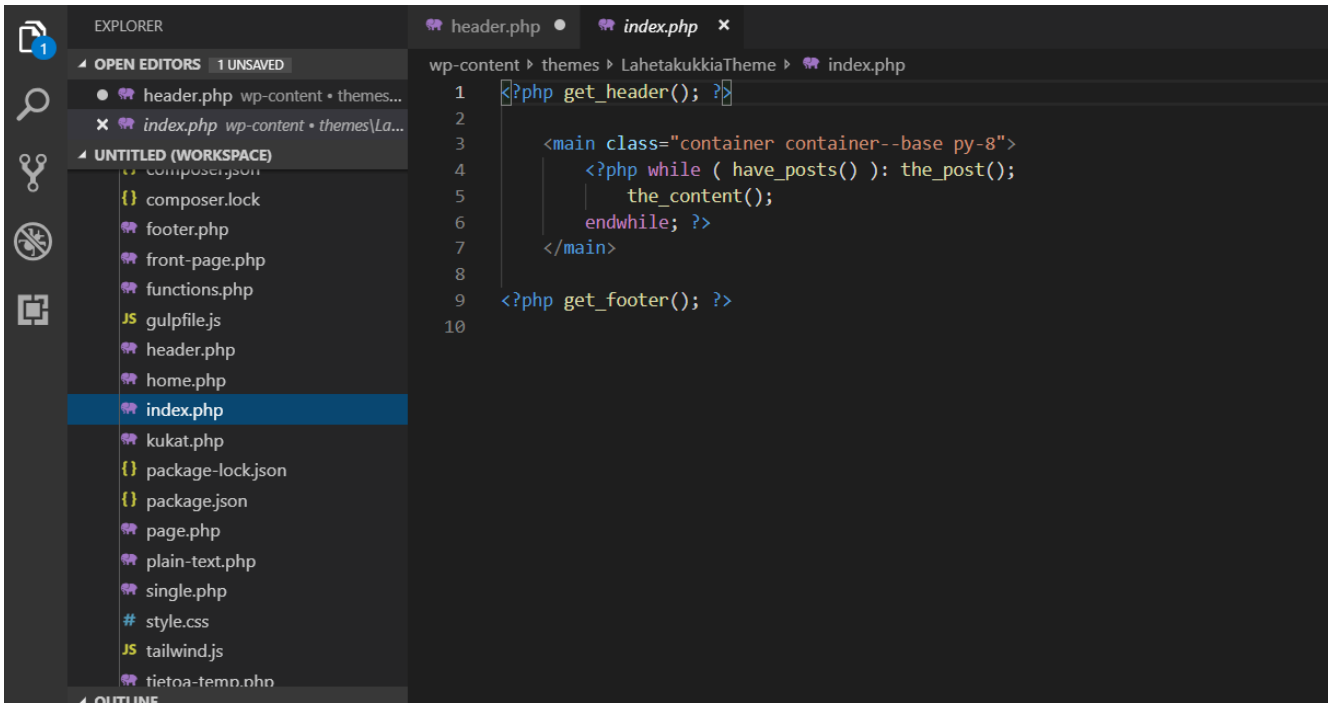

FIGURE 16. Development Environment.

The developer of the company built their own template from scratch without installing available theme or using default Wordpress's theme from the repository. The Creamedia WP starter theme has version 0.1 created by Tommi Finnilä at the time the author worked on the project. However, the thesis aims to find out e-commerce solutions based on the trial template as the first version. The author was also suggested to get the Storefront theme downloaded, the Wordpress theme offering deep integration with Woocommerce (Woocommerce 2019.) to compare the well-matched of the created theme with Woocommerce plugin. The starter theme is created by PHP template files (header, footer, and sidebar) that contain a mixture of HTML, template tags and PHP code (Wordpress 2019.) and Tailwind CSS for styling the layout. Figure 16 shows template files on the left side bar and the index file from the editor Visual Studio Code.

The theme is integrated with Gulp to automate and enhance the theme development process. Gulp is a modest toolkit to automate repetitive tasks or time-consuming tasks which are the compiling of a CSS files, Sass files, JavaScript files or whenever the developer uses the framework that deals with non-standard CSS. Gulp is a tool to pack all those files together and compile to speed out regular files that the browser can understand. Gulp helps to optimize the website for performance by optimizing all assets and save time for doing core development work (Ajmi 2019.).

4.3 Set up with Woocommerce Plugin

Woocommerce is the E-commerce add-on for Wordpress which gives users an easy way for selling products online with the platform. The plugin can be found after the user has logged into Wordpress dashboard and download it from the Plugins menu. Every new installation of Woocommerce has a starting point with a set up wizard where users do the basic set up for their store. It is going to create some essential pages that the online site needs such as shop page, shopping basket, check out and so on. It offers options for the users whether they want to sell physical or digital products, set up location and currency and preferably payment processor (Landefeld 2019.).

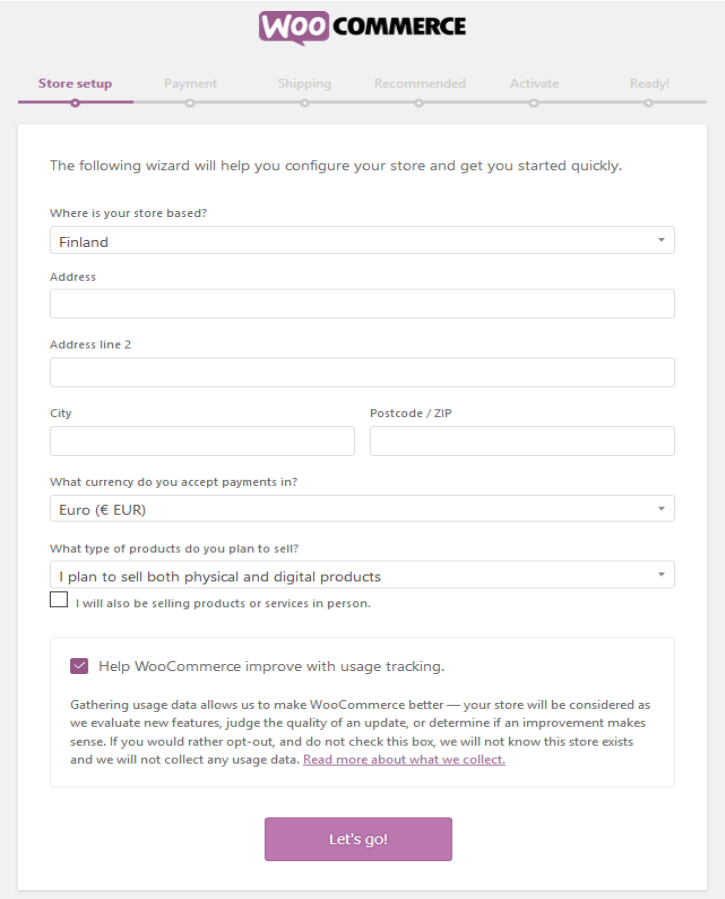

FIGURE 17. Woocommerce Set up Wizard (Woocommerce 2019).

In this project, the store has been set up to sell physical products. Delivery flowers and the shop location which based in Finland with store currency as Euro. The setup wizard can be seen in Figure 17. At this stage, the author has skipped the payment method because the company uses Paytrail (formerly Suomen Verkkomaksut)- a commercial plugin that allows to take payments. The customer will have their desirable bank payment options. It accepts numerous card payment possibilities and many more payment methods option to all Finnish banks with secure processing (SkyVerge 2019). The extension can be purchased only if the store currency is set to Euro with the requirement of a Paytrail contract. It will be saved to set up at the finest when the configuration as well as implementation is completed.

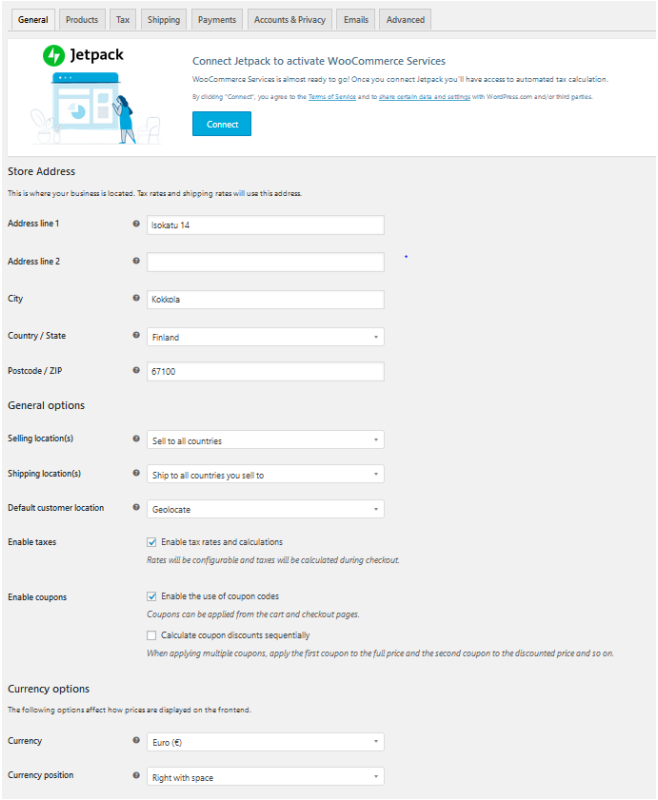

FIGURE 18. Woocommerce's Setting Tab.

As seen on Figure 18, user can easily configure Woocommerce Settings. The setting options which give users data about the general WooCommerce settings as well as Product, Tax, Payments, Shipping, Accounts, Email, API, and Webhooks (Woocommerce2019). The author has set up some initial settings such as store location, currency, the shop page is navigated in Home page – Etusivi, shipping method which could let user define a standard flat rate for each product, category or per shipping class.

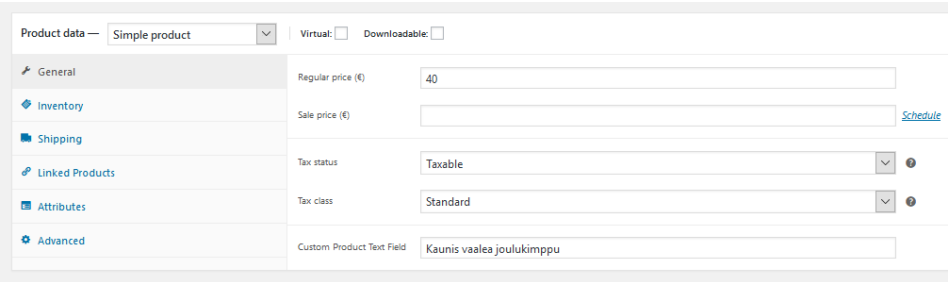

FIGURE 19. Woocommerce product data.

Product's items can be added in Products section from Wordpress dashboard. Each item has its meta box where the significant data is assigned (Figure 19). User could manage their product inventory, shipping and so on in this product panel. The default panel has no "Custom Product Field", the author implemented it based on the design as well as given information at the current website by using code

snippet, the code has been added in functions.php (Figure 20). Hence, the company could easily add their product with text needed for their product's items.

```php
function product_custom_field()
{
    global $woocommerce, $post;
    echo '<div class="product_custom_field"></div>';
    // Custom Product Text Field
    woocommerce_wp_text_input(
        array(
            'id' => '_custom_product_text_field',
            'placeholder' => 'Custom Product Text Field',
            'label' => __('Custom Product Text Field', 'woocommerce'),
            'desc_tip' => 'true'
        )
    );
    echo '';
}

function product_custom_field_save($post_id)
{
    // Custom Product Text Field
    $custom_product_text_field = $_POST['_custom_product_text_field'];
    if (!empty($custom_product_text_field))
        update_post_meta($post_id, '_custom_product_text_field', esc_attr($custom_product_text_field));
}

    add_action( 'woocommerce_after_shop_loop_item_title', 'custom_field_display_below_title', 2 );
    function custom_field_display_below_title(){
        global $product;

        // Get the custom field value
        $custom_field = get_post_meta( $product->get_id(), '_custom_product_text_field', true );

        // Display
        if( ! empty($custom_field) ){
            echo '<p class="my-custom-field">'.$custom_field.'</p>';
        }
    }
```

FIGURE 20. Snippet of Custom text field configuration.

4.4 Appearance customization

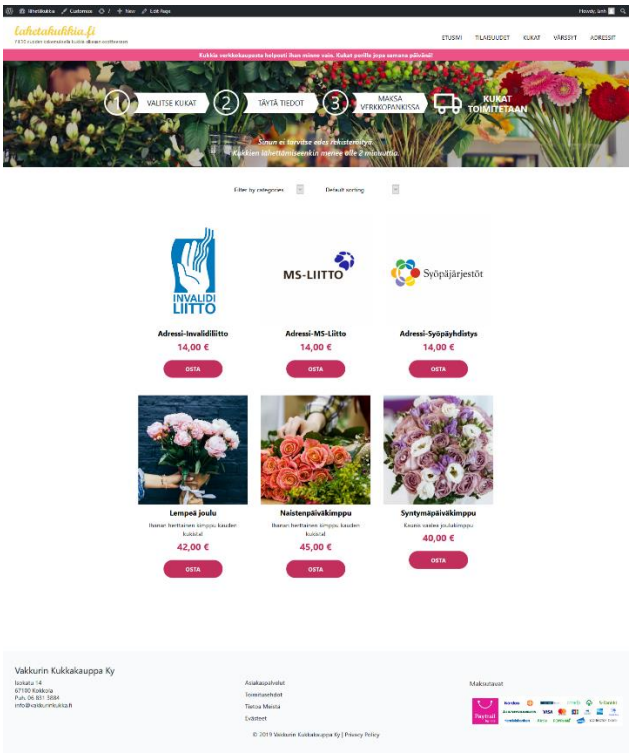

FIGURE 21. Landing page of Lähetäkukkia.

Based on the Creamedia Starter theme, the template has its initial design with a basic hero image, hamburger menu and blank container for further structuring content. The footer information was structured for the website such as company name, address, phone number and social media which the company can customize themselves for the future maintenance. The author has implemented the hero area, sub-pages to the design by using Tailwind CSS. Internal style as well as inline style are applied when Tailwind does not have the value which is needed. The design outcome of the landing page can be seen in Figure 21. The shop page is also displayed in the home page and its layout has been modified by creating another button style, font style and alignment. The filter is adjusted to approriate with the interface design. In addition, Lato is chosen for the website's font-style and there are two main color which are used for hover text, button and logo text – hot pink with hexadecimal format as #C22F5C and mikado yellow with hexadecimal format as #F5CE3B.

```
<!-- Nav -->
  <nav class="main-navigation" id="primary-navigation">
  <div class=" flex-col w-full"><h2 class="px-6 py-2 m-2 title">
  <a href="http://lahetakukkia.test/"> lahetakukkia.fi </a> </h2>
  <p class="px-6 py-1 m-2 text-xs -mt-5"><a class="tagline" href="http://lahetakukkia.test">
  Yli 30 vuoden kokemuksella kukkia oikeaan osoitteeseen</a></p></div>
      <button data-menu-toggle
              class="menu-toggle absolute pin-t pin-l p-2 text-white"
              aria-expanded="false">
          <span class="screen-reader-text block"><?= _x( 'Close', 'Mobile navigation close-button text for screen readers' ) ?
```

FIGURE 22. Snip code for logo using Tailwind CSS.

Tailwind CSS offers the comfort standard of CSS positioning such as floats, flex box and position. In Figure 22, Lähetäkukkia logo is styled in the flex items – flex-col means its property is flex-direction: column and full width. The anchor tag<a> is assigned to heading 2 <h2>and it is positioned to padding-right: 1.25rem and padding-left: 1.25rem. All are written as ".px-6" in Tailwind. "py-2 m-2" as its properties respectively are padding top:0.5rem; padding-bottom:0.25rem and margin: 0.5rem. Therefore, spacing is shortened to p as padding and m as margin. It can be x or y for navigate the side depending on the elements position if it is located on the right, left, bottom or top. Lastly, the value after a dash is ranging from 0 to 64.

```
<div class="hero <?php echo $hero_class; ?> has-overlay flex flex-col text-center justify-between -mt-24">
    <div><p class="bg-pink-dark text-white w-full font-bold p-1">
    Kukkia verkkokaupasta helposti ihan minne vain. Kukat perille jopa samana päivänä!</p></div>

    <div>
    <div class="container flex">
    <div class="item">1</div>
    <div class="bg text-xl pt-4 my-auto" style="width:206px;height:56px;"> VALITSE KUKAT</div>
    <div class="item">2</div>
    <div class="bg text-xl pt-4 my-auto" style="width:206px;height:56px;"> TÄYTÄ TIEDOT</div>
    <div class="item">3</div>
    <div class="bg text-xl pt-1 my-auto" style="width:206px;height:56px;"> MAKSA <br>VERKKOPANKISSA</div>
    <img class="m-4 pt-1"src="<?php bloginfo('template_directory');
    ?>/images/truck.png" alt ="truck" style="width:75px; height:60px"/>
    <div class="text-2xl pt-1 my-auto text-white font-bold"> KUKAT <br>TOIMITETAAN</div>
    </div>
    </div>

    <div><p class="italic text-white font-semibold text-xl">Sinun ei tarvitse edes rekisteröityä.<br>
    Kukkien lähettämiseenkin menee alle 2 minuuttia. </p></div>
```

FIGURE 23. Snip code of hero area's purchase steps using Tailwind CSS.

Figure 23 shows how the flex container performs. The layout for the hero area is positioned with text which is aligned in the center and space in between. The naming pattern as follows: property-value so the property justify-content: space-between; becomes justify-between. All the items are aligned into the center with space between as set for the 4-step purchase in hero area.

4.5 Woocommerce Checkout

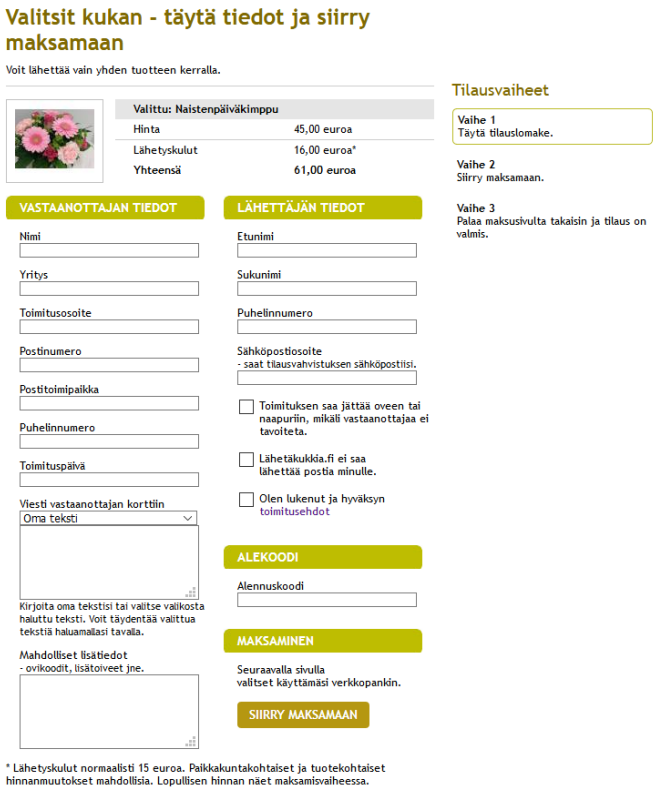

FIGURE 24. Direct checkout of Lähetäkukkia (Screen capture from official site of Lähetäkukkia).

The e-commerce website of Lähetäkukkia does not contain the shopping cart; therefore, it speeds up the check out process one step closer to finishing the customer's orders. It is redirect from the site that the customers simply need to choose their preferred single product, then the process is moved forward to the checkout page. The step includes necessary information of the customers for the product and delivery options. The chosen product is shown with its price, shipping fee and the total amount. When all of the mandatory information is filled in, the payment is the last step that the customer has to perform (Figure 24.)

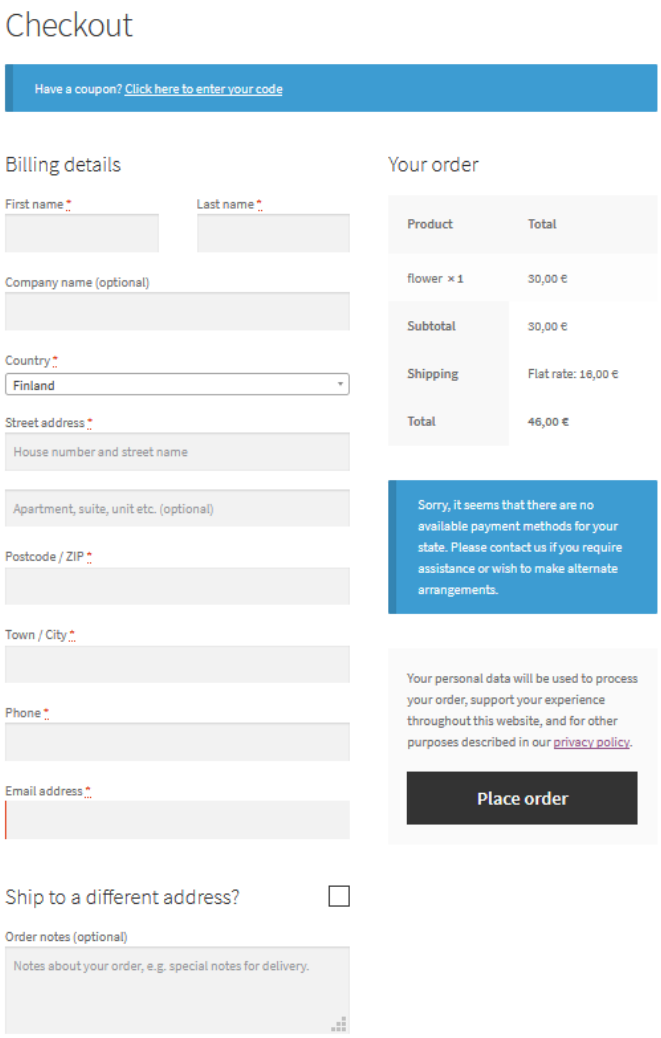

FIGURE 25. Default Woocommerce checkout form (Screen capture from Wordpress 2019).

The new checkout Woocommerce form is built based on the features of the current running site which has shipping calendar option, verses option for flowers, term and conditions checkbox fields. Woocommerce has its default checkout form. Therefore, the display of field for shopper experience is minimal

which create the process simple in this thesis project. Figure 25 indicates the default checkout form of Woocommerce.

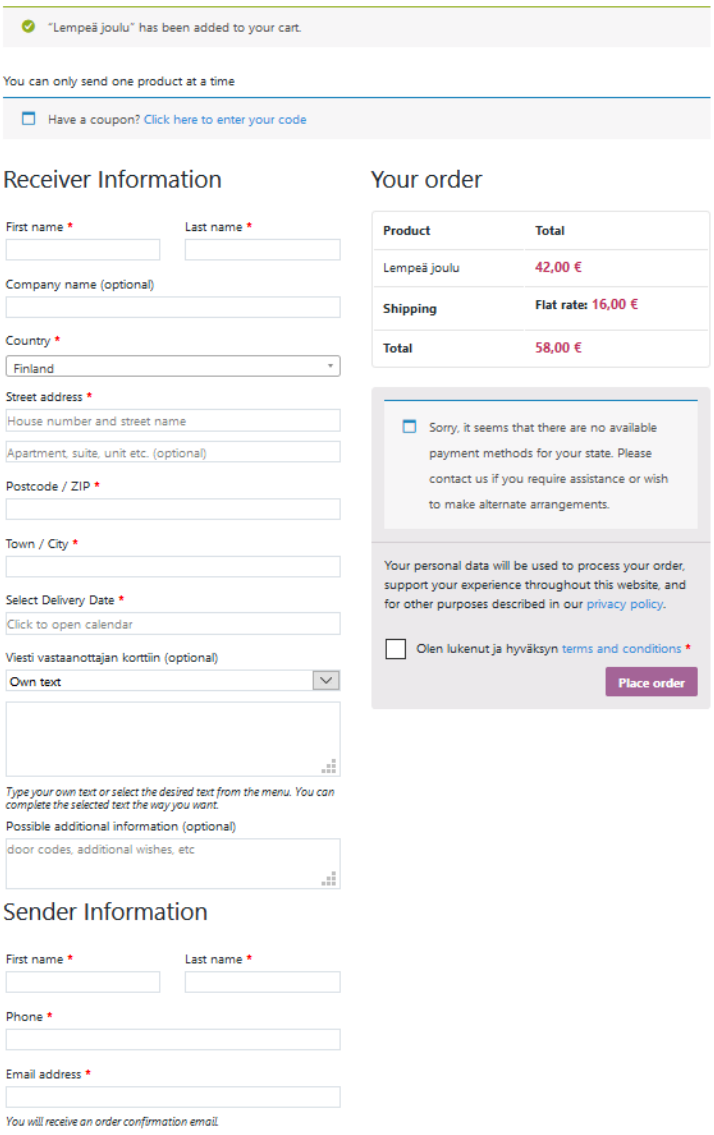

FIGURE 26. Lähetäkukkia check out form.

As shown in figure 26, the system has been constructed based on Woocommerce default structure (Figure 25). However, the features which are calendar for date delivery selection, available verses or the shoppers could add their own text, receiver and sender information. All are added to match with the form of the current running site Lähetäkukkia(Figure 24). From the shopping page, customers can get their product without moving to the cart page, the process will be proceeded immediately to the checkout page instead. The process helps save time, reduce distractions and create smooth flow for customer experience.

There is simple way to custom the Woocommerce checkout default by using visual HTML hook guide. Hence, developers can develop and tweak the checkout process by removing default actions, adding sections, create custom fields and many more. The building block or it is also called hook codes are added to functions.php in the primary theme or child theme without editing Woocommerce template (Melogli 2019.).

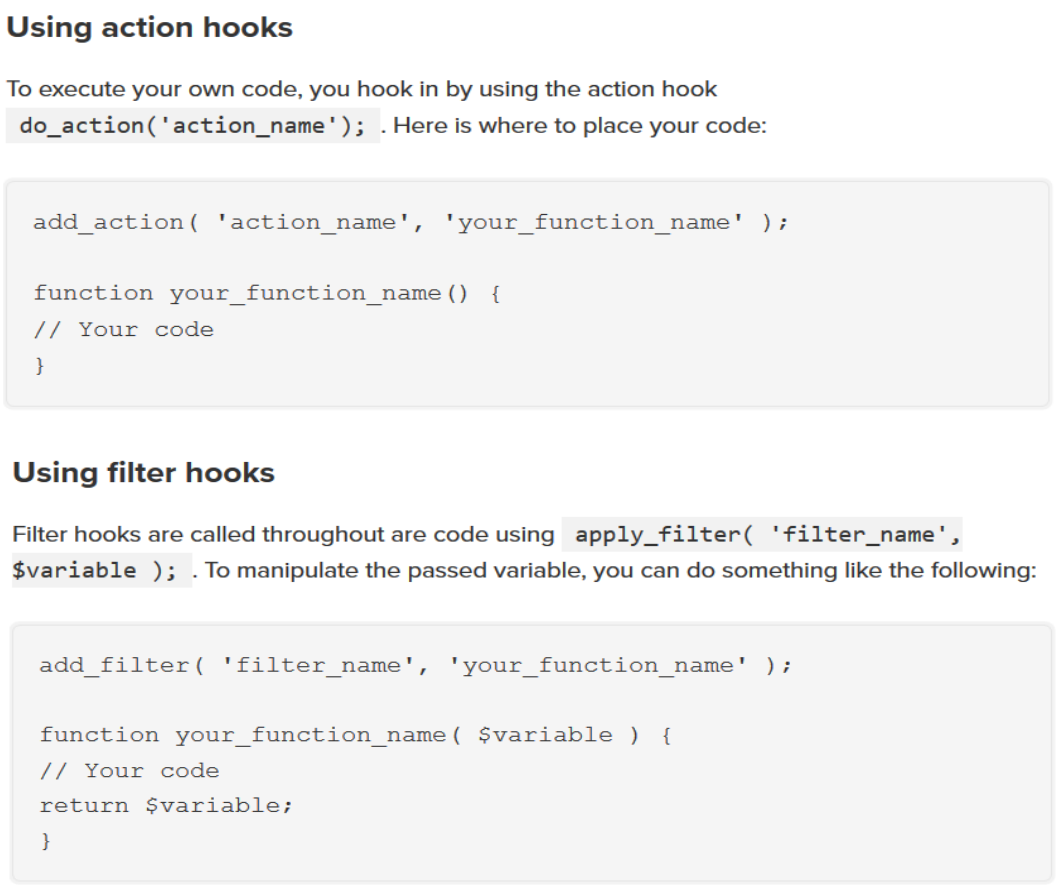

FIGURE 27: Woocommerce action and filter hooks (Woocommerce. 2019)

WooCommerce has a lot of different hooks for their product pages, cart page and checkout page (Figure 27). Hooks in WordPress basically allow the developer to change or add code without editing core files. They are used extensively throughout WordPress and WooCommerce and are extremely useful for developers. These hooks will help to add the content in different places on these pages. Generally, action hooks are used to add new fields to the checkout or order; meanwhile, filter hooks are used to remove existing fields, override the placeholder of existing fields and make an existing field optional while it used to be required (Woocommerce 2019.).

```php
//* Add select field Viesti vastaanottajan korttiin

add_action('woocommerce_before_order_notes', 'select_viesti_field',10);
function select_viesti_field( $checkout ) {

    woocommerce_form_field( 'viesti_field', array(
        'type'          => 'select',
        'id'            =>'viesti',
        'class'         => array( 'wps-drop' ),
        'label'         => __( 'Viesti vastaanottajan korttiin' ),
        'options'       => array(
            ''  /* blank text*/
           => __( 'Own text', 'wps' ),
           'Maailma on täynnä kauneutta, kun sydän on täynnä rakkautta.'
              => __( 'Onnittelu 1', 'wps' ),
           'Onnea toivotan suurta ja syvää, juhlapäiväksi kaikkea hyvää!'
              => __( 'Onnittelu 2', 'wps' ),
           'Sinulle kukkia tänään tahdon tuoda. Paljon, paljon onnea elämääsi suoda.'
              => __( 'Onnittelu 3', 'wps' ),
           'Hallussasi varmaan on nuoruuden taika, koska Sinuun ei pysty vuodet, eikä aika.'
              => __( 'Onnittelu 4', 'wps' ),
           'Kukkia poimin, kukkia kannan, kauneimmat kukkani sinulle annan. Paljon Onnea!'
              => __( 'Onnittelu 5', 'wps' ),
           'Hallussasi varmaan on nuoruuden taika, kun ei sinuun pysty vuodet, ei aika.'
              => __( 'Onnittelu 6', 'wps' ),
           'Ruusun hehkuvan sinulle tänään ojennan. Sen terälehti jokainen kätkee onnentoivotuksen.'
              => __( 'Onnittelu 7', 'wps' ),
```

FIGURE 28. Hook add action for verse field selection.

Action hooks let users insert the custom code at actual points when they want to add a new section to the checkout. It is accessible with https://businessbloomer.com/woocommerce-visual-hook-guide-checkout-page/ for developers to see the actual locations of the component that they desire to change. In Figure 27 and Figure 28, the action is used to add the select field services into the checkout form of the flower shop. The select box contains 14 select fields and one select field placeholder. Hence, customers can consider the verse they wish to have. The result is shown in Figure 29 when the hook code is executed.

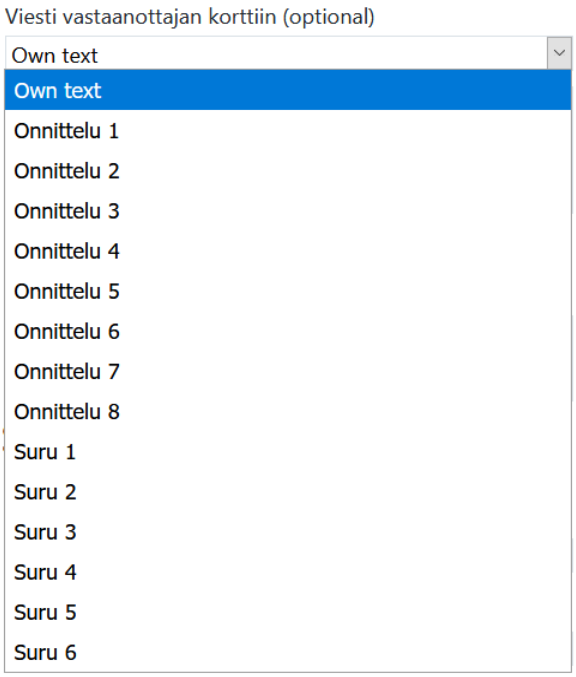

FIGURE 29. Verse selection field in checkout page.

5 CONCLUSION

The website from local server has been migrated and forwarded to Creamedia Oy. They will carry on the remaining part of the website or improve the existing code from the author as well as future developments. In general, the website has been changing to the wholy new up-to-date version with the fresh interface design from landing page to sub-pages but those still remain the same construct such as check out page as the current existing site. Consequently, the purpose of the thesis was to find out the e-commerce solutions with Woocommerce. The author has learnt new framework, technology and gained knowledge from the co-worker even if it was a short time. The website has not been launched yet, there are still missing parts which is needed to fulfill, but the Creamedia team will make it complete as the perfect version. The topic is remarkable and worth a try because Wordpress and Woocommerce are platform which support developers to build an extensive range of outstanding web applications. This thesis project can be applied as an experience and reference for developing future assignments involved.

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