ASSIGNMENT 2 WEBSITE DESIGN AND DEVELOPMENT

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ASSIGNMENT 2 FRONT SHEET

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Class	GCD0824	Assessor name	
Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	HUY

Grading grid

P5	P6	P7	M4	M5	D2	D3

✿ **Summative Feedback:**   ✿ **Resubmission Feedback:**

Grade:	Assessor Signature:	Date:

Signature & Date:

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INTRODUCTION

The Internet is everyone's go-to source of information in today's world. Businesses, public figures, publications and everything in between all have a presence on the web; and the more professional their website looks, the more successful they tend to be. Web designers are more in demand than ever before, and the profession is constantly changing along with the web itself. This course aims to teach the most up to date fundamentals of web design from scratch.

As websites and online resources become more and more a part of our everyday lives, there is an increased demand for web design skills — but what exactly is "web design?" Simply put, web design is the planning and creation of websites. This includes a number of separate skills that all fall under the umbrella of web design. Some examples of these skills are information architecture, user interface, site structure, navigation, layout, colors, fonts, and overall imagery. All of these skills are combined with the principles of design to create a website that meets the goals of the company or individual from whom that site is being created. This article will take a look at the basics of website design and the various disciplines or skills that are a part of this industry.

HTML, or Hyper Text Markup Language, is the code used to define colors, graphics, hyperlinks, paragraphs, and other simple elements of a website. It was developed by the founder of the web, Tim Berners Lee, back in 1990.

CSS, or Cascading Style Sheets, define the more advanced aspects of websites like fonts, background images, positioning and much more. It is a style language that defines HTML layout, so the two are intrinsically linked. Both form the basic frameworks for all websites on the internet.

PART I. WEB DESIGN PRINCIPLES, STANDARDS AND GUIDELINES

1. Website design principles

The success of any website or online business entirely depends upon their website design. Most of your potential customers or visitors always check your website first, then they will visit your physical store. Therefore, it is necessary to make your website design perfect and relatable to your business requirements. Web design is more critical for leads or conversions than you think. In fact, website design doesn't necessarily mean how it looks or feels, but how it works. Even a simple website and well-structured design are enough to generate leads or conversions.

Good website design needs a lot of expertise in the web designing field, plus an experienced person who knows the designing techniques and web design principles. The principles of design that we are going to discuss will help you to create a perfect web design to generate more leads or conversions for your business. (xenex, n.d.)

Simplicity is best
Over-designing doesn't work. Putting too many elements on your website may distract your visitors from the main purpose of your site. Simplicity is key in creating effective, clean and updated designs that will make your website appealing, as well as leading visitors to navigate other pages of your website. In essence, this will help you to generate the leads or conversions for your website consistently and effectively. Remember to keep your design simple and easy to use so that your visitors can easily navigate or visit other pages of your website easily.

Consistency
Consistency in web design is very important for your business. Try to focus on your website design, create consistency in your design and all other pages of your website. It can be understood that your **font style, design, size, subheadings, heading, and buttons styles** must be the same throughout the website. Finalize all of these things in advance including your website information.

Typography & Readability
No matter how beautiful your website looks, the text still rules as the content of the website provide the desired information to the visitors. Since search engine crawlers always consider this information, it becomes a part of SEO activities. You should keep your website information readable for your visitors, along with keywords, meta titles, descriptions and other sensitive SEO elements. Always consider easy to read fonts while the designing of your website that includes the body of content, headings and subheadings of your website.

Color Selection & Images
A perfect color combination of your website will help attract visitors, and if your color selection is poor then visitors are easily distracted from your website. It is necessary to select at least 3 to 4 color combination to create the desired look for your website. The same rule applies for the images; you have to select images according to the color combination & text of every page.

Fast/East Loading
No one likes websites that take too much time to load. So make sure that you have to optimize the images, CSS, JS and other On-Page factors that will help you to increase the loading speed of your website plus **HTTPS** also help you to increase the loading speed of your website.

Communication
The major purpose of visitors is to get information from the website. If your website is able to communicate with your visitors and provide all the information that they want, then they will spend more time on your website. This will help you to generate more leads or conversions for your online business. Therefore always try to organize the information properly including links, the information in bullet points, heading and subheadings.

Easy to Navigate

According to the analysis that visitors love to stay on such a type of websites having easy navigation. To create effective navigation, you need to create a proper logical page hierarchy like breadcrumbs, and by designing clickable buttons in your whole web design.

Figure 1: Website design principles. (xenex, n.d.)

Figure 2: Web Design Standards. (orbitmedia, n.d.)Figure 3: Website design principles. (xenex, n.d.)

2. Website standards and guidelines

To answer this question, we created a checklist of 10 web design standards, then looked at the top 50 marketing websites to see how standard these standards really are. Using guidelines from an earlier NN Group article, we use the following thresholds:

- **Standard**: 80% or more of websites use the same design approach
- **Convention**: 50 – 79% of websites use the same design approach
- **Confusion**: 49% or fewer websites conform, no single design approach dominates

Logo in the top left
100% of the websites researched had a clickable logo in the upper left corner of every page on the site. That's a standard!

Contact in top right
44% have the contact button or link in the top right corner of every page. Although this placement is very common and considered best practices, it cannot be considered standard.

Main navigation across the top
88% of the websites had the main navigation located in the header at the top of every page, making horizontal top-level navigation a web design standard.

Home page slideshow
32% of the websites have a home page slideshow (also known as a carousel) with a rotating series of images and messages.

Value proposition high up on the home page
80% of marketing websites have an explicit value proposition located high on the home page. So the majority of websites explain their value to visitors "above the fold." The remaining didn't have a clear value proposition at all.

Any web designer will tell you that there is no standard pixel height for browsers. Therefore, there is no fold. But of course, some design elements appear high on pages and are generally visible to the majority of visitors without scrolling.

Call to Action high up on the home page
78% of the websites had visually prominent calls to action. The percentage fell below our threshold for standard, it's certainly a convention.

Search feature in the header
54% of websites have a search feature in the header. About half of all marketing sites do not have a search feature that appears "globally" on every page either as a link, icon or search box.

Signup box in the footer
24% of websites allow visitors to sign up and subscribe to email updates in the footer. So this is a common place to gather email addresses, but not a convention or a standard.

Social media icons in the footer
72% of the websites include icons for social media websites in the footer. This almost makes these a standard design element.

Responsive design
68% of websites are mobile-friendly using responsive web design. This gives visitors a great experience regardless of the device – phone, tablet or desktop.

Web Design Standards
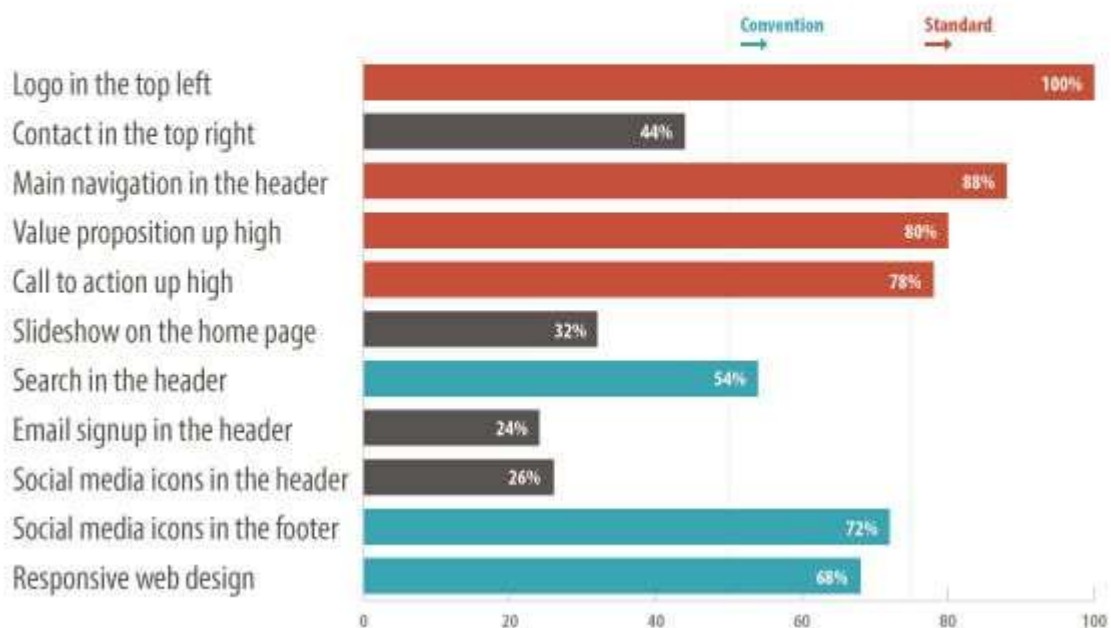
Placement of features on the top 50 marketing websites

Figure 4: Web Design Standards. (orbitmedia, n.d.)

Figure 5: LAMP layers. (liquidweb, n.d.)Figure 6: Web Design Standards. (orbitmedia, n.d.)

Moreover, entirely developed processes will be following the structure of WCAG 2.0 Guideline that Web content must be:

- **Perceivable**: Information and User Interface (UI) components must be perceivable by users.
- **Operable**: UI components must be operable by users.
- **Understandable**: Information about the UI and its operation must be understandable by users.
- **Robust**: Content must be robust enough to be interpreted reliably by a wide variety of user agents, including assistive technologies. (orbitmedia, n.d.)

PART II. IDEAS & DESIGN

1. Client & User requirements

1.1. User requirements

The first step in developing any e-Commerce application is to interview the user base to generate a list of features to be included in the application. This comprises the important input for defining the capabilities of the application.

End user features that facilitate the enjoyment of Internet shopping might include the following:
- Users should be able to use the e-Commerce application from any Web browser supporting HTML and cookies.
- Visitors new to the site should be able to register by themselves. Users will be differentiated by unique user identifiers.
- Transactions should be secure. That is, a basic authentication mechanism must be built into the application to prevent unauthorized persons from making transactions on a user's behalf. Secure socket layers (SSL) or other encryption mechanisms are typically used to thwart the access of sensitive information (such as credit card numbers) sent to the server by Web browsers.
- Site visitors should be able to purchase goods or services via the electronic store.
- Users should be able to view a complete list of specified items available through the site.
- Users should be able to search for items by related attributes. For example, visitors might search for CDs by artist, album title and/or genre or search for books by author, title and/or ISBN number.
- Site visitors should be able to search the database using relevant keywords to identify items of interest.
- Users should be able to select items of interest and add them to their shopping carts for future purchase.
- Visitors should be able to modify the quantities of items in and/or delete items from their shopping carts before checkout.
- All selected items should be shipped to the user following purchase.
- Users should be able to view the status of items they have ordered.
- Large numbers of users should be able to use the application simultaneously.
- The performance of the application should not degrade with an increase in the number of goods or services offered.
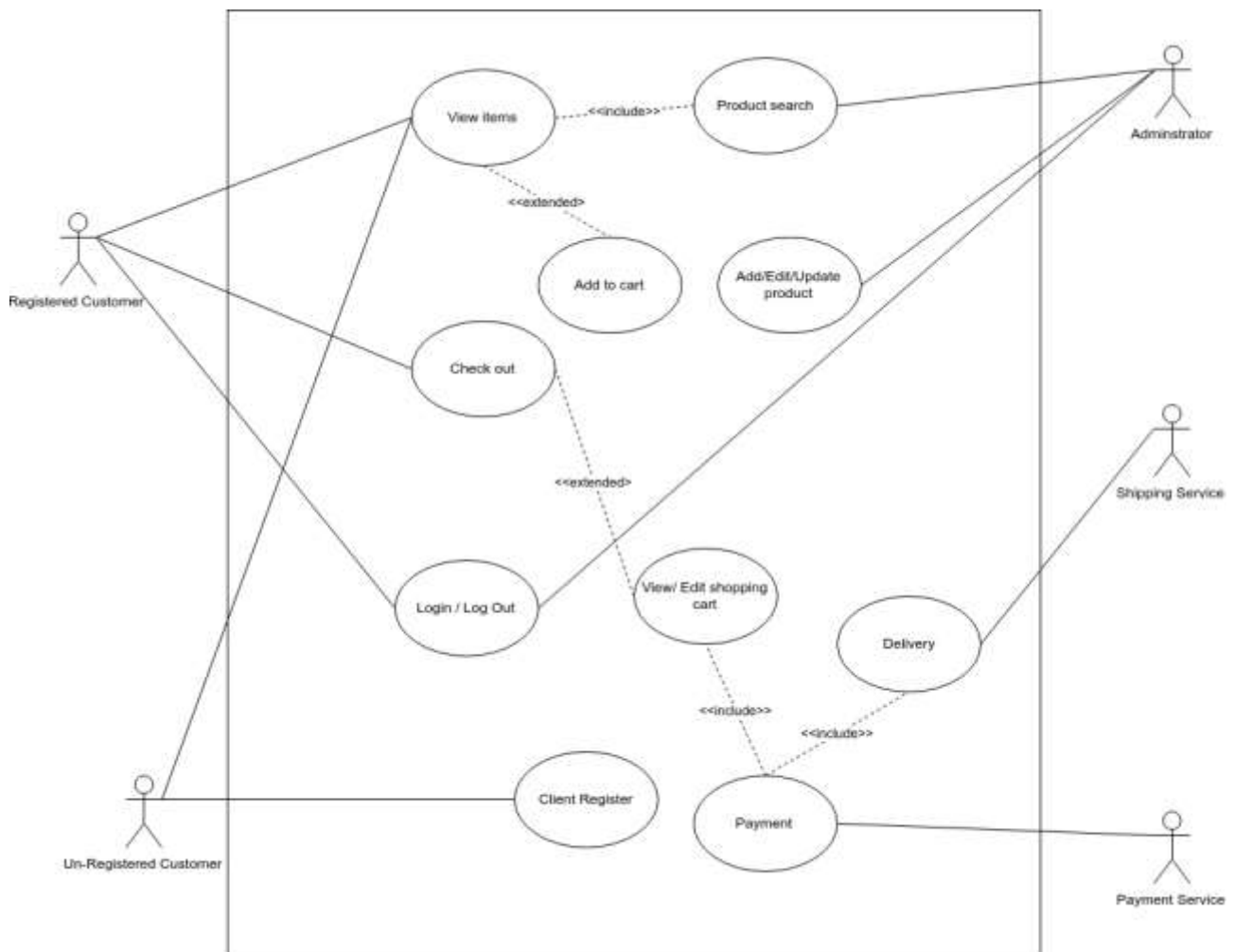
1.2. User case diagrams

Figure 7: User case diagrams

Figure 8: Data flow diagrams Level 0Figure 9: User case diagrams

1.3. Data Flow Diagrams

A data-flow diagram (DFD) is a way of representing a flow of a data of a process or a system (usually an information system) The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow, there are no decision rules and no loops. Specific operations based on the data can be represented by a flowchart. (wikipedia, n.d.)

A level 0 data flow diagram (DFD), also known as a context diagram, shows a data system as a whole and emphasizes the way it interacts with external entities. This DFD level 0 example shows how such a system might function within a typical retail business. (lucidchart, n.d.)
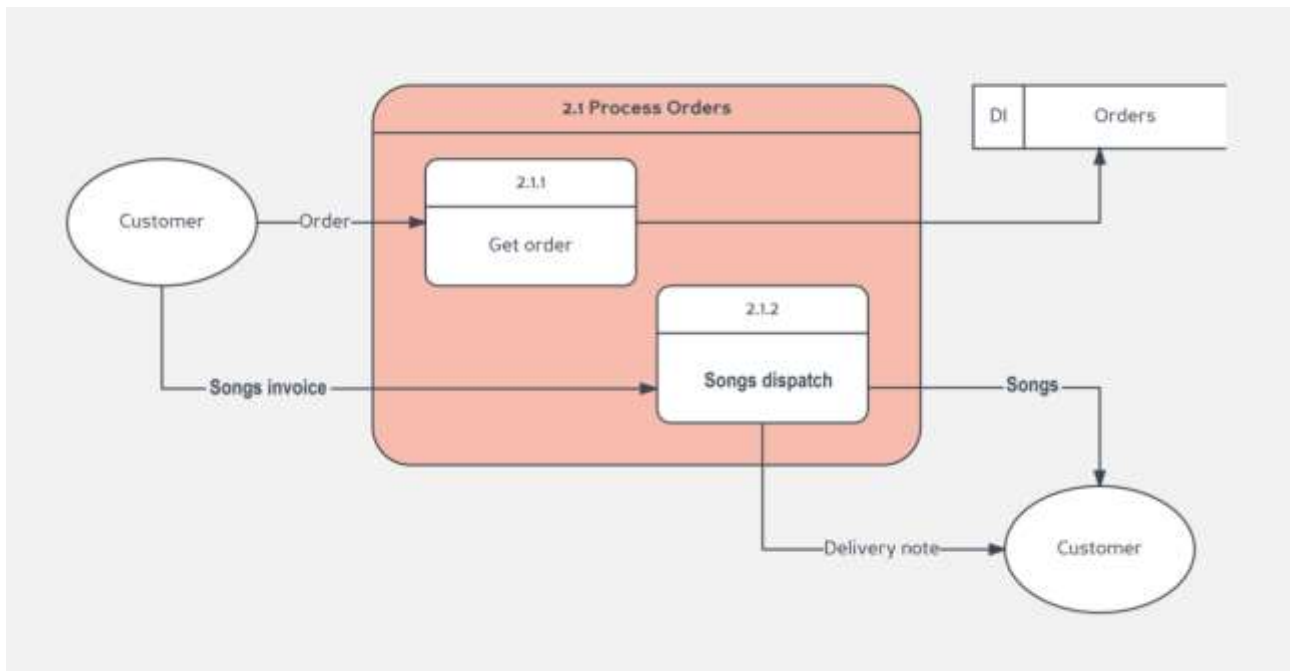
Figure 10: Data flow diagrams Level 0

Figure 11: Data flow diagram level 1Figure 12: Data flow diagrams Level 0

A level 1 data flow diagram (DFD) is more detailed than a level 0 DFD but not as detailed as a level 2 DFD. It breaks down the main processes into sub processes that can then be analyzed and improved on a more intimate level. (lucidchart, n.d.)
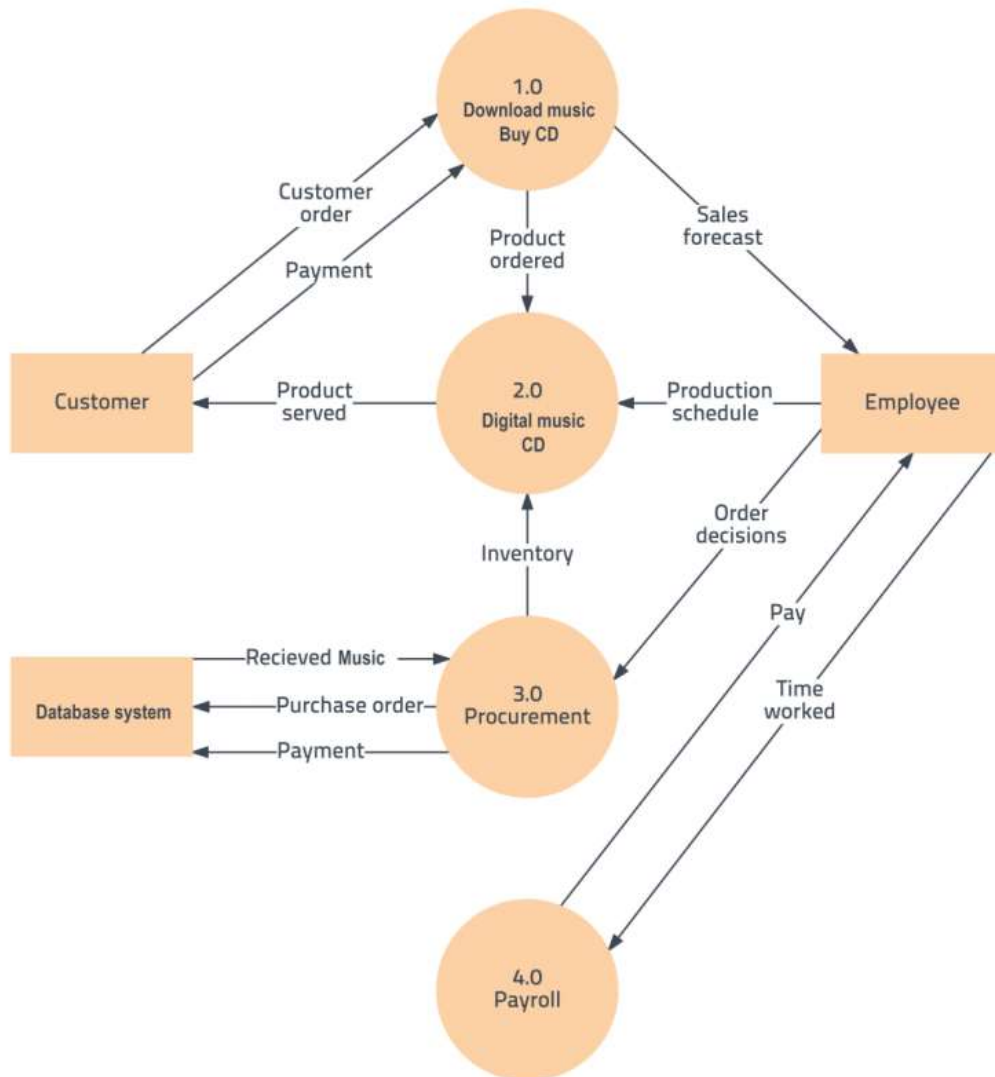
Figure 13: Data flow diagram level 1

Figure 14: Data flow diagram level 2Figure 15: Data flow diagram level 1

A level 2 data flow diagram (DFD) offers a more detailed look at the processes that make up an information system than a level 1 DFD does. It can be used to plan or record the specific makeup of a system. (lucidchart, n.d.)
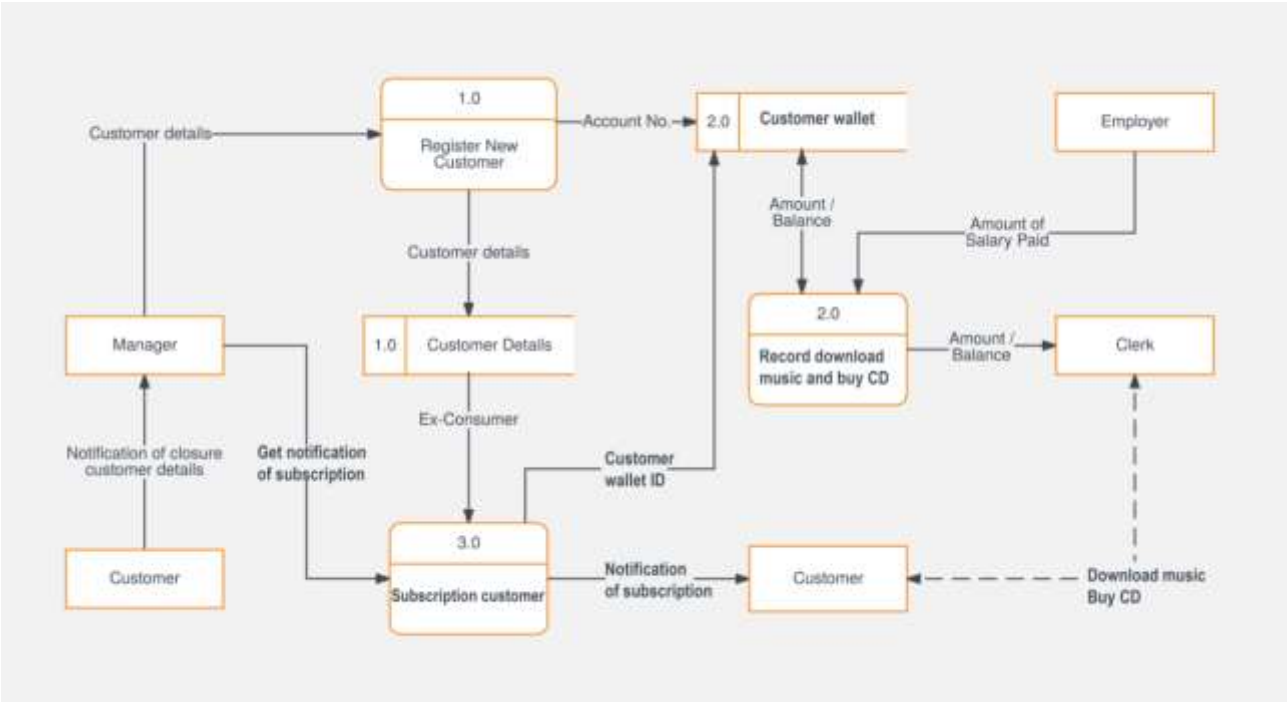

Figure 16: Data flow diagram level 2

Figure 17: Entity Relationship diagramFigure 18: Data flow diagram level 2
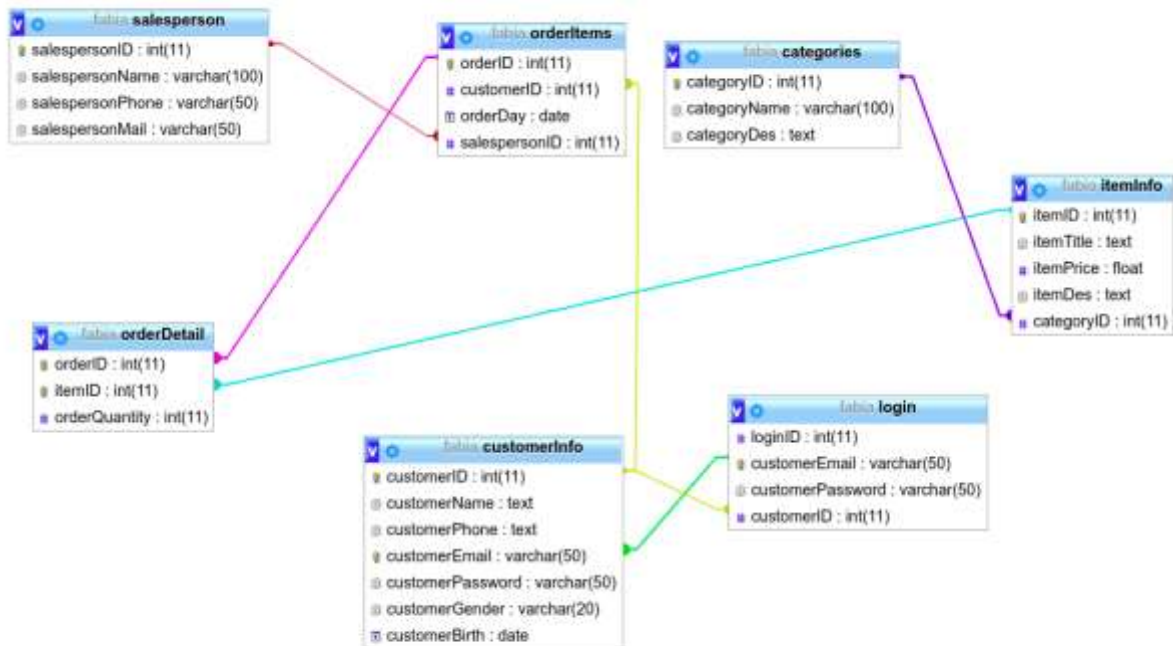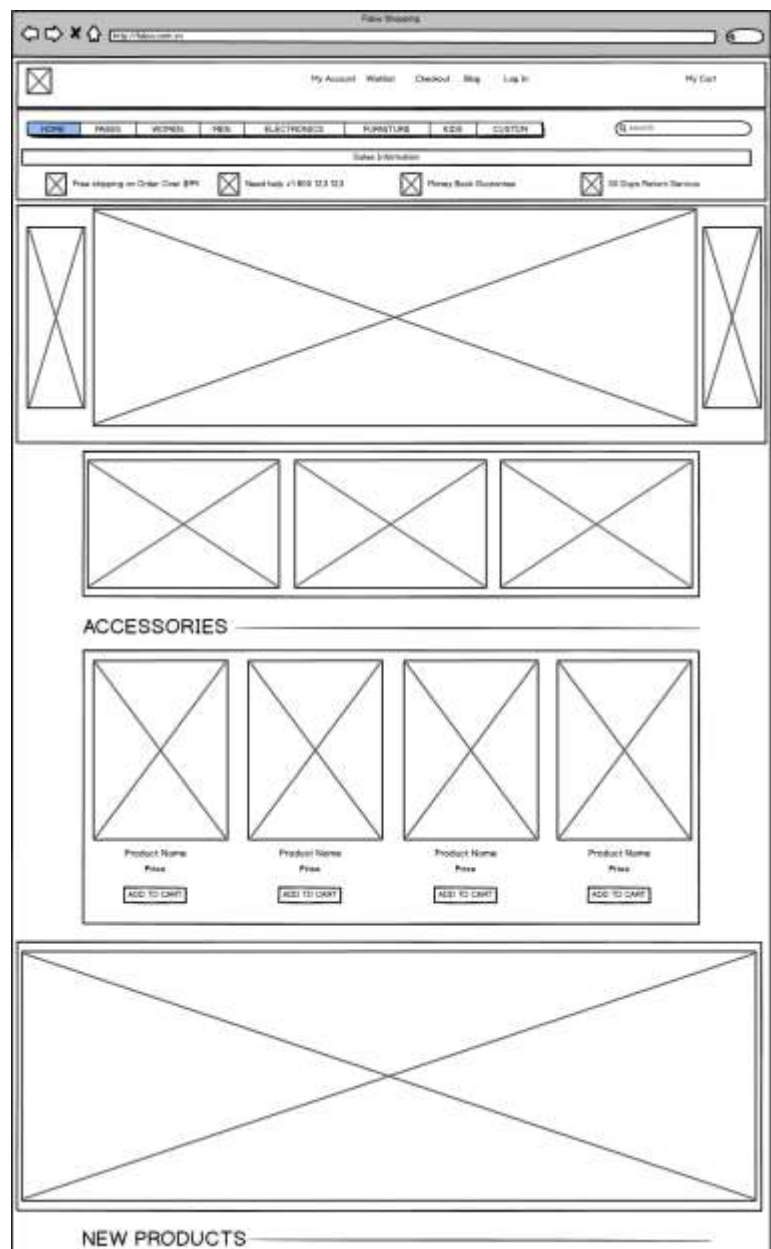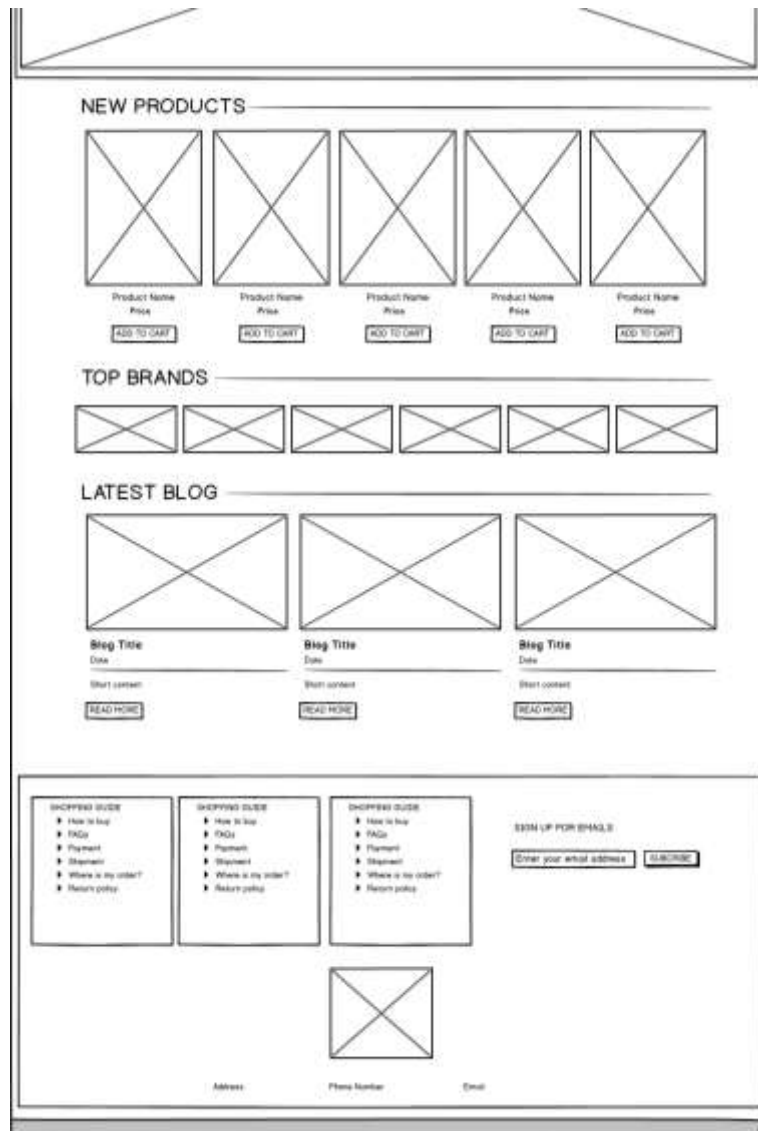
1.4. Entity Relationship Diagram

Figure 19: Entity Relationship diagram
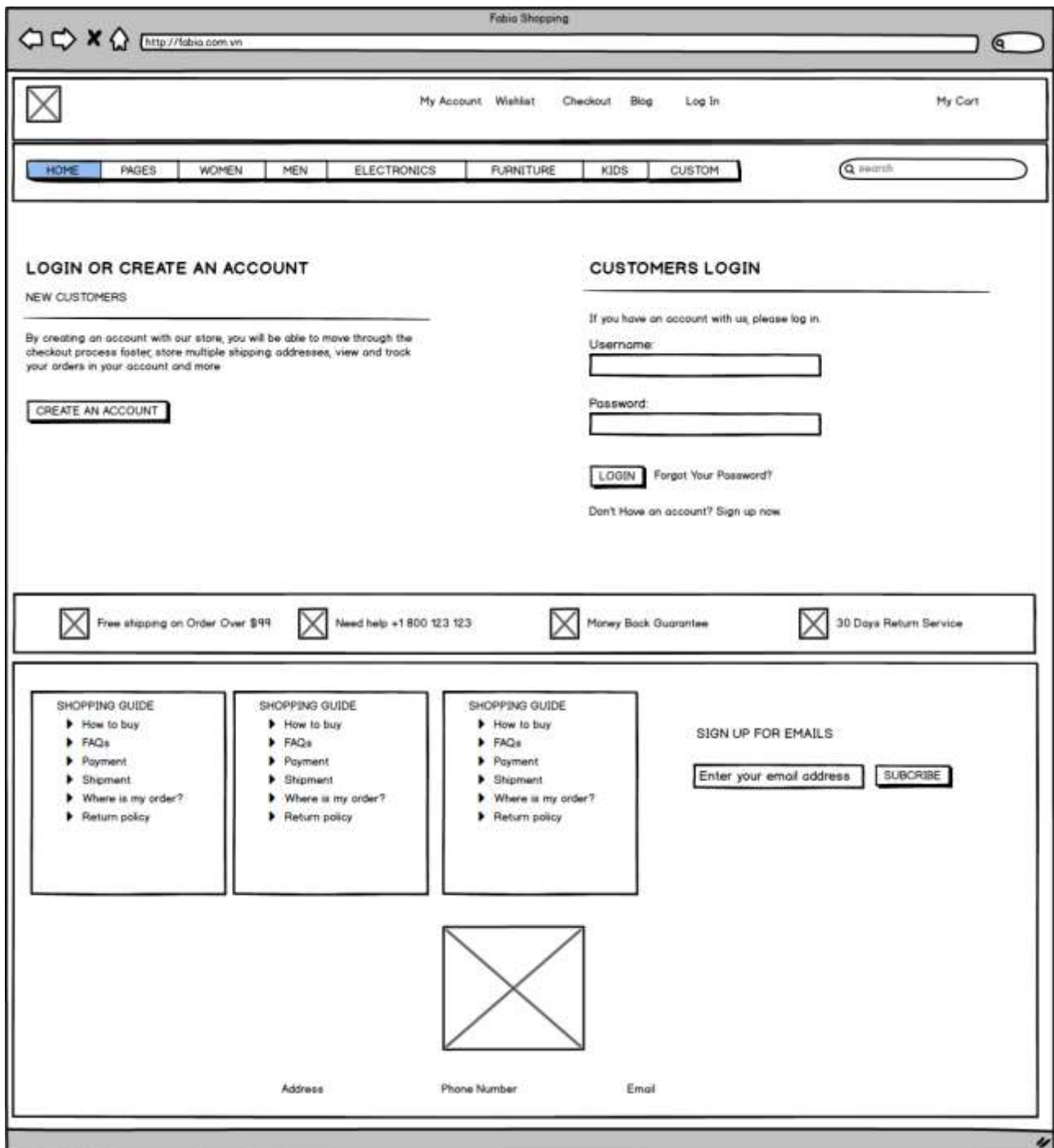
2. Website wireframes
2.1. Index wireframes

Picture 1: Index wireframe 1

Picture 2: Index wireframe 2

2.2. Login wireframes

Picture 3: Login wireframe

2.3. List wireframes
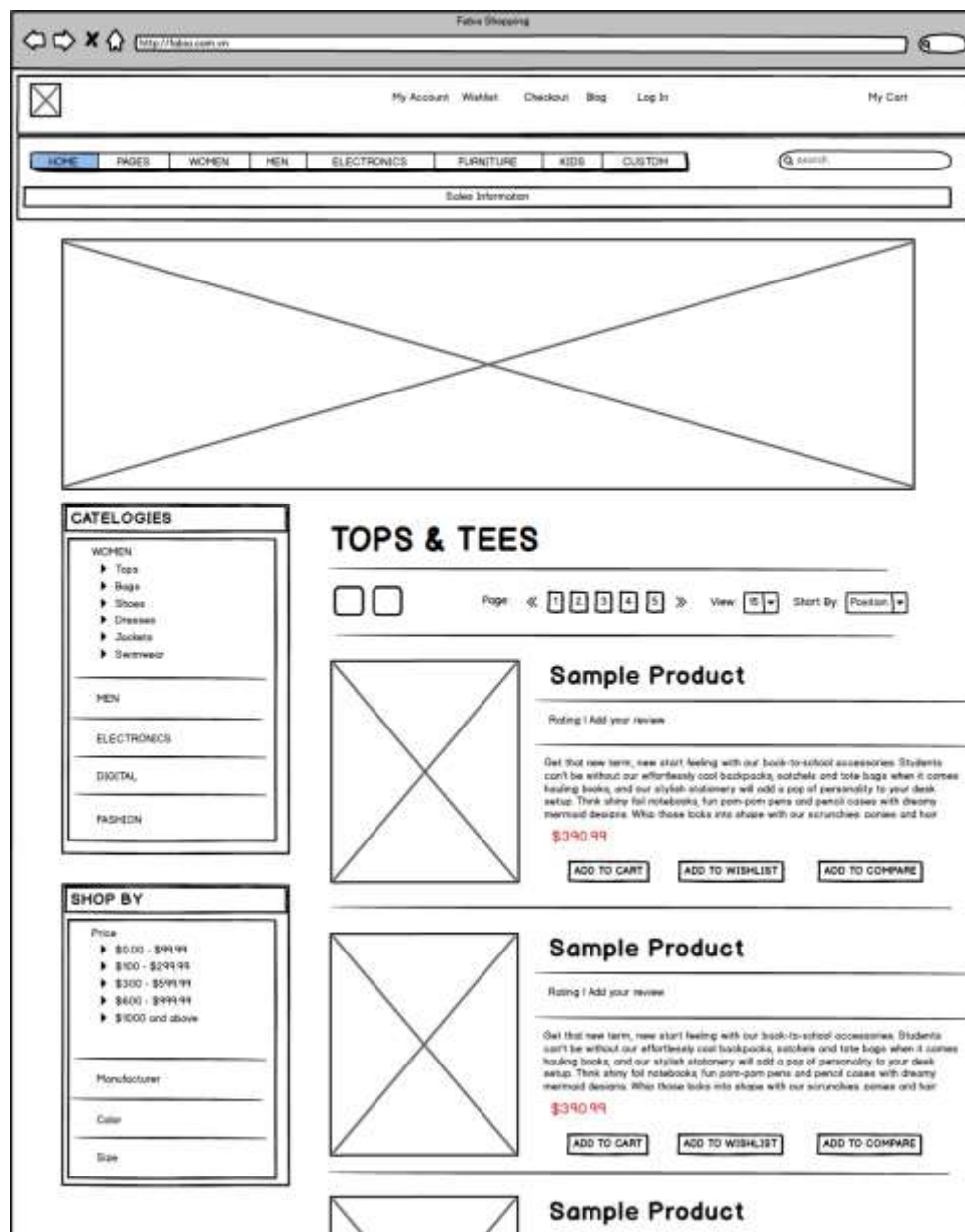
Picture 4: List wireframe 1
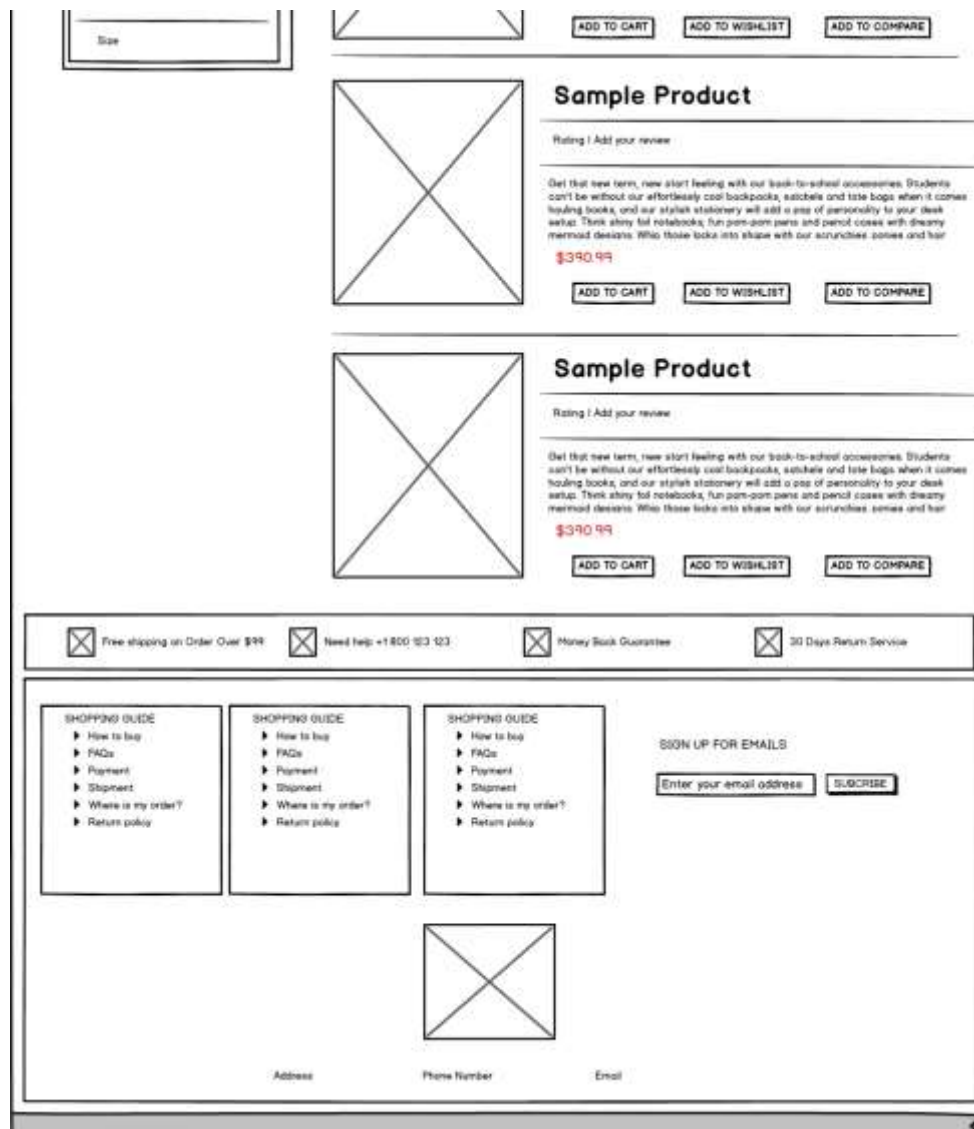
Picture 5: List wireframe 2

2.4. Product Detail wireframes
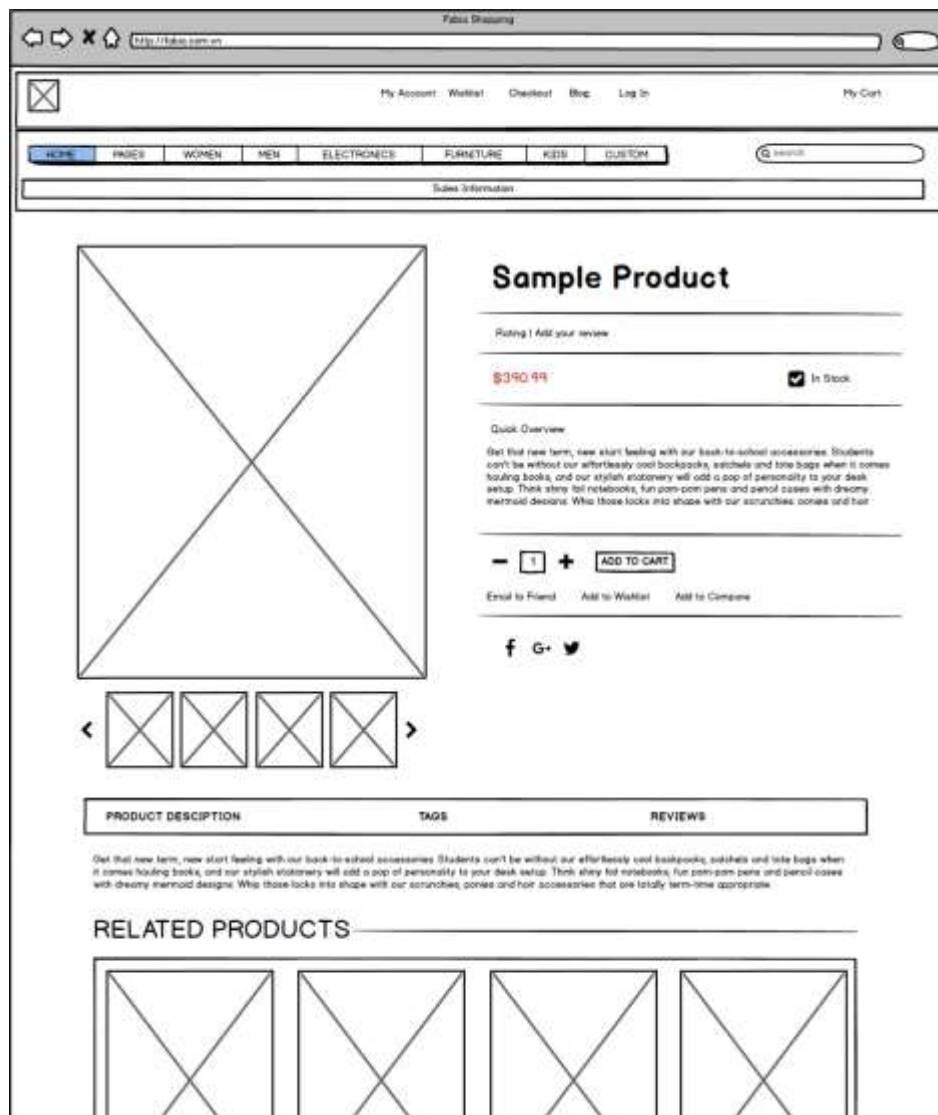
Picture 6: Product detail wireframe 1
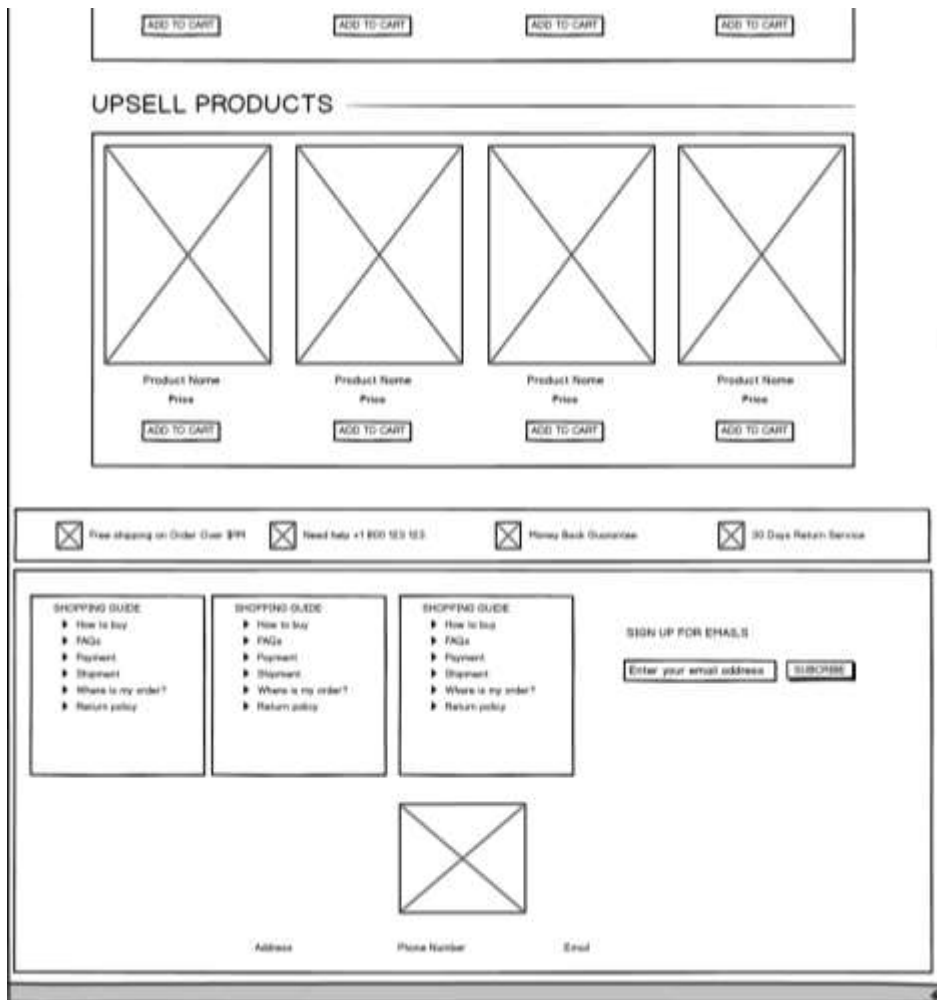
Picture 7: Product detail wireframe 2

2.5. Shopping cart wireframes

Picture 8: Shopping cart wireframe 1

BASDED ON YOUR SELECTION, YOU MAY BE INTERESTED IN THE FOLLOWING ITEMS:

Product Name	Product Name	Product Name	Product Name
Price	Price	Price	Price
ADD TO CART	ADD TO CART	ADD TO CART	ADD TO CART

☒ Free shipping on Order Over $99   ☒ Need help +1 800 123 123   ☒ Money Back Guarantee   ☒ 30 Days Return Service

SHOPPING GUIDE
- ▶ How to buy
- ▶ FAQs
- ▶ Payment
- ▶ Shipment
- ▶ Where is my order?
- ▶ Return policy

SHOPPING GUIDE
- ▶ How to buy
- ▶ FAQs
- ▶ Payment
- ▶ Shipment
- ▶ Where is my order?
- ▶ Return policy

SHOPPING GUIDE
- ▶ How to buy
- ▶ FAQs
- ▶ Payment
- ▶ Shipment
- ▶ Where is my order?
- ▶ Return policy

SIGN UP FOR EMAILS

Enter your email address   SUBCRIBE

Address   Phone Number   Email

Picture 9: Shopping cart wireframe 2

PART III. WEBSITE IMPLEMENTATION

1. Tools and techniques

1.1. Draw.io

Draw.io is an open source technology stack for building diagramming applications, and the world's most widely used browser-based end-user diagramming application.
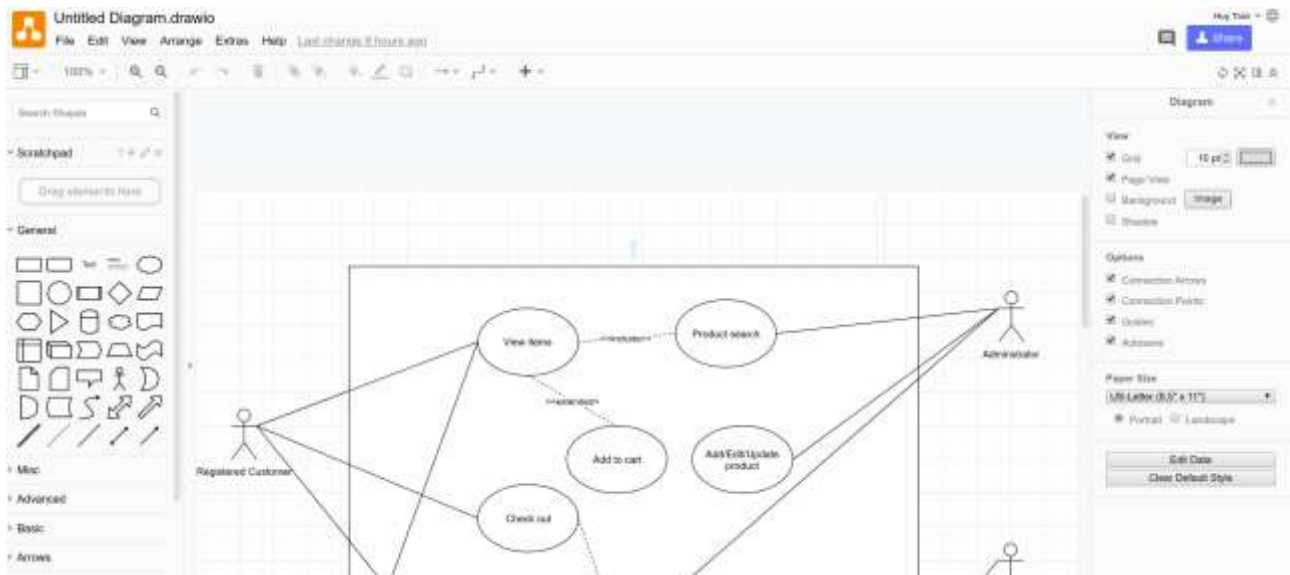
Picture 10: Draw.io interface

Draw.io will be used in design flow chart, use case, EDR concepts.

1.2. Pencil

Pencil is built for the purpose of providing a free and open-source GUI prototyping tool that people can easily install and use to create mock-ups in popular desktop platforms.
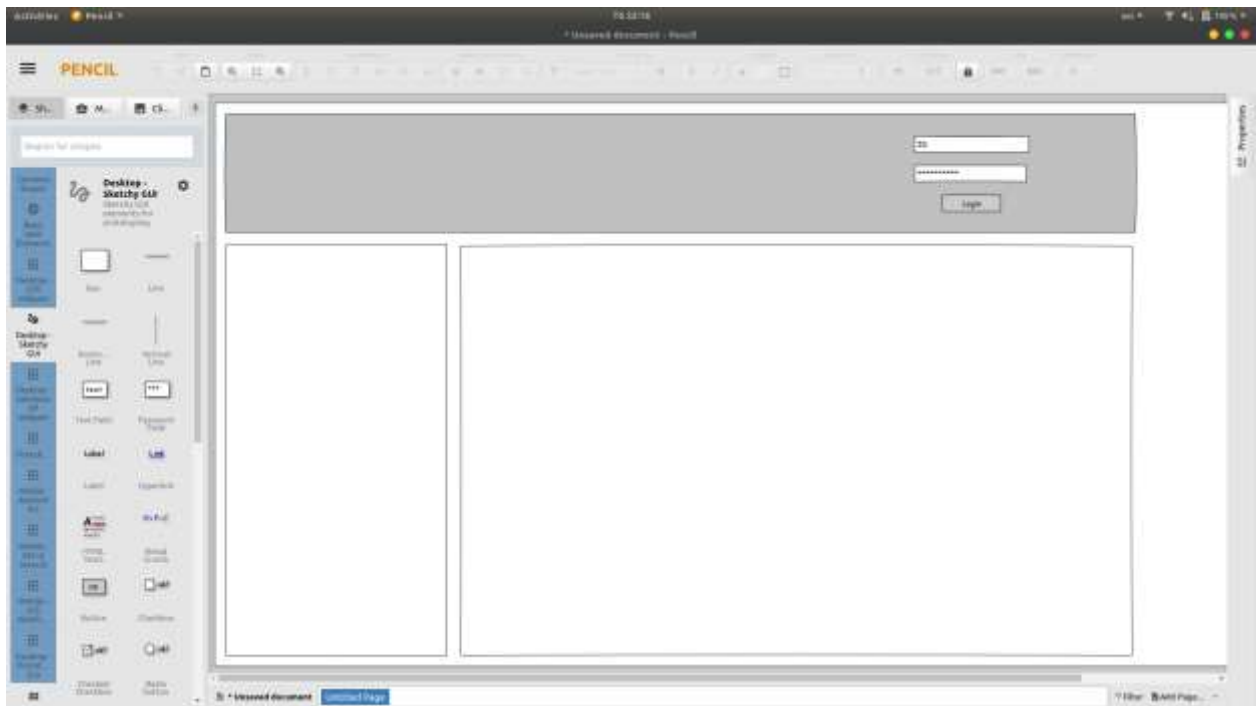
Picture 11: Pencil interface

1.3. Balsamiq

Balsamiq Wireframes (formerly called Balsamiq Mockups) is a small graphical tool to sketch out user interfaces, for websites and web / desktop / mobile applications.
Wireframes is sold as a web application (Balsamiq Cloud). A Desktop application, and integrated with different wikis and bug trackers (compare all versions). You can try out Balsamiq Cloud for free, or download a free desktop trial. You can also easily access a pre-release version or older versions. (balsamiq, n.d.)
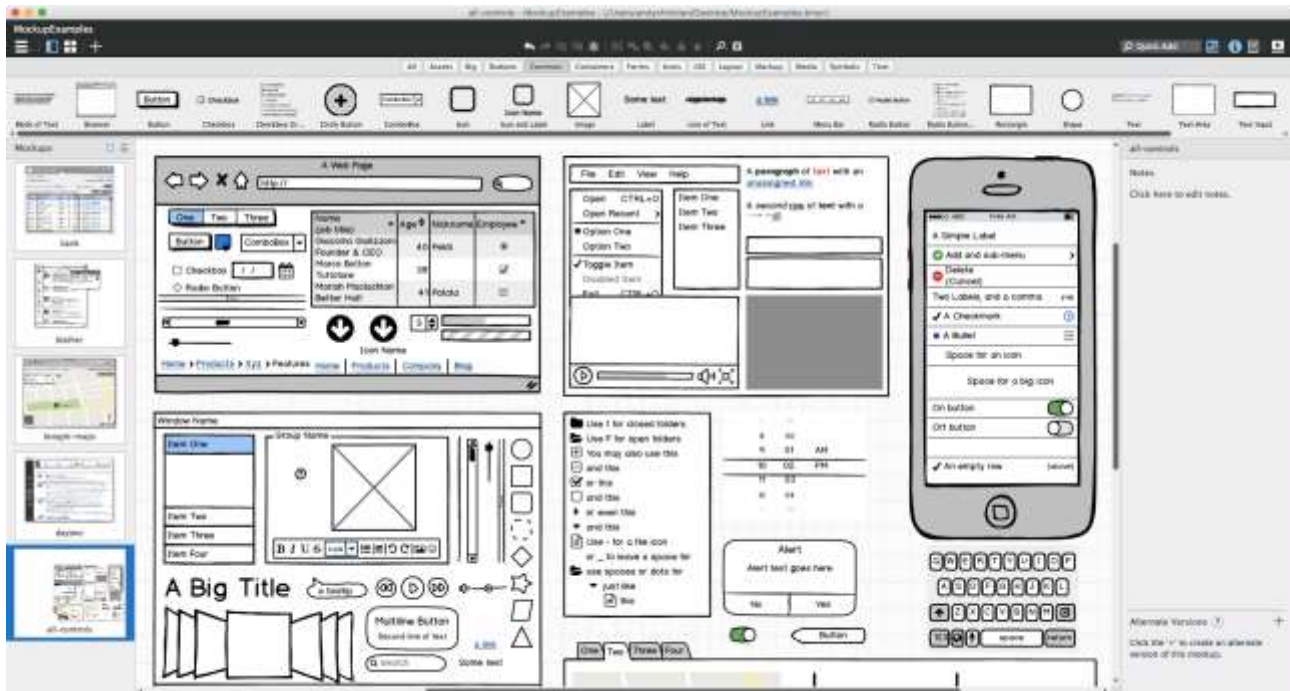
Picture 12: Balsamiq interface

1.4. Adobe Photoshop

Adobe Photoshop is a raster graphics editor developed and published by Adobe Inc. for Windows and macOS. It was originally created in 1988 by Thomas and John Knoll. Since then, this software has become the industry standard not only in raster graphics editing, but in digital art as a whole. The software's name has thus become a generic trademark, leading to its usage as a verb (e.g. "to photoshop an image", "photoshopping", and "photoshop contest") although Adobe discourages such use. Photoshop can edit and compose raster images in multiple layers and supports masks, alpha compositing, and several color models including RGB, CMYK, CIELAB, spot color, and duotone. Photoshop uses its own PSD and PSB file formats to support these features. In addition to raster graphics, this software has limited abilities to edit or render text and vector graphics (especially through clipping path for the latter), as well as 3D graphics and video. Its feature set can be expanded by plug-ins; programs developed and distributed independently of Photoshop that run inside it and offer new or enhanced features.

Designed for anyone to design anything.
From posters to packaging, basic banners to beautiful websites, unforgettable logos to eye-catching icons, **Photoshop** keeps the creative world moving. With intuitive tools and easy-to-use templates, even beginners can make something amazing.
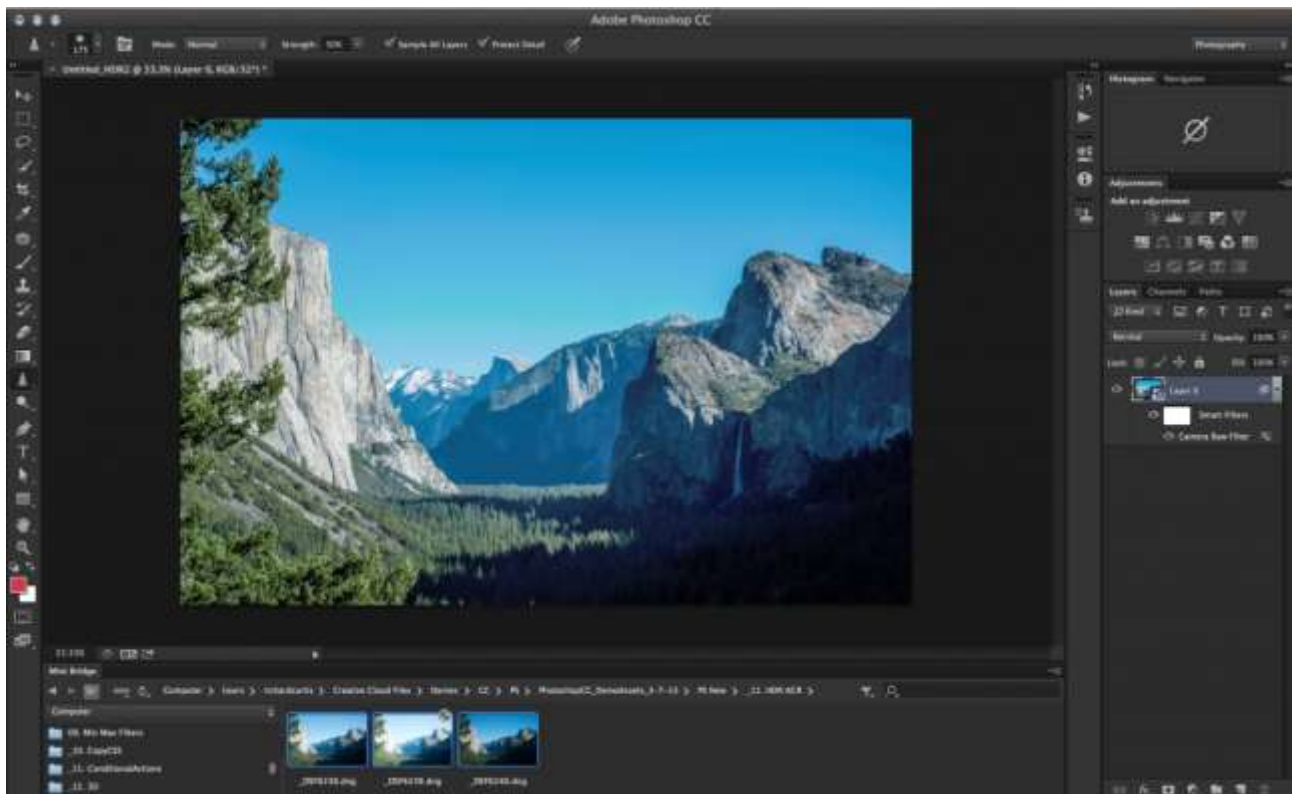
Picture 13: Photoshop interface

1.5. Visual Studio Code

Over the years, I have used a variety of different Code Editor; TextMate, Coda, Sublime Text, Atom, and each have different advantages and disadvantages. However, Visual Studio Code I was completely convinced until now.

Start by downloading the version for your system (Windows, Mac OS, Linux) at **code.visualstudio.com** (of course it's free).
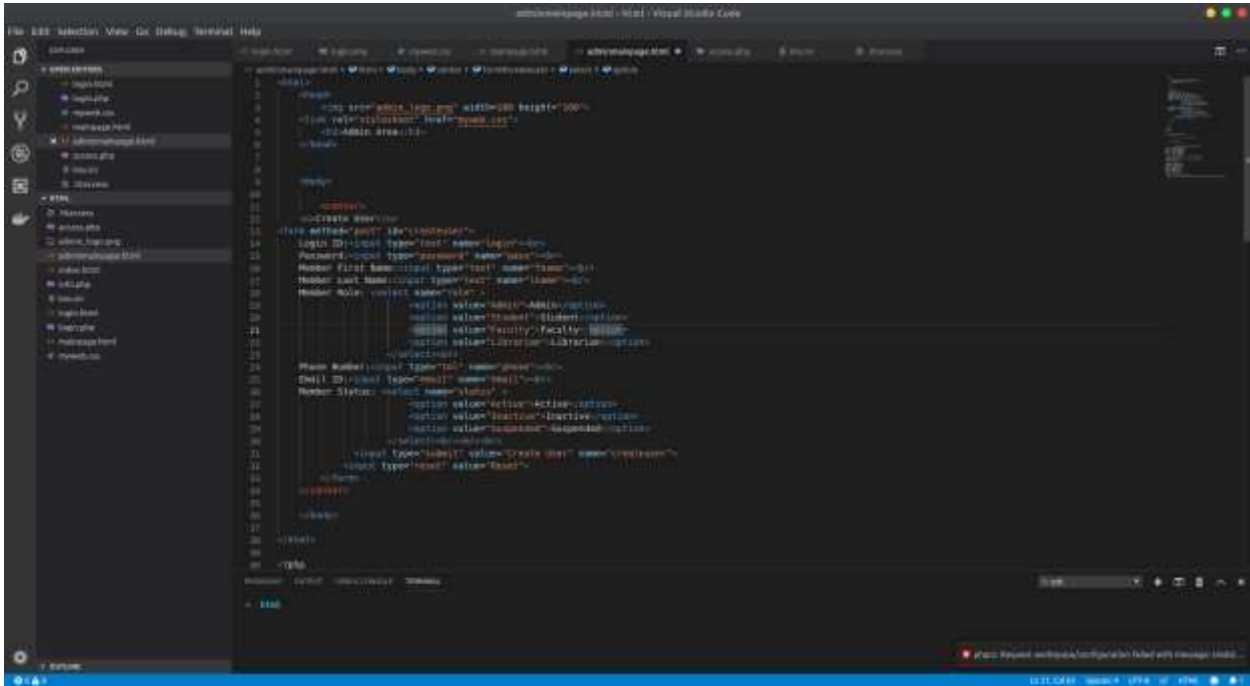
Picture 14: Visual studio code interface

IntelliSense is a feature inside VSC that I wanted to try as soon as I first opened Editor. It's an improved auto-undo feature, syntax assistant and more than you'd expect from this feature. Moving the mouse over the CSS selector will give you an example of how you can use the corresponding HTML (very useful for beginners).

Multi-mouse: When you mark a code sample in your file, VSC will automatically mark all similar strings. You can press Command-D to add a pointer to the next section, or Shift-Command-L to add a pointer to all instances. Bulk editing, easily.

Emmet has been integrated into VSC. No installation or configuration is required, just start using it (with Tab is the default hotkey to activate your snippets) right after you open the editor.

Git: Other standard Git commands such as sync, pull, and so on, are available in the Git dashboard.

1.6. Chromium & firefox

The Chromium projects include Chromium and Chromium OS, the open-source projects behind the Google Chrome browser and Google Chrome OS, respectively. This site houses the documentation and code related to the Chromium projects and is intended for developers interested in learning about and contributing to the open-source projects.
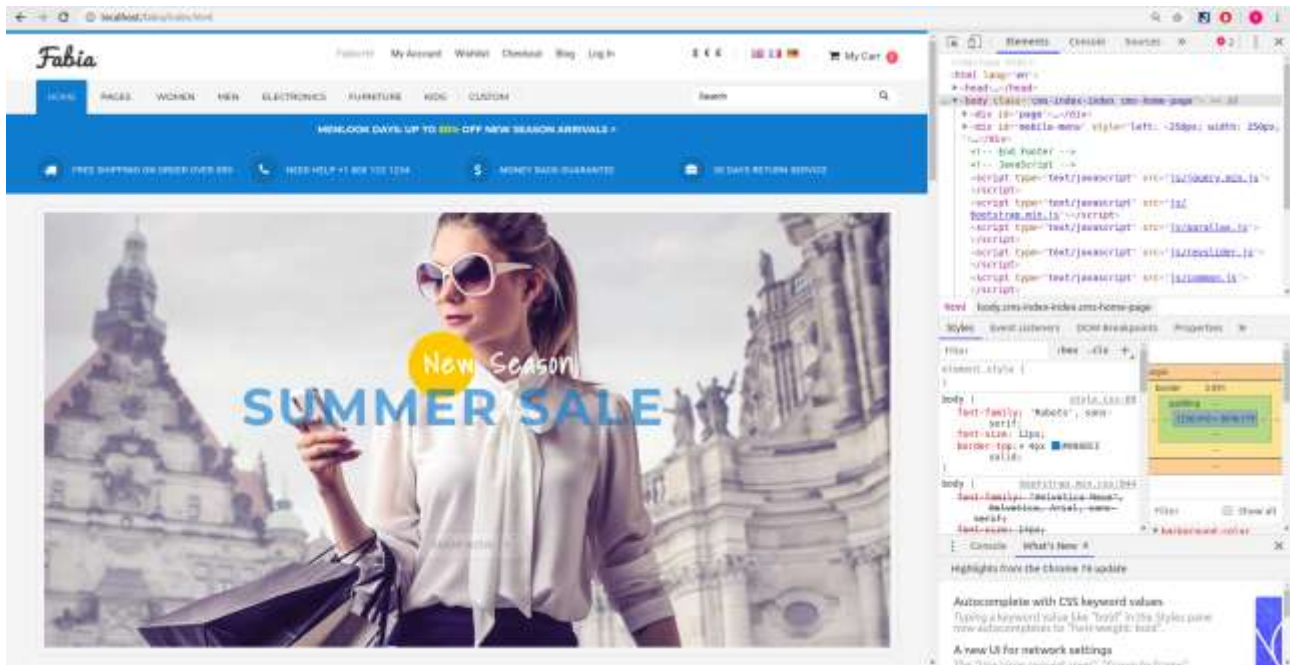
Picture 15: Chromium interface

1.7. LAMP stack
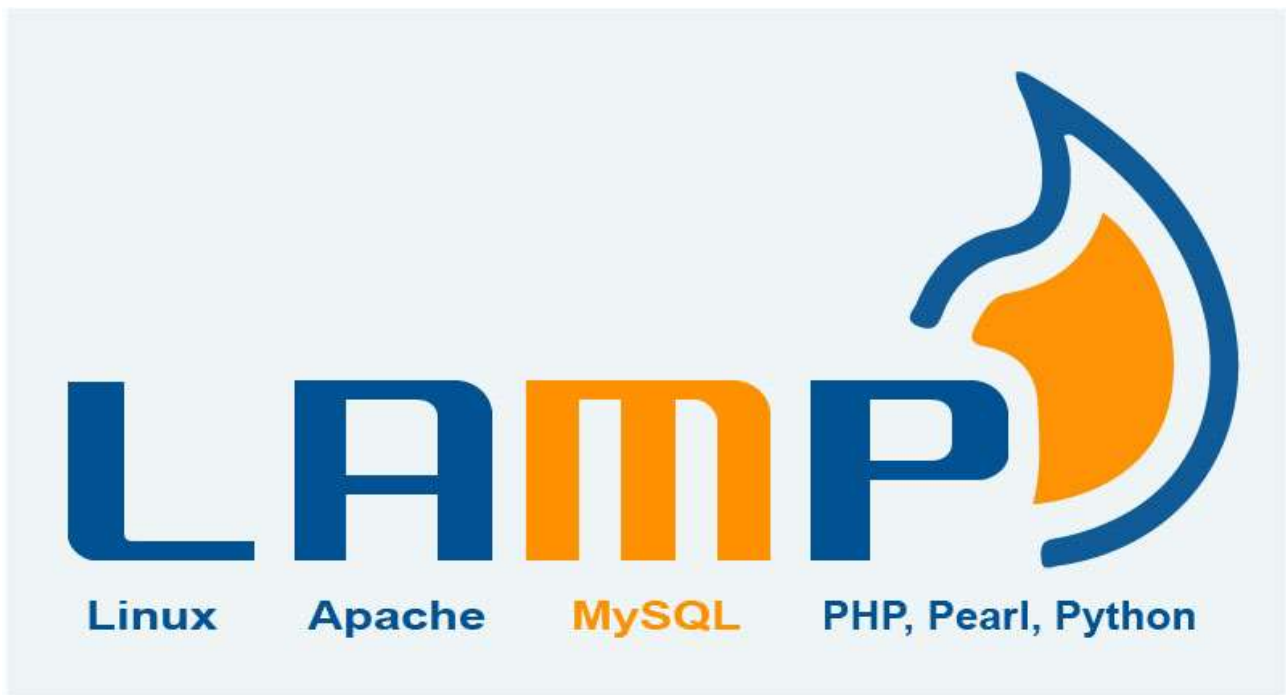
Picture 16: LAMP stack stand by
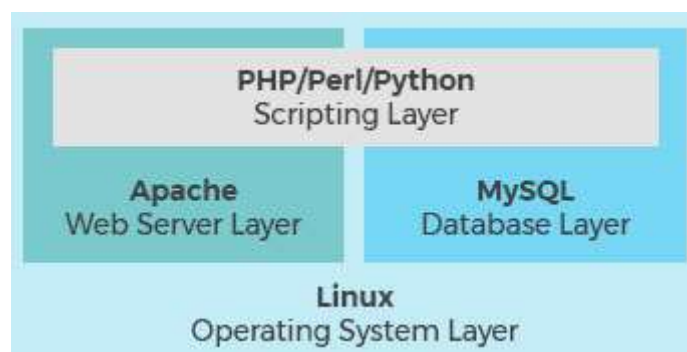
Figure 20: LAMP layers. (liquidweb, n.d.)

Figure 21: User case diagramsFigure 22: LAMP layers. (liquidweb, n.d.)

A LAMP Stack is a set of open-source software that can be used to create websites and web applications. LAMP is an acronym, and these stacks typically consist of the Linux operating system, the **Apache HTTP Server**, the **MySQL** relational database management system, and the **PHP** programming language. (unixmen, n.d.)

1.8. Bootstrap framework

Build responsive, mobile-first projects on the web with the world's most popular front-end component library.

Bootstrap is an open source toolkit for developing with **HTML**, **CSS**, and **JS**. Quickly prototype your ideas or build your entire app with our Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful plugins built on **jQuery**. (sitepoint, n.d.)
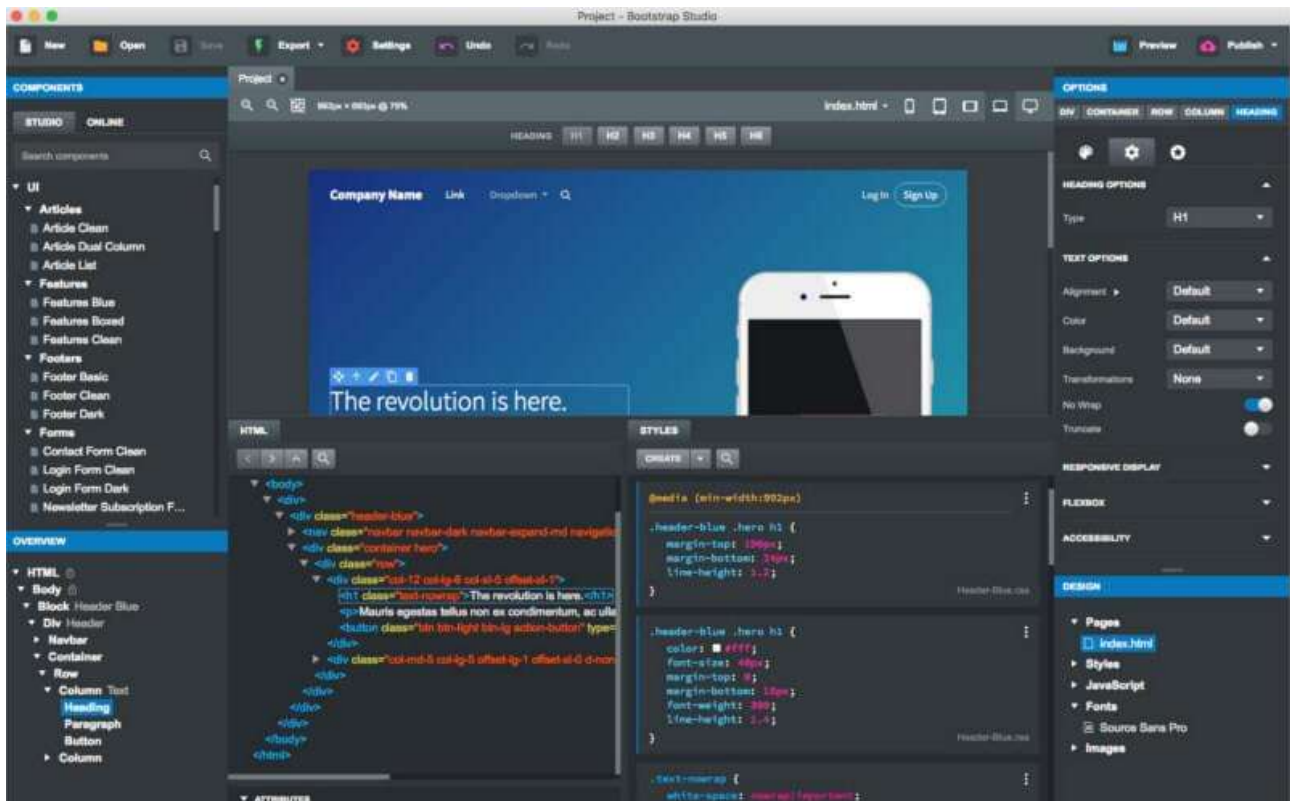
Picture 17: Bootstrap framework interface. (sitepoint, n.d.)

1.9. Font Awesome and icons toolkit

Font awesome is a font and icon toolkit base on CSS and LESS. It was made by Dave Gandy for use with Bootstrap and later was incorporated into the BootstrapCDN.

Font Awesome gives you scalable vector icons that can instantly be customized — size, color, drop shadow, and anything that can be done with the power of CSS.
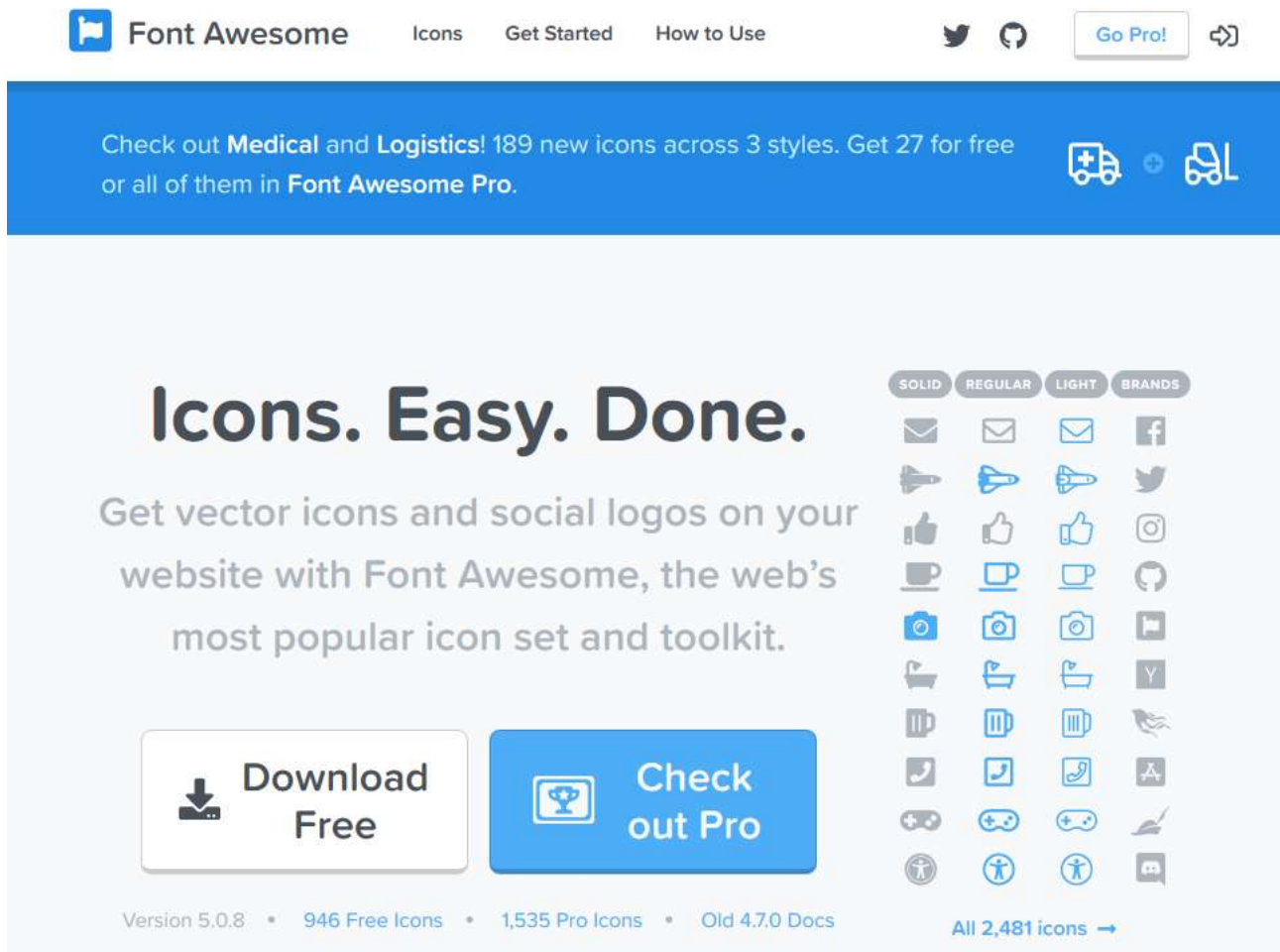
Picture 18: Font awesome and icons toolkit interface

1.10. Fabia website template

The Fabia website development will be implemented based on the concept of Fabia template for e-commerce websites.

Fabia website use HTML, CSS, JS as front-end and PHP, mysql for back-end.
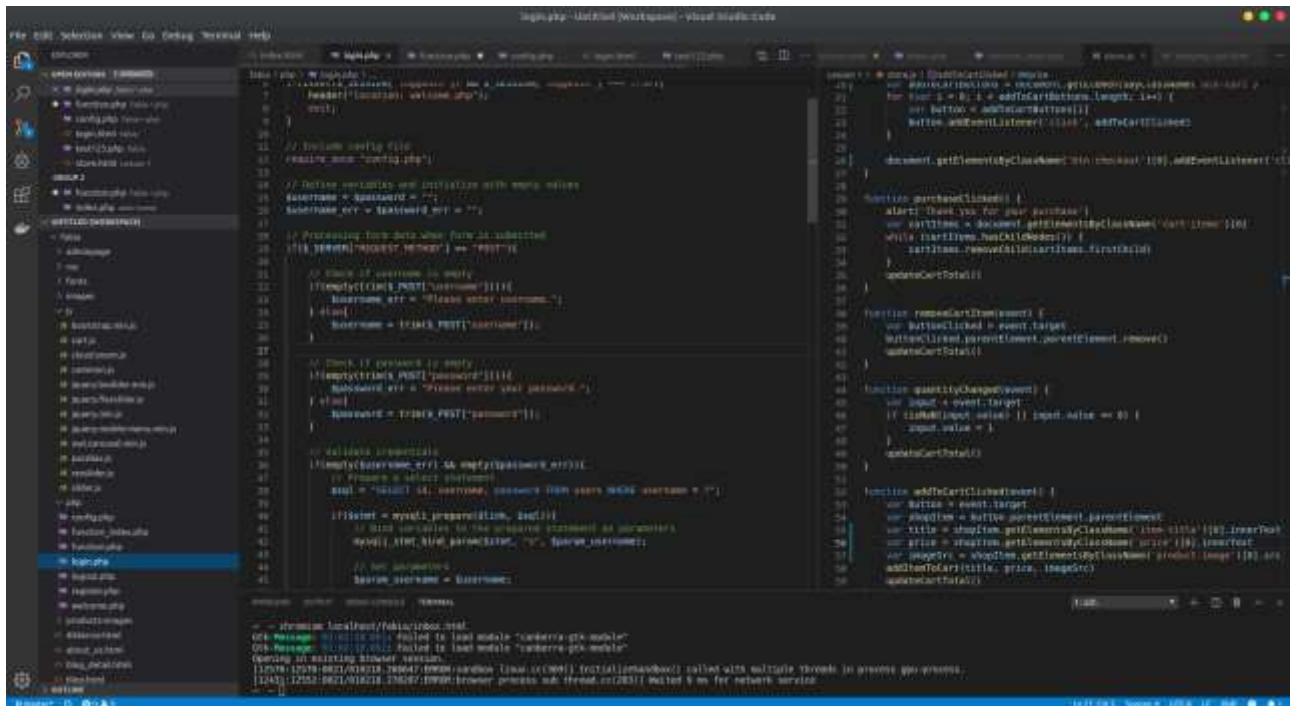
Picture 19: Code for Fabia website
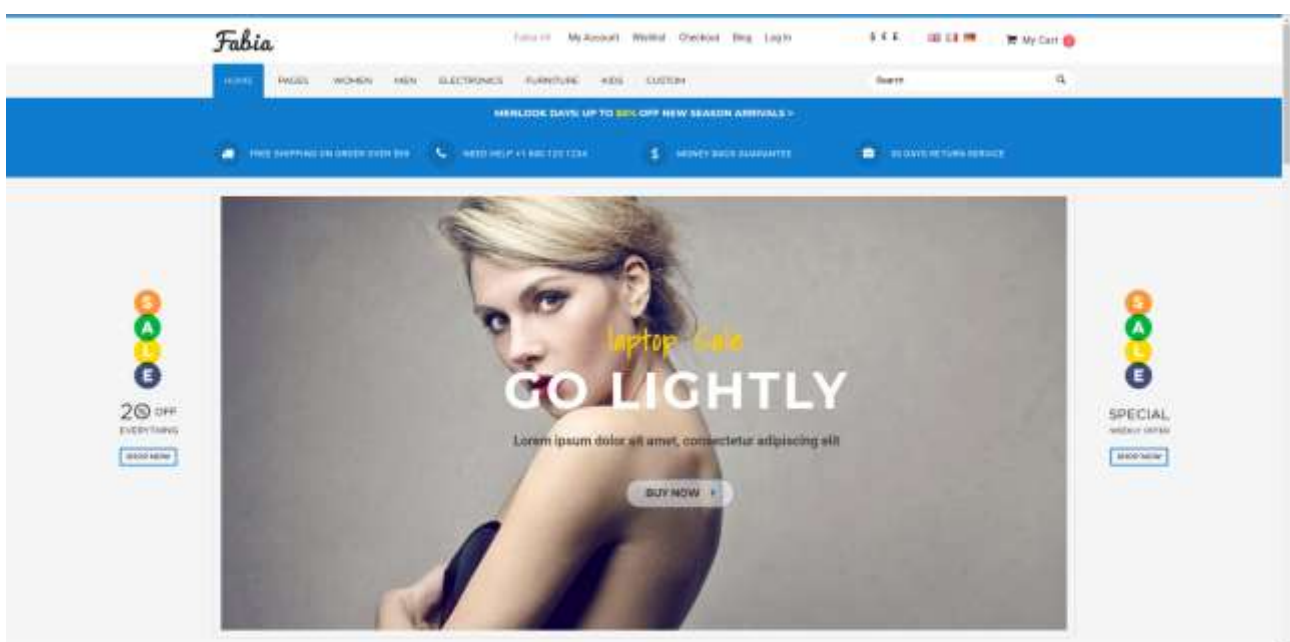
Picture 20: Fabia website template

2. Development processes

After implement Fabia shop will have 2 different interfaces that include:

- **Customer-oriented interface (Front-end interface):** This is a main websites page that are have accessibility by every user, where customer can interact with to search, view products, categories, price or buy them.

- **Administrator-oriented:** This is the websites page that are only accessible by admin. Those website page work independently from main website page and this will allow admin to process and modify system's database.

With this development method, the system will have better security solution that customer can access the front-end and see the data but only administrator can modify it with independent website pages in the back-end.

Contents in the database:

- **Category list**

| No.	Category ID	Category Name	Category description
1	1	Scarves	Layer up your look with SS19 scarves from Accessorize. Lightweight styles are perfect for between-season outfitting, while our square scarves in pure silk can be worn as neckerchiefs or tied in your hair for an on-trend accessory. Embrace the mood of the season with energetic florals and abstract prints or keep it plain and punchy with color-block designs.
2	2	Gloves	The cold weather will be no match for your style thanks to our collection of gloves from Accessorize. Stay ultra-cozy in knitted gloves with mitten caps, or earn some luxe points with real leather gloves. Can't go without your phone? Our touchscreen gloves are must-haves to keep you scrolling, even when the temperatures drop.
3	3	Flats	Comfort, key trends and colorful designs: the flat shoes of the season look as good as they feel. Choose black ballet pumps for everyday versatility or dare to be bold with leopard prints and pops of red. Who says flats don't work for evening, too? Our heavily embellished styles sparkle with beads, sequins and gems.
4	4	Socks	Infuse your essentials with added style thanks to socks and tights from Accessorize. Go back to basics with trainer socks in black, white and grey, or choose something playful with colorful slogan ankle socks. Our opaque tights are wardrobe mainstays, while fishnets and patterns are perfect for making a statement.

Table 1: Category list

- **Product list**

Item ID	Item title	Item Price	Item description	Category ID
1	Speckled Super Fluffy Scarf	$797.9	Wrap yourself in comfort with our speckled super fluffy scarf. A delightfully cozy addition to any winter outfit, the scarf has a subtle.	1
2	Super Fluffy Scarf	$797.9	Wrap yourself in comfort with our super fluffy scarf. A delightfully cozy addition to any winter outfit, the scarf is designed with oversized tassels to create a statement.	1
3	Knotted Leather Gloves	$897.65	Made from a sumptuously soft and smooth leather, these gloves feature a chic knot effect at the wrists. Fully lined for warmth and comfort.	2
4	Super Stretch Fingerless Chevron Gloves	$289.3	Give hands an extra layer of warmth with our fingerless gloves. In a super-stretch chevron knit, this eye-catching style is great for those in-between seasons.	2
5	Kiera Mule	$1396.35	Glamorous but easy to wear, these open-backed mules are finished in suede. Their on-trend design features triangular toes and a playful frill decoration	3
6	Casual Gold Trim Trainer	$1077.2	These trainers are sure to work with endless outfits. This essential style features rubber soles with smooth leather-look outers, decorated with mock croc panels and a metallic gold-toned trim, with eyelets to match.	3
7	Pinspot Sheer Tights	$518.65	These tights feature all-over pin spots to add character to any outfits. Their sheer style is lightweight and flattering.	4
8	40 Denier Tights	$239.4	An essential staple, our denier tights promise to complete your everyday outfits in style. The perfect accessory for layered looks all year round.	4

Table 2: Product list

2.1. Index webpage
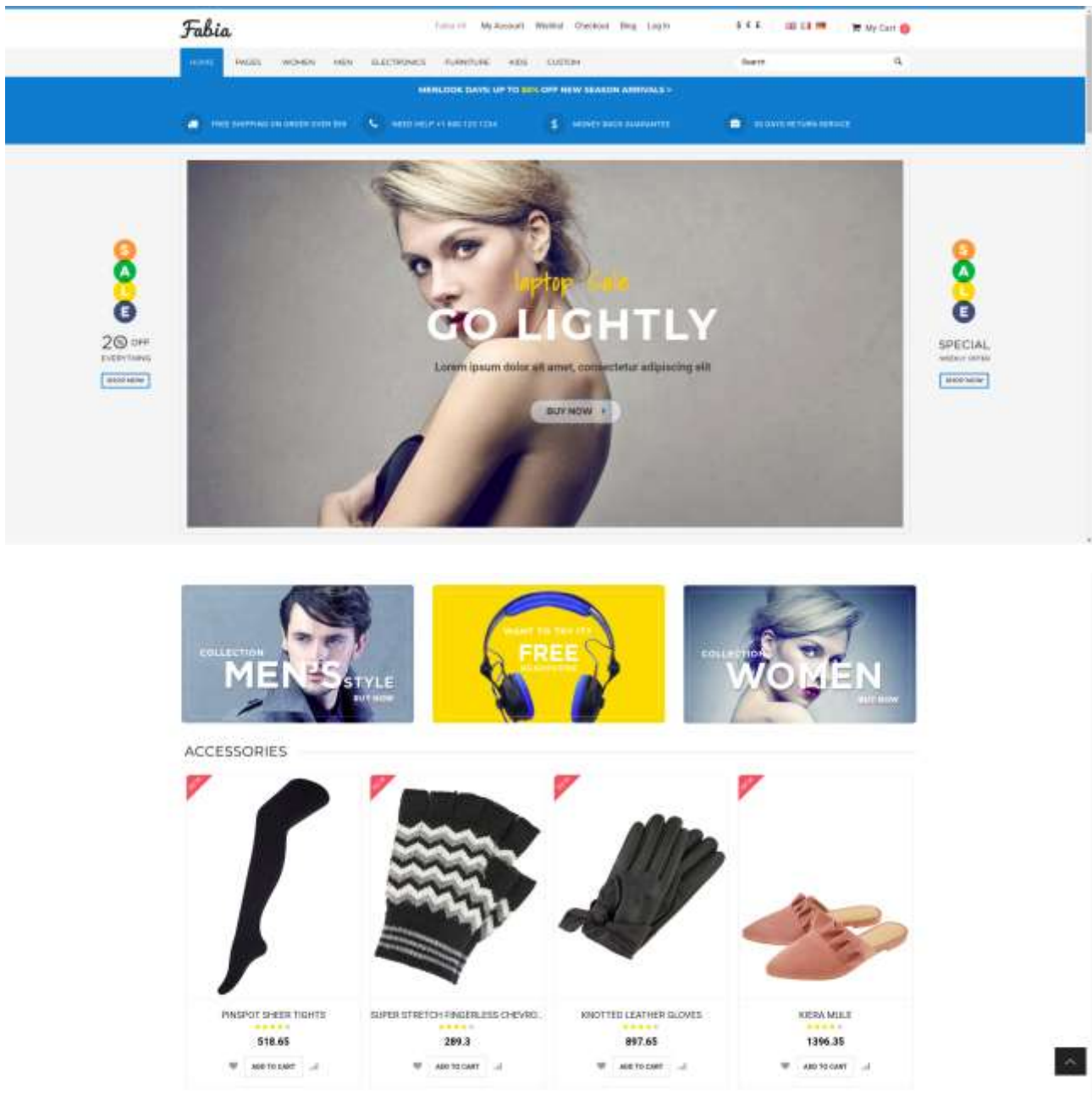
Picture 21: Index page 1
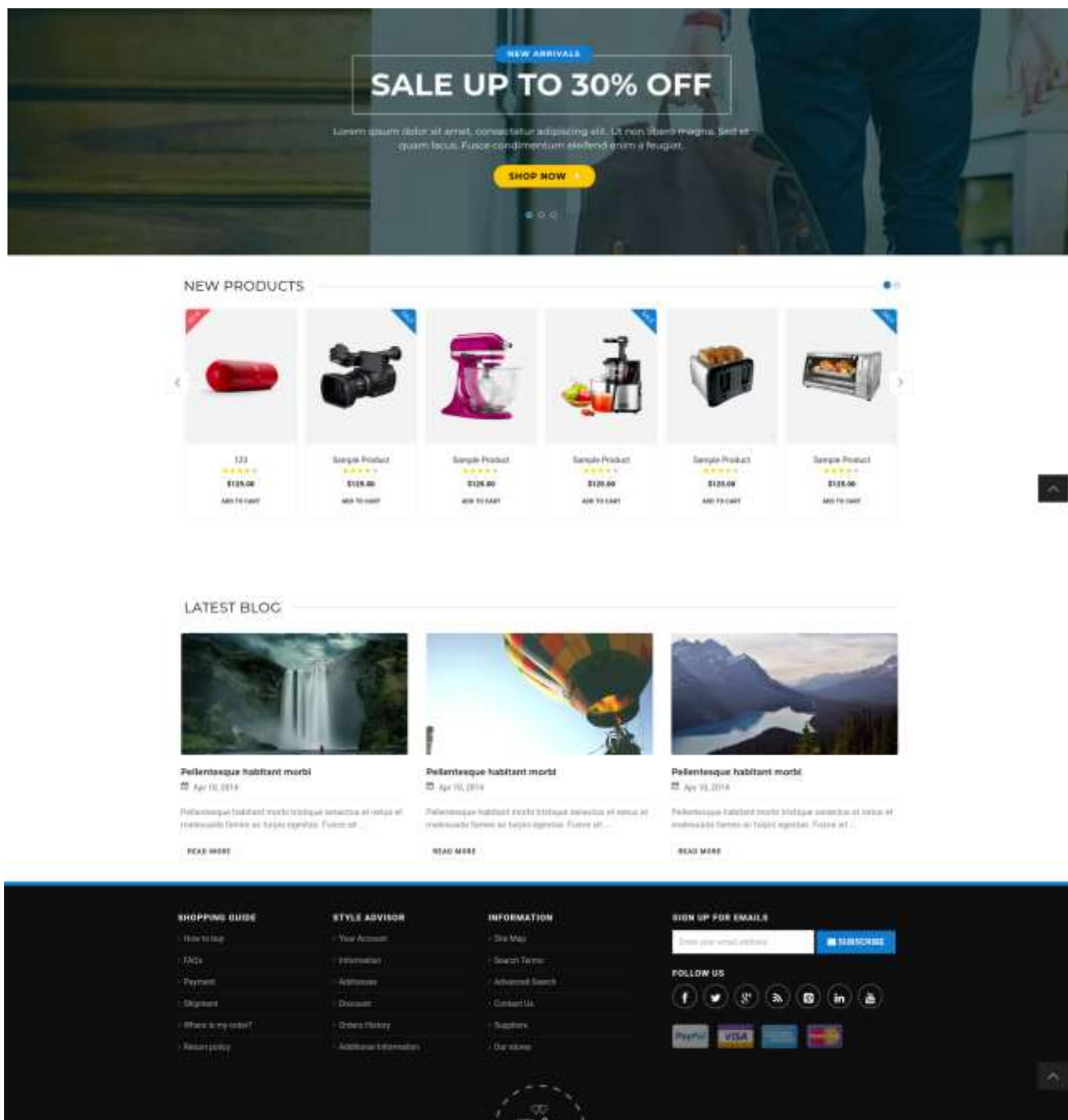
Picture 22: Index page 2

In the development of the Index page, the displayed products are totally dynamic, based on the data from Database and when achieve this, function that connect to the Database to the website page was designed in PHP:

```php
<?php
/* Database credentials. Assuming you are running MySQL
server with default setting (user 'root' with no password) */
define('DB_SERVER', 'localhost');
define('DB_USERNAME', 'root');
define('DB_PASSWORD', 'MYDO@321');
define('DB_NAME', 'fabia');

/* Attempt to connect to MySQL database */
$link = mysqli_connect(DB_SERVER, DB_USERNAME, DB_PASSWORD, DB_NAME);

// Check connection
if($link === false){
    die("ERROR: Could not connect. " . mysqli_connect_error());
}
?>
```
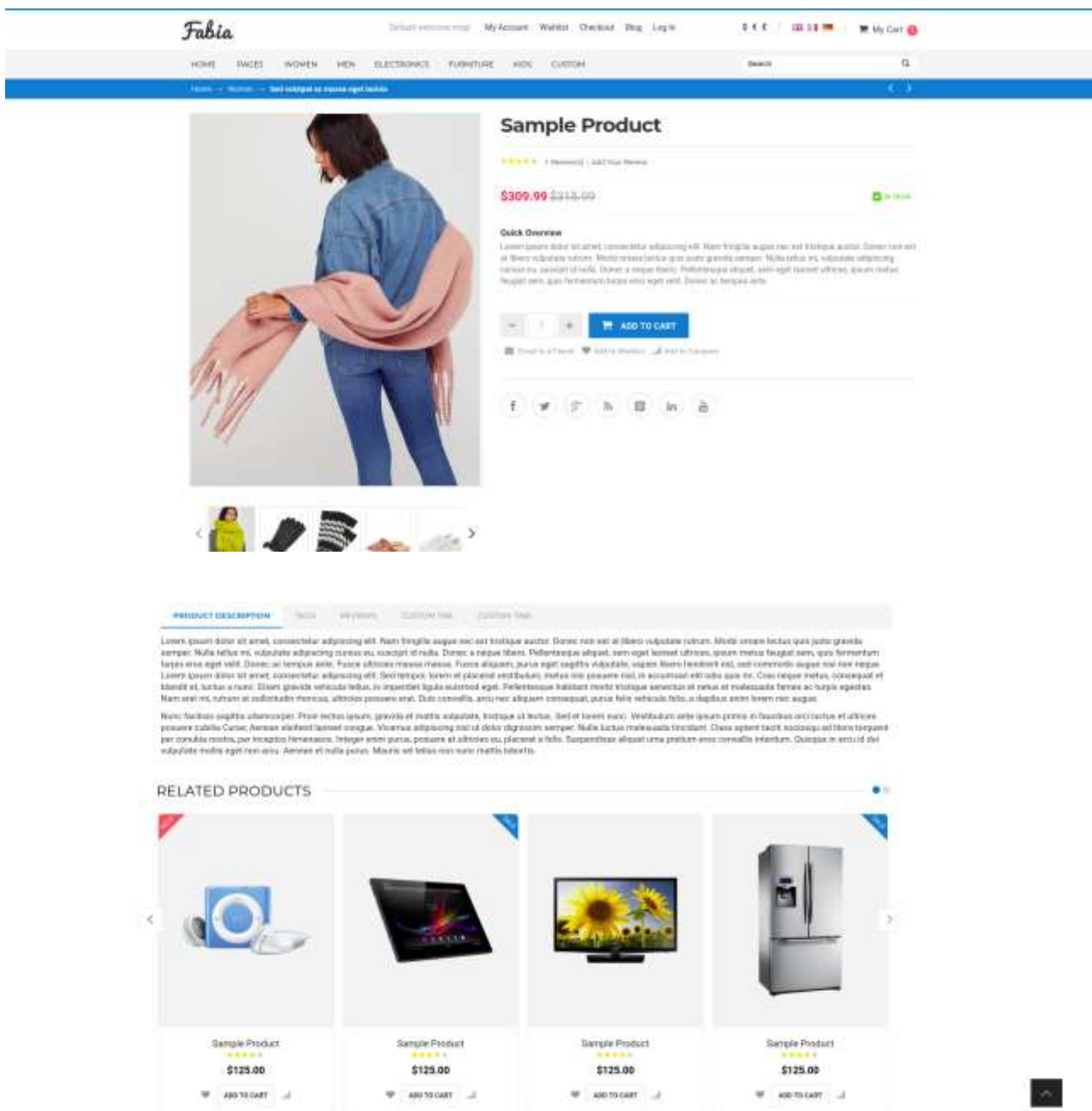
In order to apply those functions to display the page, the following **forech()** statement will be used:

```php
<?php foreach (($result = $link->query($sql = "SELECT * FROM itemInfo ORDER BY RAND()
LIMIT 4")) as $key => $value ) {
        ?>
        <div class="item">
            <div class="item-inner">
             <div class="item-img">
                <div class="item-img-info"> <a class="product-image" title="Retis lapen casen"
href="product_detail.html">
                    <img alt="Retis lapen casen" src="products-images/product<?php echo
trim($value['itemID'])?>.jpg"> </a>
                    <div class="new-label new-top-left">new</div>
                    <a href="quick_view.html" class="quickview-btn"><span>Quick
View</span></a> </div>
             </div>
             <div class="item-info">
                <div class="info-inner">
                    <div class="item-title"> <a title="Retis lapen casen" href="product_detail.html">
<?php echo $value['itemTitle']?></a> </div>
                    <div class="item-content">
                      <div class="rating">
                       <div class="ratings">
                        <div class="rating-box">
                         <div class="rating"></div>
                        </div>
                        <p class="rating-links"> <a href="#">1 Review(s)</a> <span
class="separator">|</span> <a href="#">Add Review</a> </p>
                       </div>
                      </div>
                      <div class="item-price">
                       <div class="price-box"> <span class="regular-price"> <span
class="price"><?php echo $value['itemPrice']?></span> </span> </div>
                      </div>
                      <div class="actions"><a href="wishlist.html" class="link-wishlist" title="Add to
Wishlist"></a>
                        <div class="add_cart">
                         <button class="button btn-cart" type="button"><span>Add to
Cart</span></button>
                        </div>
                        <a href="compare.html" class="link-compare" title="Add to Compare"></a>
</div>
                    </div>
                  </div>
                </div>
             </div>
            </div>
            <?php } ?>
      </div>
     </div>
    </div>
  </section>
```

2.2. Product Detail page

Picture 23: Product detail page

Moreover, the code also contains this to move to product detail page with specific of each product:

```
<div class="item-title"> <a title="Retis lapen casen" href="product_detail.html">
<?php echo $value['itemTitle']?></a> </div>
```

2.3. Login page

Picture 24: Login page

Login page allow users can login to Fabia. In this case, PHP was used to help login page connect to Database after that check the Username and Password. If everything is correct so user can login Fabia.

```html
<section class="main-container col1-layout bounceInUp animated">
  <div class="main container">
    <div class="account-login">
      <div class="page-title">
        <h2>Login or Create an Account</h2>
      </div>
      <fieldset class="col2-set">
        <legend>Login or Create an Account</legend>
        <div class="col-1 new-users"><strong>New Customers</strong>
          <div class="content">
            <p>By creating an account with our store, you will be able to move through the checkout process faster, store multiple shipping addresses, view and track your orders in your account and more.</p>
            <div class="buttons-set">
              <button class="button create-account"><span>Create an Account</span></button>
            </div>
          </div>
        </div>
        <div class="col-2 registered-users"><strong>Customers Login</strong>
          <div class="content">
            <p>If you have an account with us, please log in.</p>
            <form action="<?php echo htmlspecialchars($_SERVER["PHP_SELF"]); ?>" method="post">
              <div class="form-group <?php echo (!empty($username_err)) ? 'has-error' : ''; ?>">
                <label>Username</label>
                <input type="text" name="username" class="form-control" value="<?php echo $username; ?>">
                <span class="help-block"><?php echo $username_err; ?></span>
              </div>
              <div class="form-group <?php echo (!empty($password_err)) ? 'has-error' : ''; ?>">
                <label>Password</label>
                <input type="password" name="password" class="form-control">
                <span class="help-block"><?php echo $password_err; ?></span>
              </div>
              <div class="form-group">
                <button id="send2" name="send" type="submit" class="button login"><span>Login</span></button>
                <a class="forgot-word" href="#">Forgot Your Password?</a> </div>
              <p>Don't have an account? <a href="php/register.php">Sign up now</a>.</p>
            </form>
          </div>
        </div>
      </fieldset>
    </div>
  </div>
</section>
```

```php
<?php
session_start();

if(isset($_SESSION["loggedin"]) && $_SESSION["loggedin"] === true){
    header("location: welcome.php");
    exit;
}
require_once "config.php";
$username = $password = "";
$username_err = $password_err = "";
if($_SERVER["REQUEST_METHOD"] == "POST"){

    if(empty(trim($_POST["username"]))){
        $username_err = "Please enter username.";
    } else{
        $username = trim($_POST["username"]);
    }
    if(empty(trim($_POST["password"]))){
        $password_err = "Please enter your password.";
    } else{
        $password = trim($_POST["password"]);
    }
    if(empty($username_err) && empty($password_err)){
        $sql = "SELECT id, username, password FROM users WHERE username = ?";
        if($stmt = mysqli_prepare($link, $sql)){
            mysqli_stmt_bind_param($stmt, "s", $param_username);
            $param_username = $username;
            if(mysqli_stmt_execute($stmt)){
                mysqli_stmt_store_result($stmt);
                if(mysqli_stmt_num_rows($stmt) == 1){
                    mysqli_stmt_bind_result($stmt, $id, $username, $hashed_password);
                    if(mysqli_stmt_fetch($stmt)){
                        if(password_verify($password, $hashed_password)){
                            session_start();
                            $_SESSION["loggedin"] = true;
                            $_SESSION["id"] = $id;
                            $_SESSION["username"] = $username;
                            header("location: welcome.php");
                        } else{
                            $password_err = "The password you entered was not valid.";
                        }
                    }
                } else{
                    $username_err = "No account found with that username.";
                }
            } else{
                echo "Oops! Something went wrong. Please try again later.";
            }
        }
        mysqli_stmt_close($stmt);
    }
    mysqli_close($link);
}
?>
```

2.4. List page
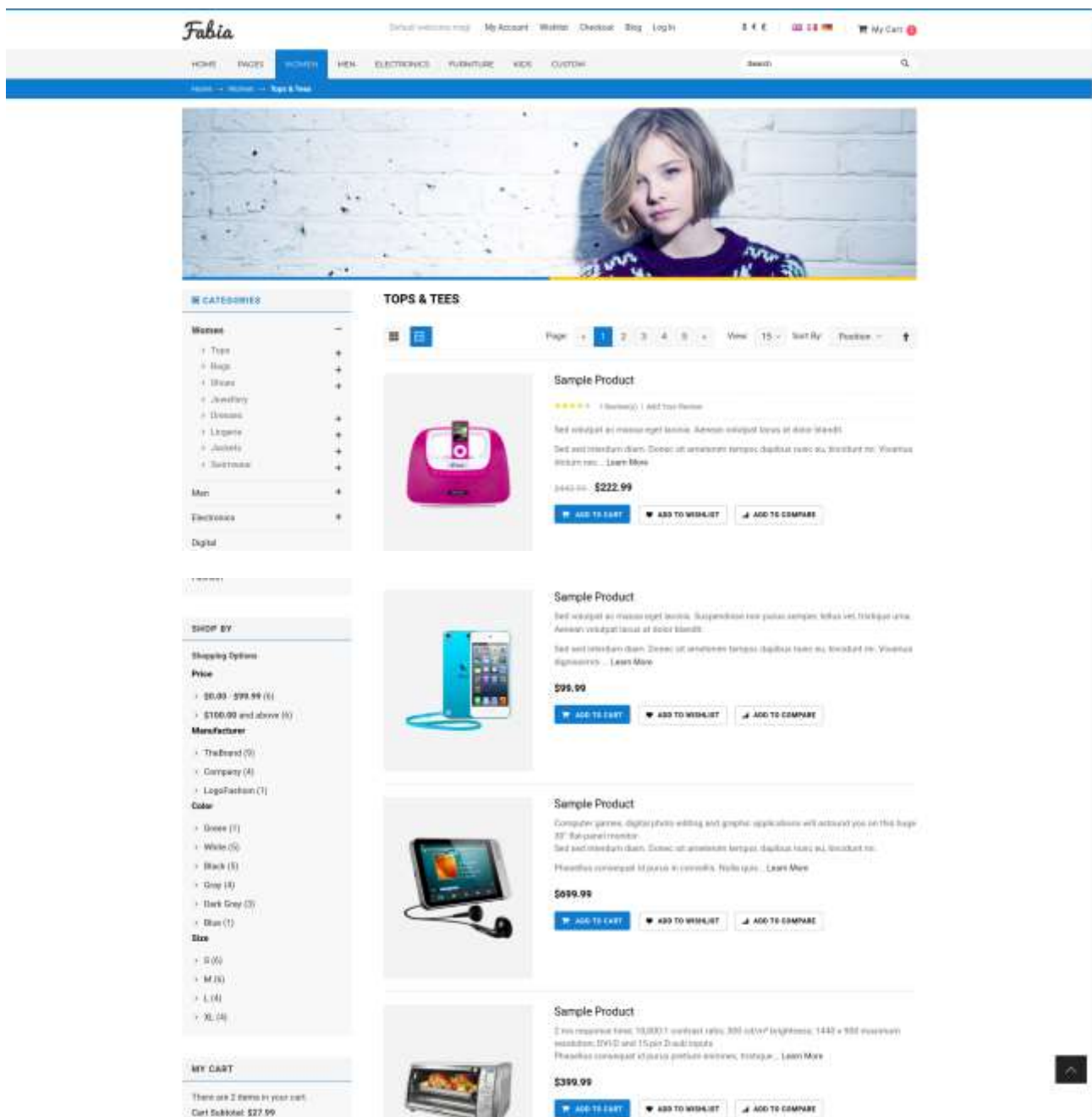
Picture 25: List page 1
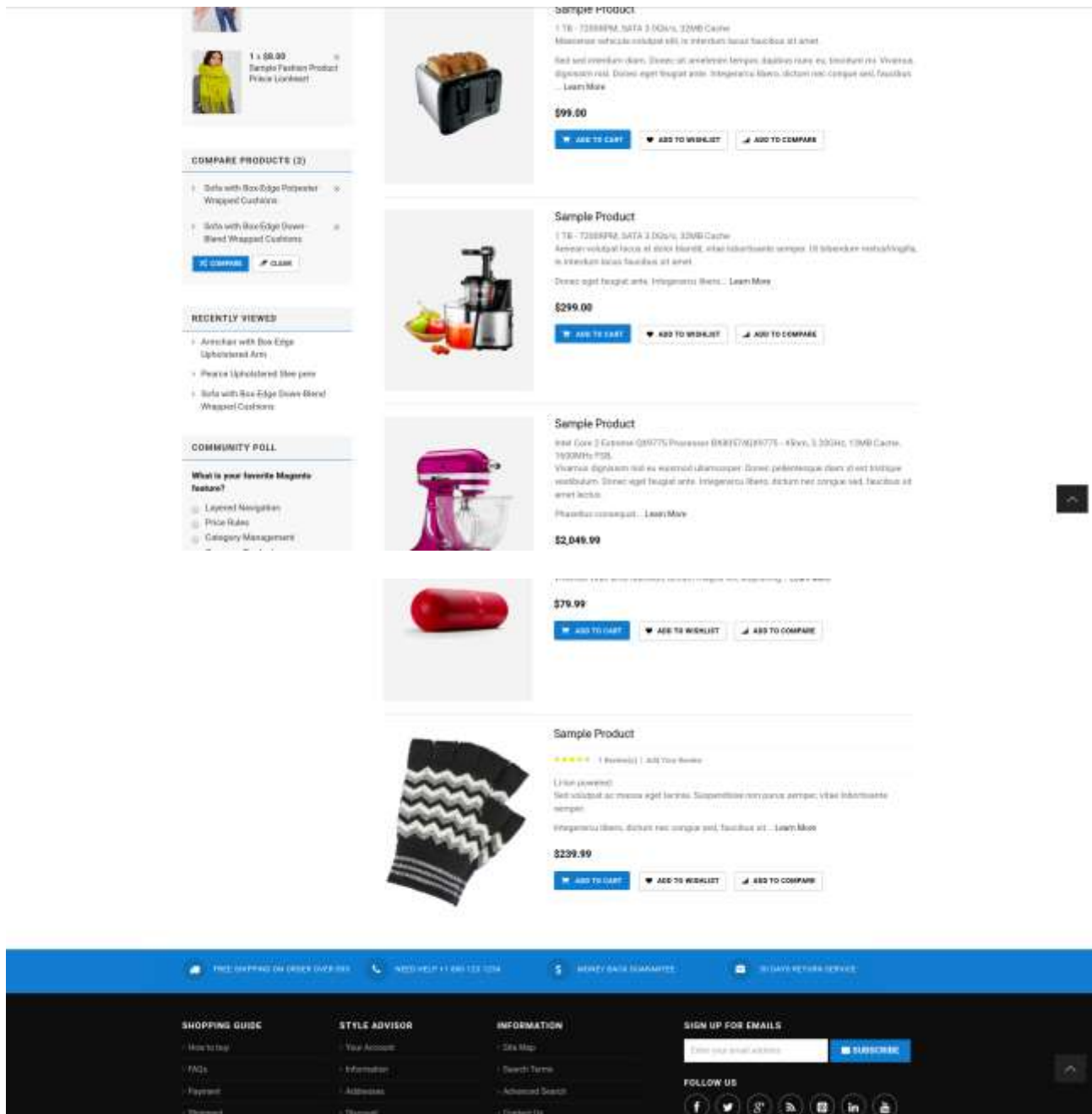
Picture 26: List page 2

2.5. Shopping Cart page
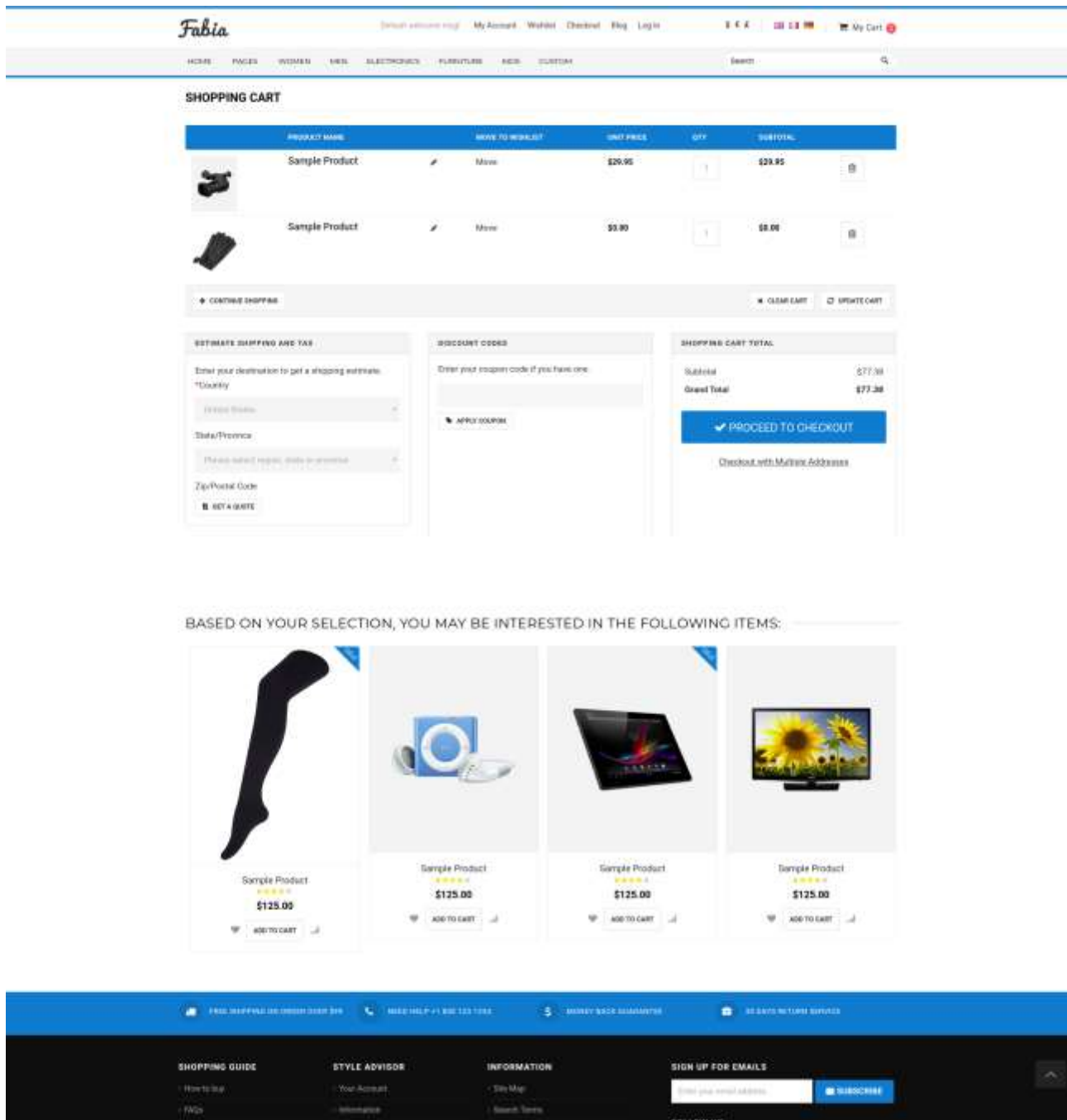
Picture 27: Shopping cart page

2.6. Delivery page
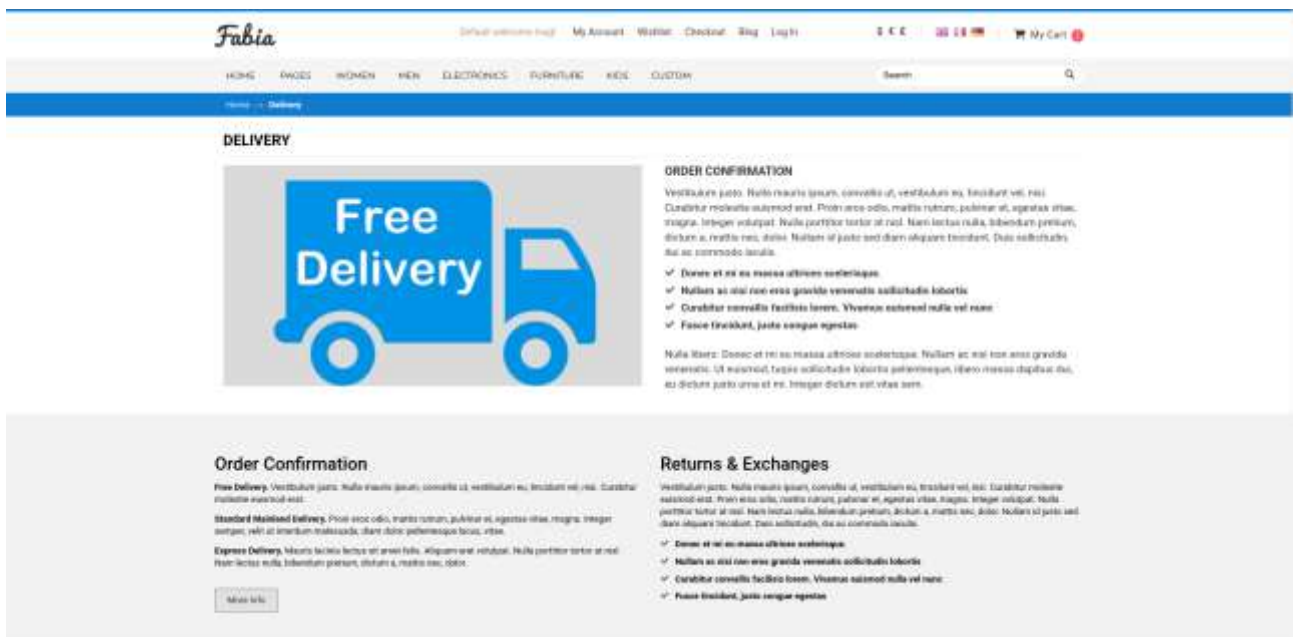
Picture 28: Delivery page

2.7. Compare page
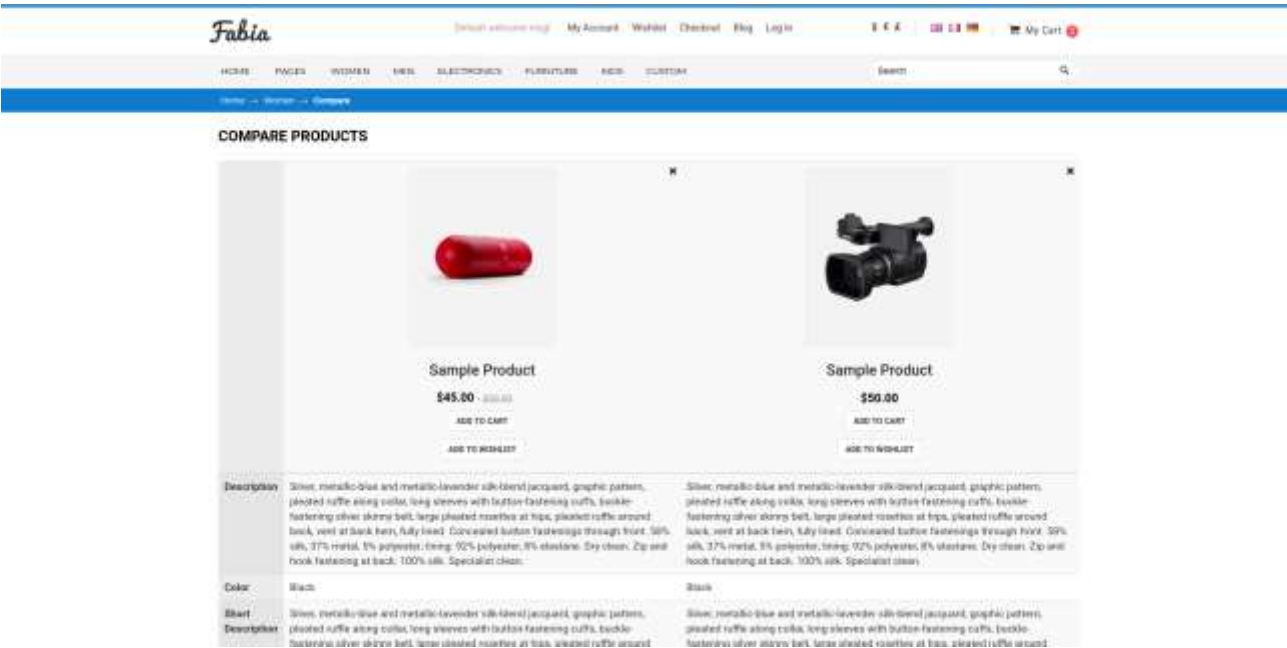
Picture 29: Compare page

2.8. Admin page
2.8.1. Admin page login
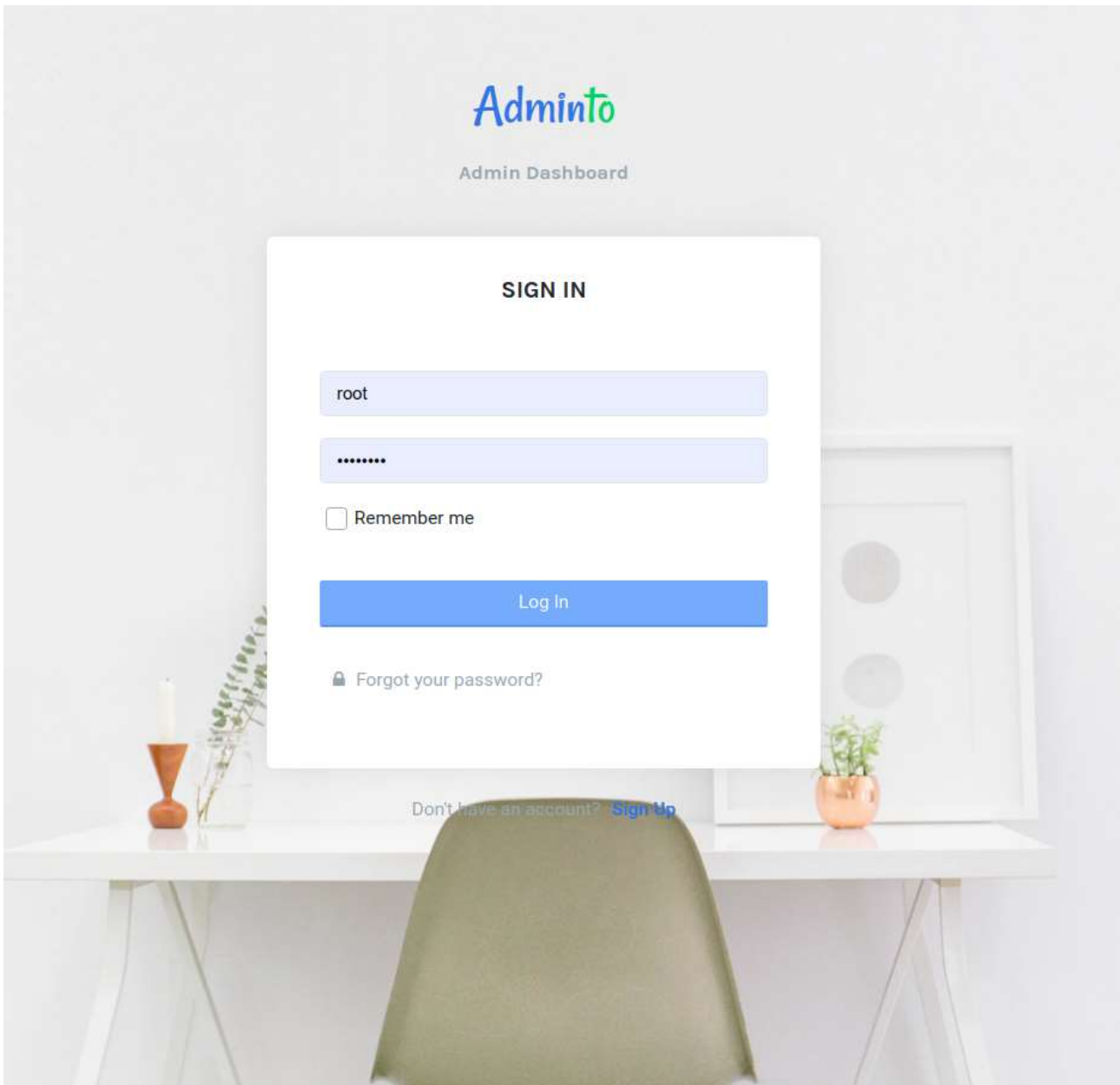
Picture 30: Admin page login

2.8.2. Admin page index
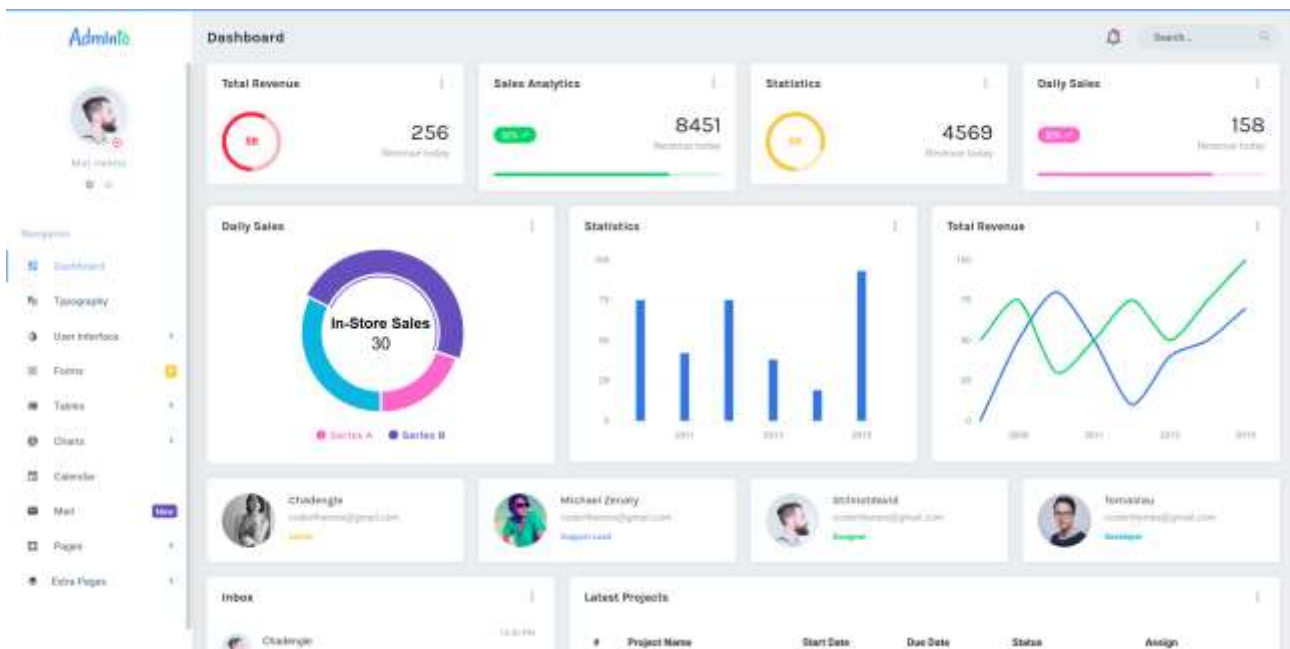
Picture 31: Admin page index

The page provides Fabia's administrator the capability to edit or even delete category or add product's information. Using the same method of other pages to connect to the database but have a different functions to manage the database by Using the method $_GET that already got implemented by many websites page.

PART IV. TESTING

Test case

A Test Case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly.

The process of developing test cases can also help find problems in the requirements or design of an application.

S.No	Action	Inputs	Expected Output	Actual Output	Test Result
1	Check navigation bar hover transition	Hover through every website page navigation bar	Transition works properly	Transition work properly in every websites page	**Pass**
2	Check drop-down list in navigation bar	Click every drop down list in navigation bar of every component website page	All component list items in every website page are properly aligned	All component list items in every website page are properly aligned	**Pass**
3	Check all product image, title, price display	Compare the product's image, price and title display in every websites page with products information in the database	All product image, price and title properly displayed and same with database	All product image, price and title properly displayed and same with database	**Pass**
4	Check all fonts and transition images	Open every website page and check the image resolution, font and animations	Image transition animations work properly in every website page	Image transition animations work properly in every website page	**Pass**
5	Check UI display on various type of devices screen resolution	In Chromium choose different resolution that represent different devices	The website will adapt with the screen resolution and automatically make the website fit it-self resolution	The website adapt with the screen resolution and automatically make the website fit it-self resolution	**Pass**
6	Check the Login and Register function	Click into Login and Register	The website will allow user login or register	The website will user login or register	**Pass**
7	Check Add to Cart function	Click into Add to Cart button	The websites will receive the information of the product and save it into Cart	The websites does not put the item in to Cart	**Failed**
8	Check Payment function	Click into Check Out button after Add to Cart function	The Website will show the Shopping Cart Page and	The website just move to Shopping Cart Page without	**Failed**

			Payment function	Payment function	
9	Check the "To Top" button	Click the "To Top" button	Every website page will automatic slide on top when click To Top Button	Every website page automatic slide on top when click To Top Button	**Pass**

Table 3: Test case

Test cases are used after development finishes a feature or a set of features. While development is being done, or immediately thereafter, the testing team can prepare test cases for the upcoming tests to be run. The goal is to have test cases ready by the time testing is able to begin.

When testing begins, the testing team follows the test cases or "scripts" they wrote in order to execute the tests and verify the software.

PART V. WEBSITE EVALUATION

1. Quality Assurance processes

Quality Assurance is popularly known as QA Testing, is defined as an activity to ensure that an organization is providing the best possible product or service to customers. QA focuses on improving the processes to deliver Quality Products to the customer. An organization has to ensure, that processes are efficient and effective as per the quality standards defined for software products. (guru99, n.d.)

Quality assurance includes two principles:
- **Fit for purpose:** The product should be suitable for the intended purpose.
- **Right first time**: Mistakes should be eliminated.

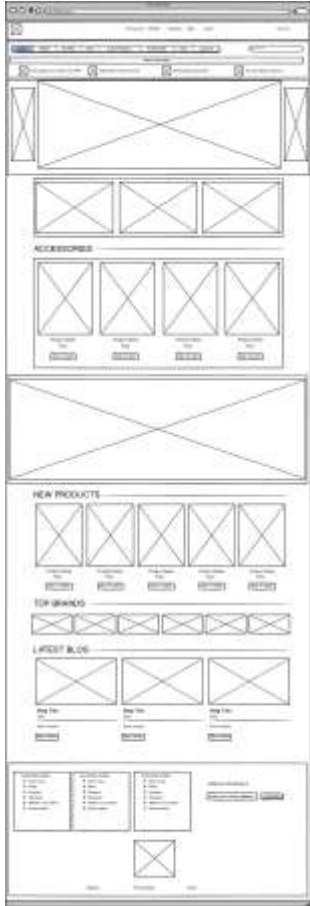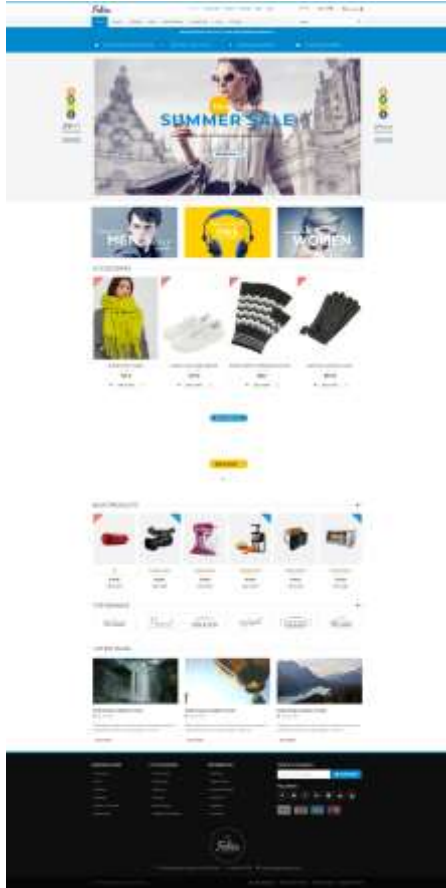In order to implement the QA to the website, following steps should be followed:

- **Step 1**: Gather user requirements about the website's functionality and user interface.

- **Step 2**: Prototype the User Interface, as well as design basic ideas of the functions that may needed in the website to accomplish all User Requirements.

- **Step 3**: Develop the Front-end that fully satisfy the user requirements about the UI (which the components are clear and attractive but not making any confuse, products are displayed in the most effective way and organized properly).

- **Step 4**: Design and implement the Back-end database system, as well as basic-desired functions such as product display, category display, re-directions into other pages, etc. to advanced functions, such as browsing, login, register or cart functions.

- **Step 5**: Test and update the website continually to reduce bugs or errors as much as possible that will be able to provide users a fully functionalist, quality shopping website.
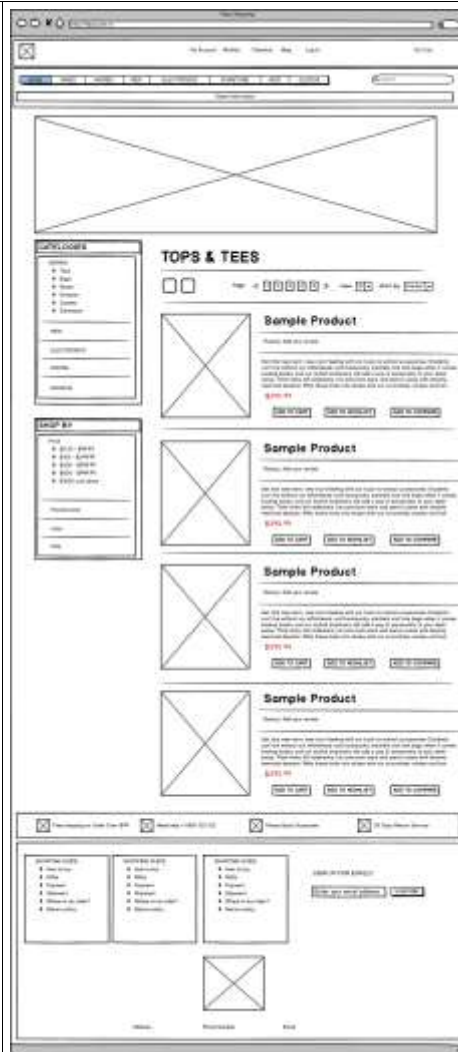
Things to Look for:
- **Accuracy to Original Design:** Compare the original design that you approved to the end product to ensure that the coded version is true to the website design you love. Keep in mind that some adjustments may have been discussed along the way, but you should know about them and there shouldn't be any surprises. Are the font styles right? Do bulleted lists look the way you expected them to look? If you have any rollover effects, make sure they're working beautifully.

- **Images:** Look at the images on your site and make sure they are picture perfect. Check for any lingering watermarks and ensure your images look the way they should and have aesthetically pleasing spacing around them.

- **Content:** Check that you have all of the pages you need for your debut, and that all have proper grammar, spelling etc.

- **Menus and Links:** Click on all of the menu items and links to make sure they all go where they should and that there are no pages with content missing. Links may also include PDFs and other documents you are offering for download from the website and email addresses for contact purposes. You can check that links open either within your site window, or open a new window as you specified.

- **Email Forms:** Fill out your own email forms to make sure all of the fields are correct and working well. Then check your email for the results to ensure that you actually get the submission that the form is supposed to send.

- **Browser Check:** Check your website on multiple browsers. Depending on what level of design and programming you purchased, older or less common browsers may have some compatibility issues, however be sure to check your website on the most common players: Internet Explorer 7 or above, Safari, and FireFox, chromium, google chrome.

- **Privacy Policy:** Did you know you are required to have a Privacy Policy? Many web developers will use a standardized version on your site, but make sure it's there. If you are collecting any sensitive information, check to see you require more specific language.

- **Testing:** If you have any e-commerce or custom system components, test them! Try processing a payment and be sure it gets into your bank account as set up through your third party payment gateway. Keep in mind that if you put through a charge, you'll have to go back and refund your own money later. (treefrog, n.d.)
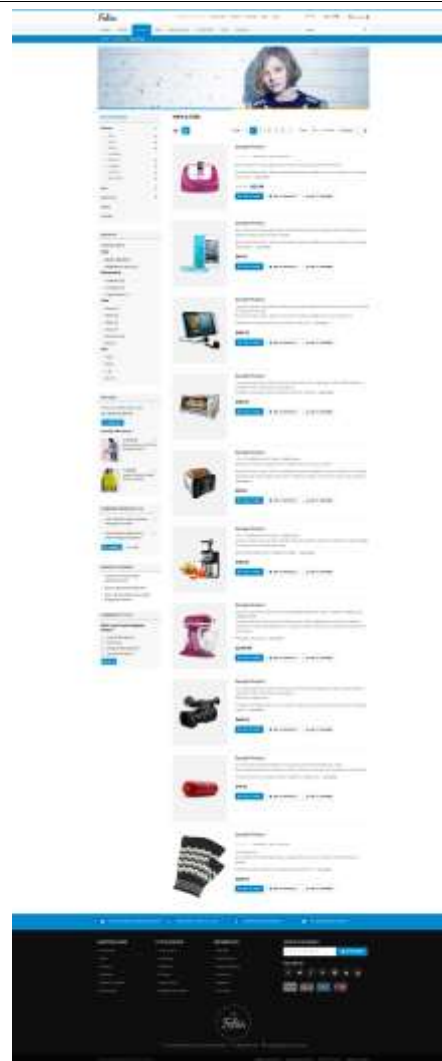
2. Comparison between created website and designed website wireframes

Page Name	Wireframe	Actual websites page	Status
Index page			OK

List page			OK
Login page			OK
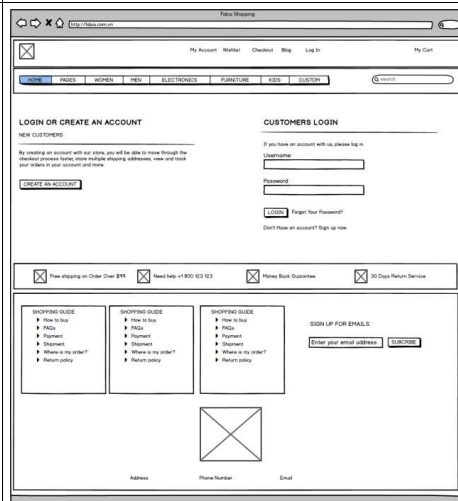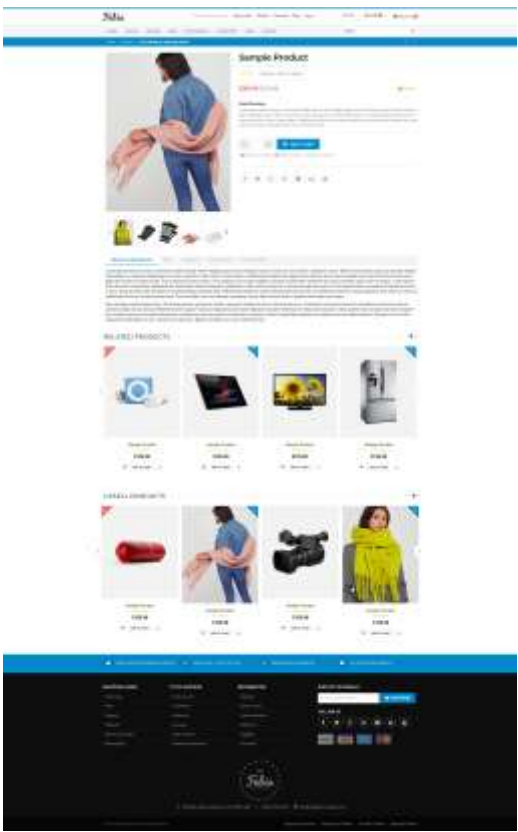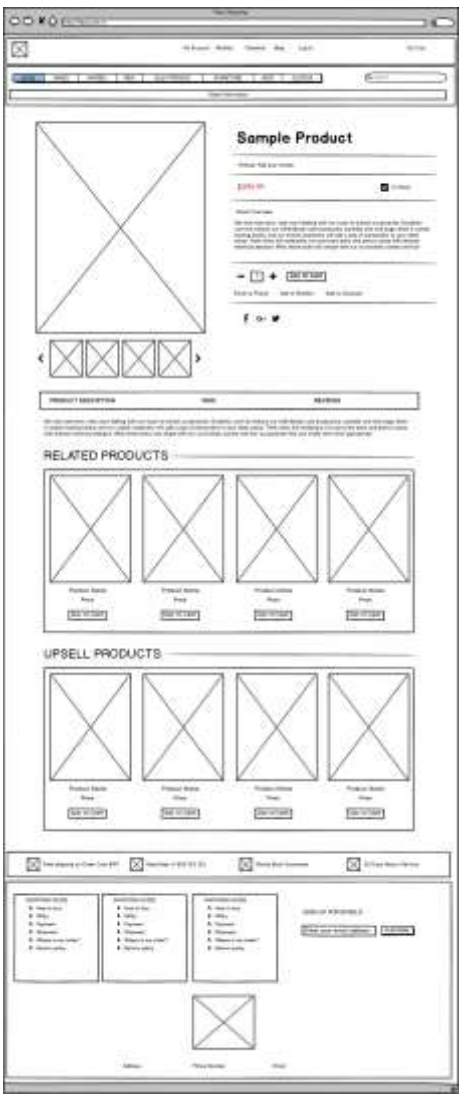
Product detail page			OK
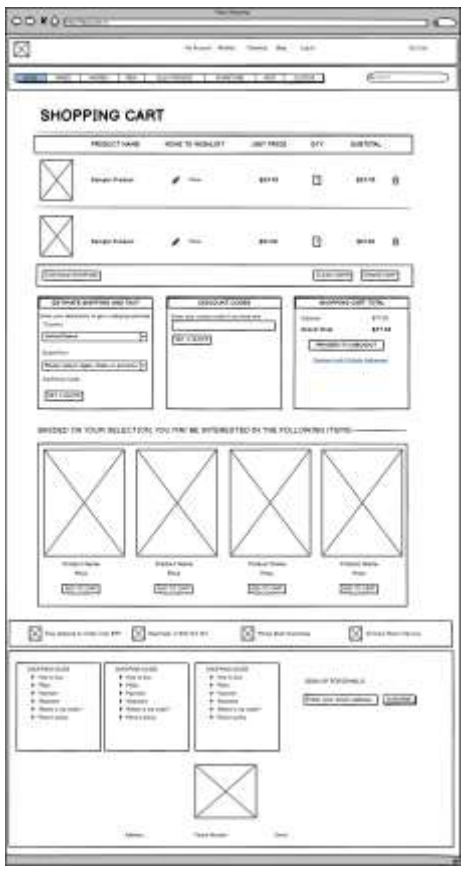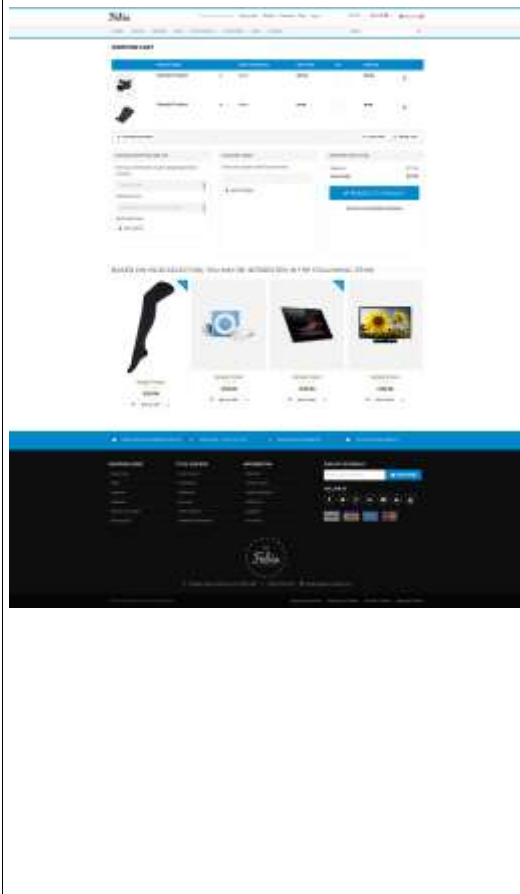
Shopping Cart page		OK

Table 4: Compare wireframe and Websites

Compared to the original wireframes concept, the developed Fabia website have all the basic fundamental that was designed in the wireframe. Moreover, there are also some advanced elements, such as:

- Dynamic animated image in the header
- Transition effects when hover through elements like "add to cart" buttons, navbar items and social network link.
- A lot of function page such as compare page, checkout page, quick_view page, sitemap page, etc.

3. Website evaluation, technical challenges and improvement recommendations

3.1. Website evaluation

The following criteria was successfully accomplished:

- User Interface (Front-end and Back-end) has been developed successfully with no display failure, errors or miss any requirements. The UI also automatically fit itself into any screen resolution in any device.
- Back-end database has been developed with entity relationships, satisfies the 3NF normalization process that avoid data duplication and eliminating the data.
- Basic query functions that connect front-end to back-end has been developed to increase the websites security as well as performance and Administrator can be able to easily control entire data system through the back-end modified pages.
- Cart function is basically developed, which can record the history of Add to Cart button

There are still a lot of things that should be developed in order to make the websites become a fully functional and efficient e-commerce website that satisfies all user requirements. That including:

- Add to cart function
- Payment function
- Administrator function

However, current versions of Fabia websites are not completely developed to meet all user requirements but the Front-end was relatively completed, the required functions that are necessary to make the website truly works are not being developed because of few technical challenges. As a result, to make the website become fully functional e-commerce websites that satisfies all user requirement and a bigger time-frame will be needed to deploy.

3.2. Technical challenges

Add to cart and Payment function:

- We're used to different patterns when it comes to the "add to cart" process. The basic idea behind this pattern is to notify the user that an item has been added to the cart, and provide them with a link to proceed to the checkout.

- We've been experimenting with the idea of hiding the cart by default, and showing it when the user clicks the "add to cart" button. This way the user can either check the cart and proceed to checkout or continue shopping. The cart will stick to the bottom of the page, accessible at any time.

- However, the way to apply this API into the websites source code is still remains a challenge, where the Cart UI needs to be customized to fit the Fabia concept design and payment method.

- At the current version of website, the Cart function is basically implemented and it still needs more update and develop of fully achieve the user requirement.

Administrator function:

- To make the administrator websites is really a big problem because it was really hard for the developer as a full-stack in a limit time.

- The UI/UX was implemented but there are missing a lot of function to complete the administrator functional to control the Fabia website.

3.3. Improvement recommendations

After the websites evaluation process that also describe the technical challenges that are now yet being accomplished and the improvement recommendations should be:

- Continue developing the necessary functions to make it fully functional: Cart, Payment, etc.
- Continue to develop more Test case and test them as well as doing alterations to the source code in order to deliver the user fully functional, good design with no bugs or errors e-commerce website.
- After accomplished every requirement component function that declared in the user requirement table and the website became fully developed, the hosting solution as well as domain name solution are needed. The suggest domain name is: www.fabia.com that can be bought for $15 per year.

CONCLUSION

There are many reasons building a website requires that we obtain the right tools and resources.

Standardization is one factor. When we use the right tools, we are assured that our pages would be standard and acceptable to every visitor.

By using standard resources and tools, our visitors are able to view our web pages no matter what browser they use. Our pages would load faster and we would also be able to maintain the pages we have created with ease.

Using the right resources for our web design jobs will make our websites contemporary. They can easily integrate into current technologies and software. Our users would derive added value from our websites and contribute to its growth.

The right resources also make it easy for surfers to use our site. The standard tools used for creating the website will ensure that things such as navigation, menus and layout conform to current practices with which every web user is familiar with.

Our pages become attractive if we use the right tools. They can display correctly in the browser and your visitors would be glad to visit again because you appealed to then.

Search engines would index your website if the pages conform to their rules. Standard tools like blogs will produce pages that understand how search engines index pages so you will have the added advantage of increase visibility the web.

Web tools make your web design job easy. The WYSIWYG interface makes you work with icons and not raw code. Coding can take away a lot of time and produce fatal errors if you are not proficient. GUI interfaces take away all the incidences of errors and labor, and give you something manageable.

Speed of implementation comes with the right tools. You can create a website and launch it in an hour with the right resources. You save on time, effort and never miss important deadlines.

Now that you are equipped with the right knowledge you can go about your web design with the assurance that you are going to produce something appealing and acceptable to most browsers.

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