

ITRW 324 PHASE 1

Technical report: webservice

Marc Kishinkwa 24246603

Salmaan Vally 26049597

Adrian Van Kraayenburg 24165220

Mathapelo Ngoasheng 25955527

Dinah Lee Booysen 26186365

GROUP 19
WeSell CC

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Overview about WeSell CC.

An online store that sells a wide variety of clothing , keeping up with the latest trends at unbeatable prices. The “WeSell” development team proposed, created and maintained a dynamic and free flowing website which has a database of all the products. The company is aimed at reinventing the e commerce environment by changing things to make online shopping a pleasant experience, WeSell CC intended on integrating entertainment and shopping together , using a modern trend called “retailtainment”, by creating a tab next to the product which displays content related to the product, material such as videos, articles, social media posts about the genre of the product the customer is interested in, by using this WeSell wants customers to linger around on the website longer, which will lead to the customer buying more than one product. The company has multiple functions on the website, such as the WeSell coins function allows users to gift someone WeSell coins which can be used to purchase any product on the store. Furthermore the website is aimed at keeping things simple yet elegant at the same time, although the company looked at improving and doing things abit different from other online stores. The company achieved improving a lot more during the development of the WeSell website, heres a few of the areas to give you an idea:

- **Missing product information**

SOLUTION: In our website we included a detailed information tab under each product as well as a 3D picture where the user is able to look around the product from all angles

- **Boring experience**

SOLUTION: During the development , gamification techniques, interactive product guides and social shopping were kept in mind at all times.

- **Issue of the registration**

SOLUTION: Our system makes use of a registration process that allows for peace-of-mind and security.

About the architectural design of the websites interface(Front-end)

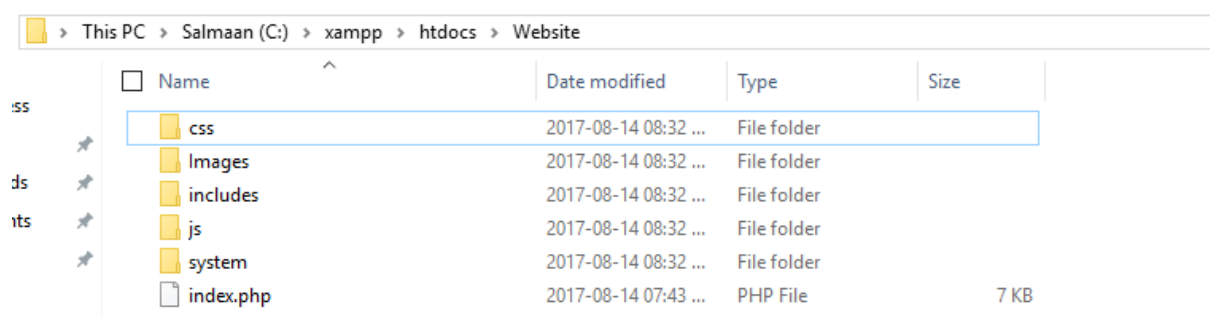
The website was steadfast in achieving the following during the design of the interface:

- A free flowing online store with organised categories of products
- Easy navigation
- Offer information about products
- Create informative interactive elements
- Increase customer convenience
- Broaden exposure with internet marketing

The design of the interface is discussed more in detail below under “A walk through the website”.

About the architectural design of the websites code(Back-end)

The code for the login(registration) page and the website are in two separate folders run of two separate virtual machines to add a level of security. So once the user logs in and the details are verified with the SQL database the connection is transferred to another virtual machine where the website is hosted from.



This PC > Salmaan (C:) > xampp > htdocs > Website					
	<input type="checkbox"/> Name	Date modified	Type	Size	
	css	2017-08-14 08:32 ...	File folder		
	Images	2017-08-14 08:32 ...	File folder		
	includes	2017-08-14 08:32 ...	File folder		
	js	2017-08-14 08:32 ...	File folder		
	system	2017-08-14 08:32 ...	File folder		
	index.php	2017-08-14 07:43 ...	PHP File	7 KB	

Figure 1:A overview of the website files

This PC > Salmaan (C:) > xampp > htdocs > Website > includes				
Name	Date modified	Type	Size	
detailsmodal.php	2017-08-14 07:43 ...	PHP File	3 KB	
footer.php	2017-08-14 07:43 ...	PHP File	1 KB	
head.php	2017-08-14 07:43 ...	PHP File	1 KB	
headerFull.php	2017-08-14 07:43 ...	PHP File	1 KB	
leftbar.php	2017-08-14 07:43 ...	PHP File	1 KB	
navigation.php	2017-08-14 07:43 ...	PHP File	2 KB	
rightbar.php	2017-08-14 07:43 ...	PHP File	1 KB	

Figure 2: Overview of the websites main php files


This PC > Salmaan (C:) > xampp > htdocs > Login and registration				
Name	Date modified	Type	Size	
errors.php	2017-07-09 05:09 ...	PHP File	1 KB	
index.php	2017-07-09 05:58 ...	PHP File	2 KB	
login.php	2017-08-13 04:24 ...	PHP File	2 KB	
register.php	2017-08-13 04:22 ...	PHP File	2 KB	
server.php	2017-07-09 05:10 ...	PHP File	3 KB	
style.css	2017-08-13 01:00 ...	Cascading Style S...	2 KB	

Figure 3: Overview of the login pages php files

A walk through the website

When accessing the website the first page seen is the Registration page , which requires the user the create a username in order to log in

WeSell , where style is priority.....Any questions??? please feel free to drop us an email at info@WeSell.co.za...loads of product range



Welcome to WeSell
please complete the form below to register and start shopping

Username

Email

Password

Confirm password


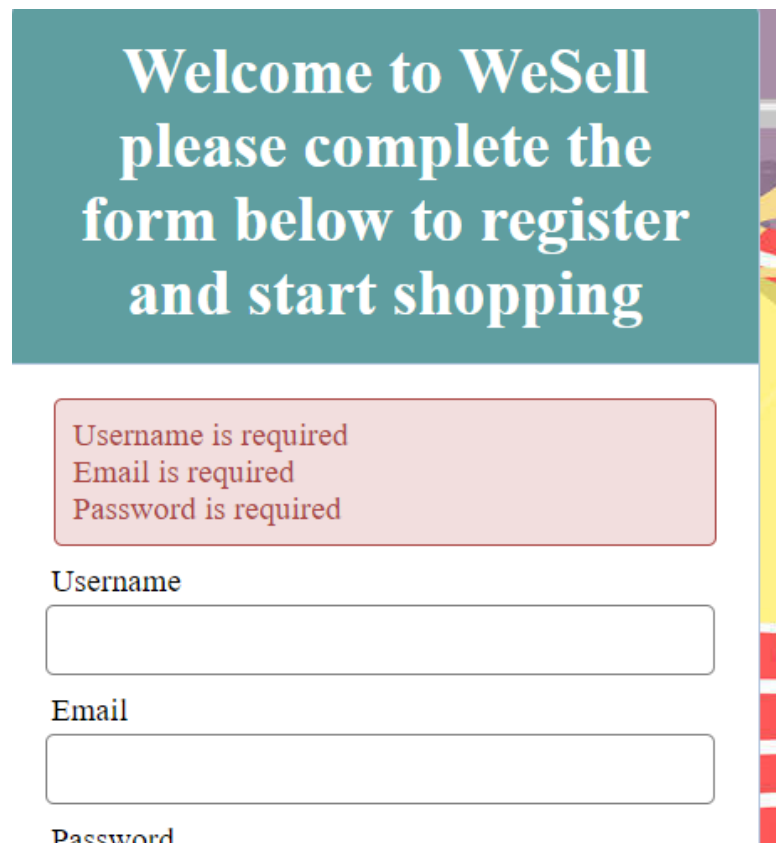


Figure 4: first page when the website is accessed

Steps to be taken to register

1. Enter username of choice
2. Enter email address
3. Choose pass word
4. Confirm password choice
5. Click register

In the event no username, name or email is entered the form will display:



The image shows a registration form for 'WeSell'. At the top, a teal banner contains the text 'Welcome to WeSell please complete the form below to register and start shopping'. Below this, a light red box displays three error messages: 'Username is required', 'Email is required', and 'Password is required'. Underneath the error box, there are three input fields labeled 'Username', 'Email', and 'Password'. The 'Username' and 'Email' fields are empty, while the 'Password' field is partially visible. A vertical decorative bar with a yellow and red pattern is on the right side of the form.

Welcome to WeSell
please complete the
form below to register
and start shopping

Username is required
Email is required
Password is required

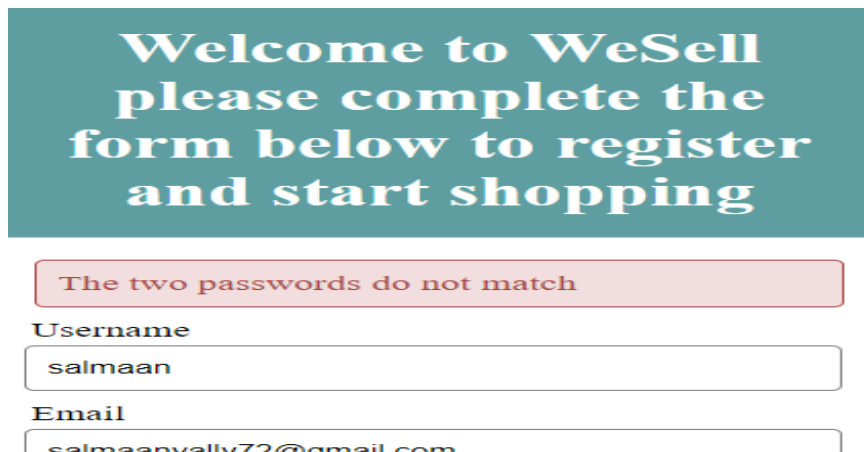
Username

Email

Password

Figure 5: In the event of incorrect details

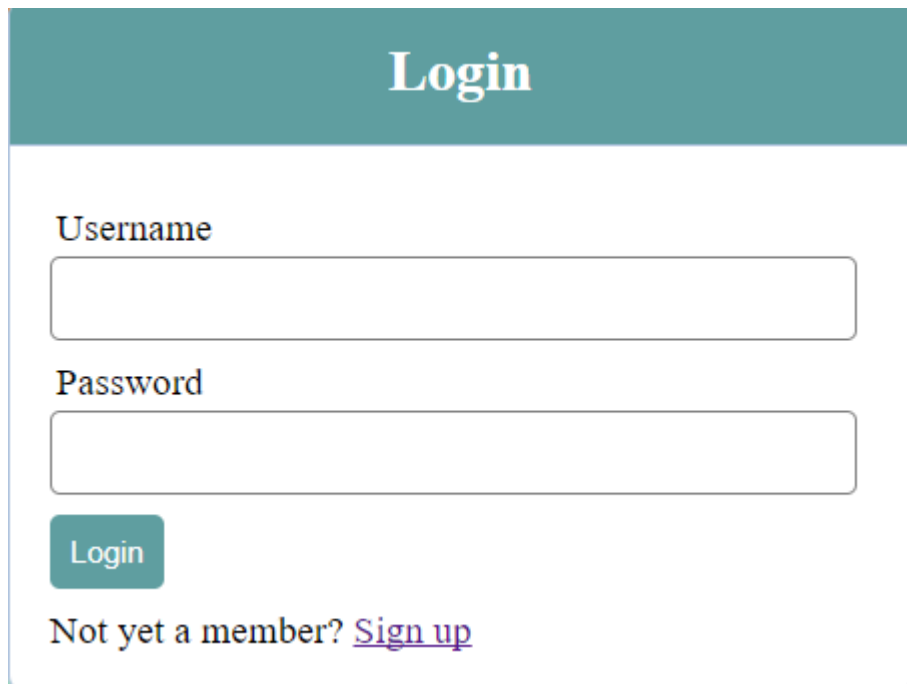
If the passwords do not match the form will display the following:



The registration form has a teal header with the text "Welcome to WeSell please complete the form below to register and start shopping". Below the header is a red error message box that says "The two passwords do not match". Underneath the error message are two input fields: "Username" with the value "salmaan" and "Email" with the value "salmaanvally72@gmail.com".

Figure 6: When the passwords do not match

Once a username and password is completed on the login form



The login form has a teal header with the text "Login". Below the header are two input fields: "Username" and "Password". Below the "Password" field is a teal "Login" button. At the bottom of the form is the text "Not yet a member? [Sign up](#)".

Figure 7: login form view

The following page will pop up

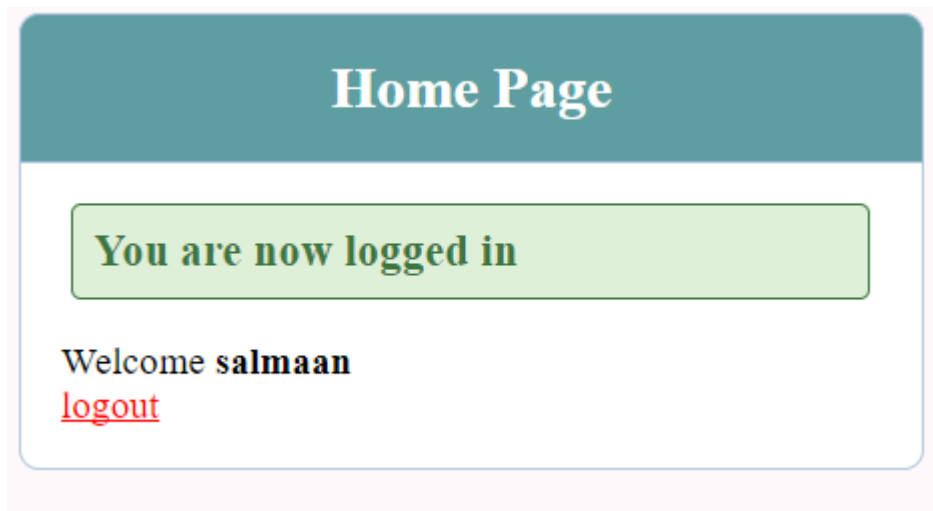


Figure 8: logged on page

After this page pops up the link will be directed to the website and the websites home page will load which looks like: **See figure 9 on next page**

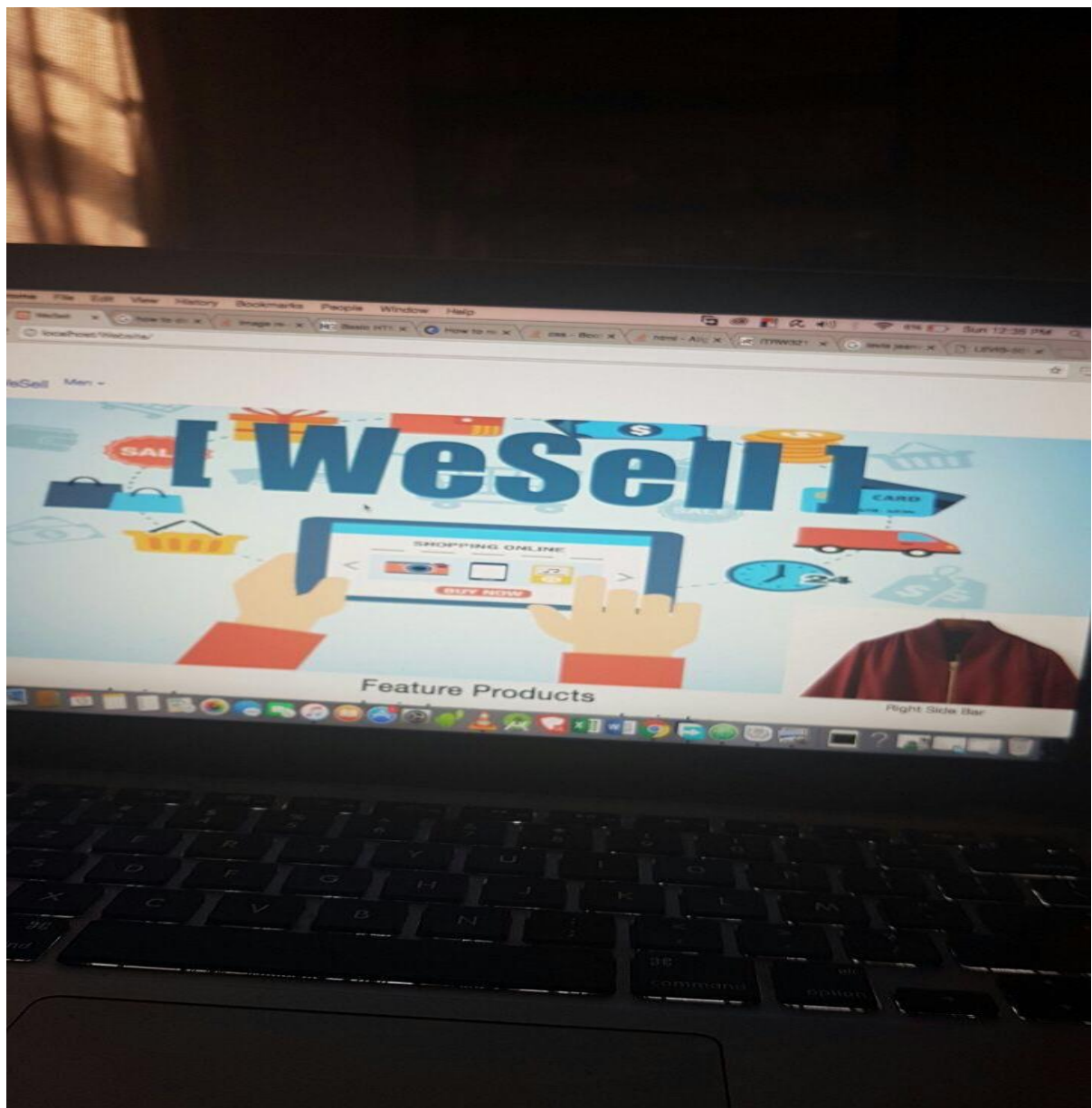


Figure 9: view of the home page

If the user scrolls down under feature products the following will show: See on next page....

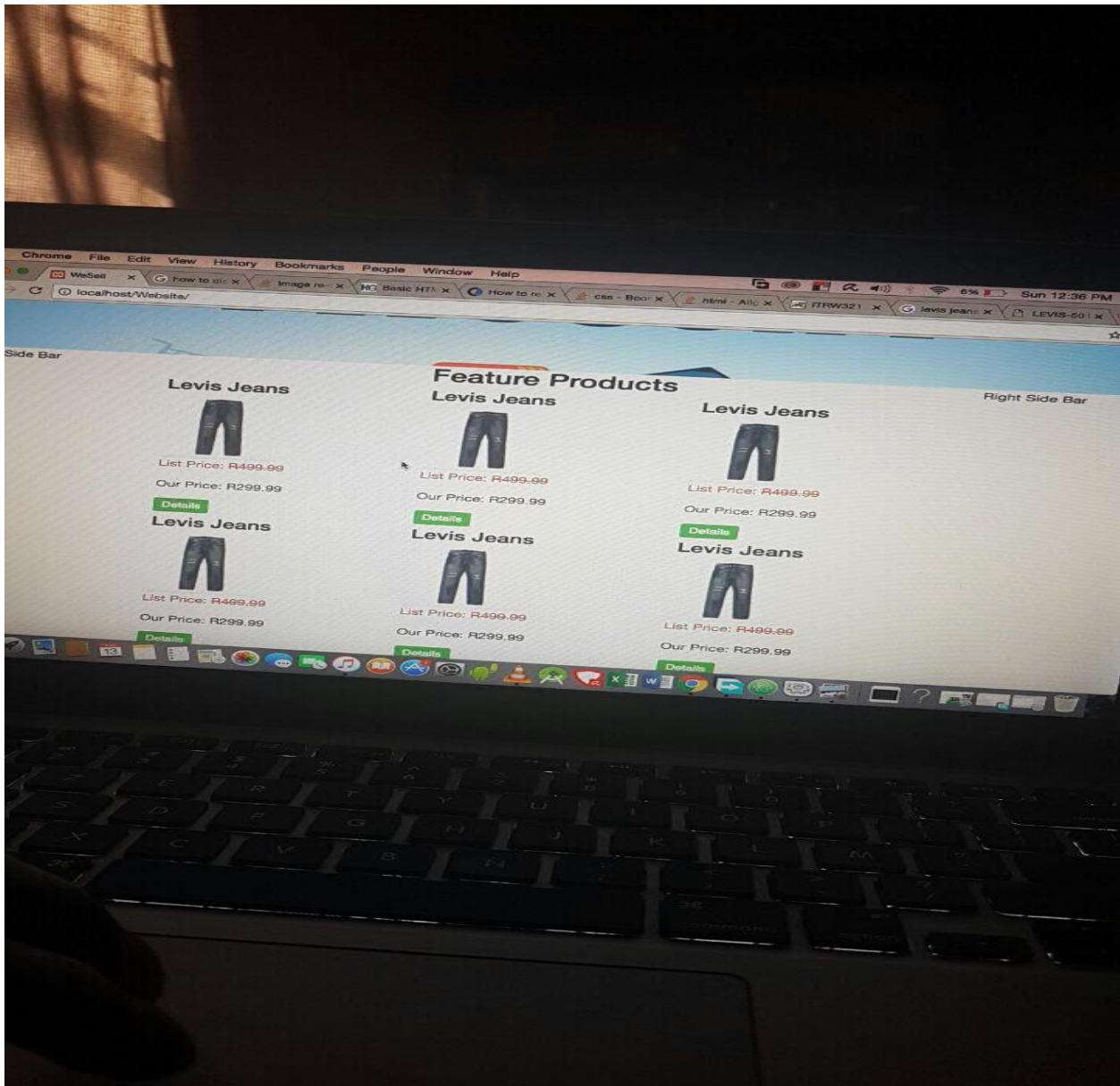


Figure 10:Product view from browser

If any of the details buttons are clicked the following will be seen: See figure 11 on next page.

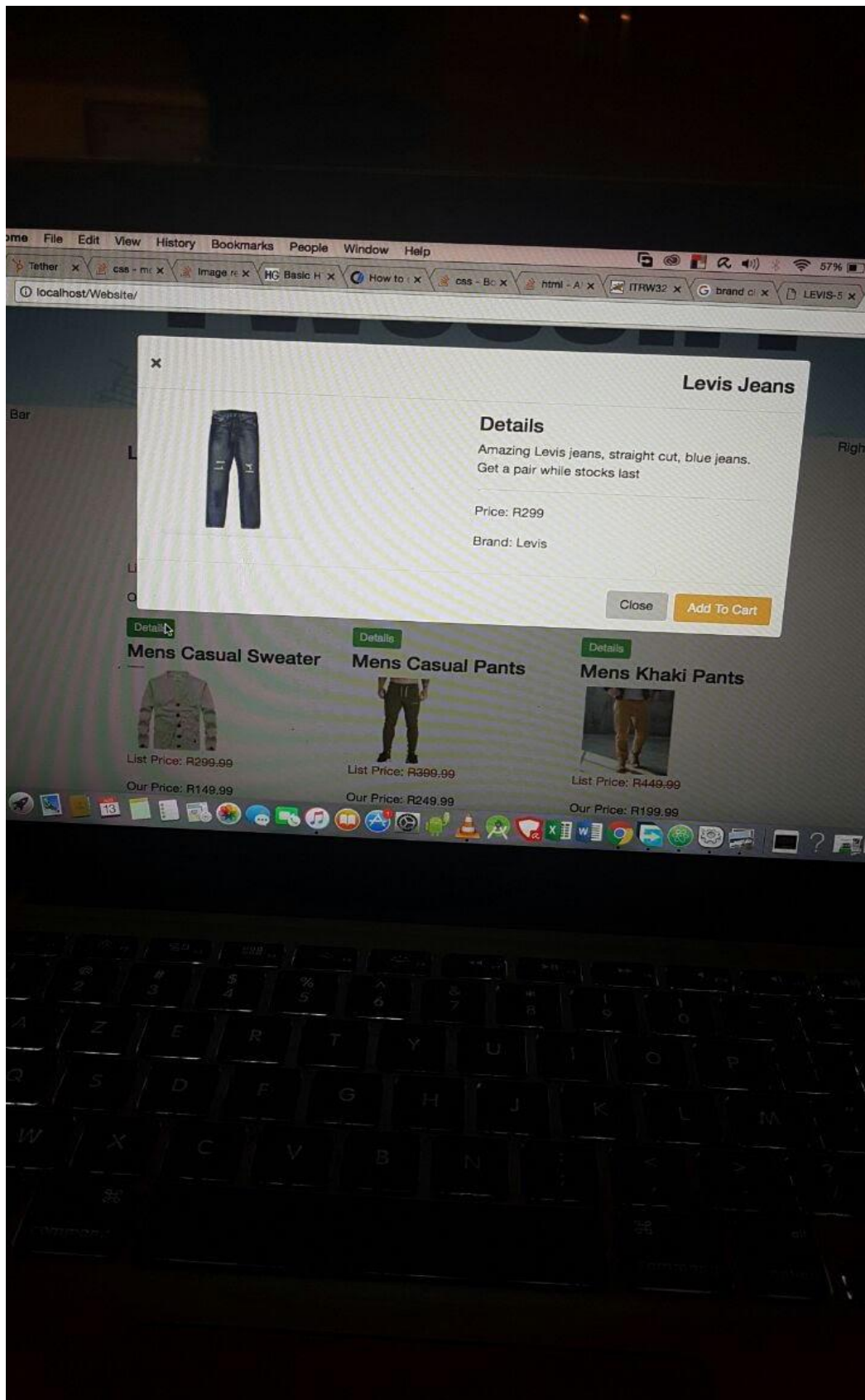


Figure 11: shadow tabs in browser

After the add to cart button is clicked and the user wishes to checkout, the checkout button is clicked and a payment page will pop up, and a review order tab is displayed.

Figure 12:payment php page

After the payment is completed the user can choose to log out or continue browsing the website.

Product categories can be used by clicking of the difer button


Technologies used and where they were implemented in the development of the website

Various different tools, technologies and programs were used to develop the website, which include:

- JQuery

JQuery is part of the JavaScript library offering quick, compact and many feature-rich options. JQuery offers a simpler solution for different platforms including HTML document traversal and manipulation; animation and event handling other things include Ajax with a simpler to use API. The API simplification is supported across multiple browsers.

JQuery was used in the development to load a hosted google API , which leads to decreased latency, increased parallelism, better caching. Below is a snapshot of the jquery code used in the website



```
<!DOCTYPE html>
<html>
<head>
  <title> WeSell </title>
  <link rel="stylesheet" href="css/bootstrap.min.css">
  <link rel="stylesheet" href="css/min.css">
  <meta name="viewport" content="width=device-width, initial-scale =1, user-scalable=no">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
  <script src="js/bootstrap.min.js"></script>
</head>
<body>
```

Figure 13: JQuery code

- Bootstrap

With the use of HTML5, different aspects of document types are supported such as the use of some types of HTML elements and CSS properties. Bootstrap offers free and open source front-end web framework in conjunction with the designing and development of websites and web-based applications. Within Bootstrap HTML and CSS based design templates are used for different interface components multiple JavaScript extensions.

Bootstrap was used in the development to pop up dialog screens when the details button is clicked on and fade the background so the user focuses on the pop up dialog, below is the code used alongside with javascript files.

```

<div class="modal fade" id="details-1" tabindex="-1" role="dialog" aria-labelledby="details-1">
  <div class="modal-dialog modal-lg" role="document">
    <div class="modal-content">
      <div class="modal-header">
        <button class="close" type="button" data-dismiss="modal" aria-label="Close">
          <span aria-hidden="true">&times;</span>
        </button>
        <h4 class="modal-title text-center">Levis Jeans</h4>
      </div>
      <div class="modal-body">
        <div class="container-fluid">
          <div class="row">
            <div class="col-sm-6">
              <div class="center-block">
                
              </div>
            </div>
            <div class="col-sm-6">
              <h4>Details</h4>
              <p>Amazing Levis jeans, straight cut, blue jeans. Get a pair while stocks last</p>
              <hr>
              <p>Price: R299</p>
              <p>Brand: Levis</p>
            </div>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>

```

Figure 14: Code used to pop up dialogs

• [JavaScript](#)

Used in conjunction with the creation of websites offering an object orientated programming language with many options such as to create synergistic effects within web browsers. With JavaScript, complex objects can be implemented within web pages.

Javascript was used in the development to make animations on the website move such as the logo and some information to move across the screen in a repetitive manner.

• [JSON](#)

Known as JavaScript object notation is a trivial data interchange format making it easy to read and write for users as well as quick and simple for computer machines to parse and create. JSON forms part of the subset of the java script programming language. It is used for the serializing and transmitting of structured data over network connections such as that between server and web application.

• [XAMPP](#)

XAMPP is an open source software and it contains Apache and MYSQL

Apache is an HTTP server used for hosting websites locally while working on them. It ask as a web server for websites hosted locally.

MYSQL is an open source, it is a database management system, it maintains databases for project where information is stored for that specific project.

XAMPP was used in development to host sites on the apache server and create databases to store information in MYSQL. Below is the control panel used to start the apache and MYSQL servers.

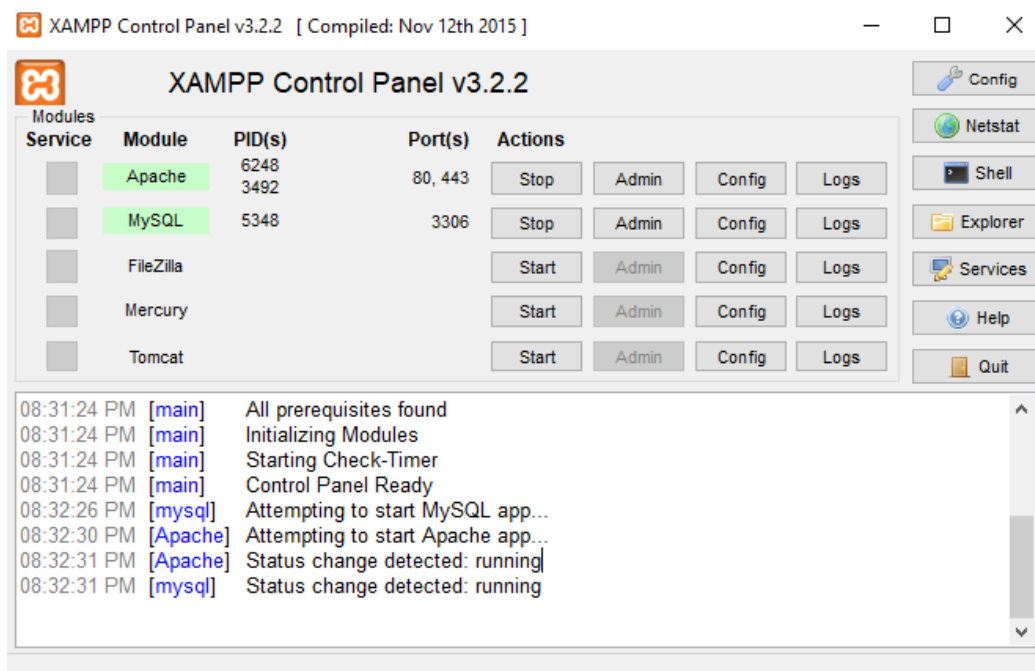


Figure 15:Xampp control panel

• HTML5

A markup language that gives structure and makes the content on the World Wide Web look more presentable. It is also according to Mozilla the latest version of the standard obtained in HTML. There are also two different concepts that define HTML5 and that is it the latest version that includes new behaviours elements and attributes as well as a larger set of technologies that allows the built of powerful websites.

HTML5 was used throughout development for the structure of all the php files, to display headings , format text, create borders and much more.

Below is a snip of the HTML5 code used in the login page to create the login form and display a background image

```

<html>
<head>
  <title>Registration system PHP and MySQL</title>
  <link rel="stylesheet" type="text/css" href="style.css">
  <style>

  body{
    background-image:url(bg.jpg)

  }
  </style>
</head>
<body>
<marquee>WeSell , where style is priority.....Any questions??? please feel free to drop us an email at info@WeSell.co.za....loads of product ranges to cl

  <div class="header">
    <h2>Login</h2>
  </div>

  <form method="post" action="login.php">

    <?php include('errors.php'); ?>

    <div class="input-group">
      <label>Username</label>
      <input type="text" value="" />
    </div>
  </form>

```

Figure 16:Login forms HTML5 code

● PHP

PHP acronym for Hypertext Processor used widely to open source general-purpose scripting language suited for web development and embedded into HTML –Hypertext markup language. Instead of using many commands to output the HTML, PHP pages contains this markup language with embedded code that is actually doing something. The best things in using PHP are that it is extremely simple for a newcomer, but offers many advanced features for a professional programmer's

PHP was used throughout development

Below is some PHP which was used to determine the users login details and display a message based on whether the users log in was succesfull or not


```

<!-- notification message -->
<?php if (isset($_SESSION['success'])) : ?>
    <div class="error success" >
        <h3>
            <?php
                echo $_SESSION['success'];
                unset($_SESSION['success']);
            ?>
        </h3>
    </div>
<?php endif ?>

<!-- logged in user information -->
<?php if (isset($_SESSION['username'])) : ?>
    <p>Welcome <strong><?php echo $_SESSION['username']; ?></strong></p>
    <p> <a href="index.php?logout='1'" style="color: red;">logout</a> </p>
<?php endif ?>
</div>

```

Figure 17:PHP code used in login form

- **SQL**

MySQL was used to store information for the site from user related information to data needed to perform functions on the site

Below is a snip of the database used for the Registration of users , the password is also encrypted to protect users.

The screenshot shows the phpMyAdmin interface. On the left is the database navigation tree with 'registration' selected. The main panel shows the 'users' table structure and data. The table has 2 rows. The first row has id 1, username 'Salmaan', email 'salmaanvally72@gmail.com', and a hashed password. The second row has id 2, username 'mathapelo', email 'mathapelo.mmn@gmail.com', and another hashed password.

id	username	email	password
1	Salmaan	salmaanvally72@gmail.com	7da351930b490fd0fb1b3399d52200b1
2	mathapelo	mathapelo.mmn@gmail.com	90d79c17f482198809ecabd949ebe7af

Figure 18:Database used to store users

Code used to connect to mysql database for website

```

<?php
$db = mysqli_connect('127.0.0.1','root','','WeSellDB');
if (mysqli_connect_errno()) {
    echo 'Failed to connect to database: '. mysqli_connect_error();
    die();
}
?>

```

Figure 19:Code used to connect to sql database

Security measures implements on PHPmyadmin

Remote File Inclusion and Remote Code Execusion — Malicious or unknown persons can run the code of their desires on the web server through violation of this measure. To prevent this from happening you need to switch of the register_globals directive. This was done on our portal and WeSell is safe from remote file inclusion

Cross Side Scripting (XSS) — Where the vulnrability of the website is used by hackers to force the website to do certain things. It too can be prevented through using escape functions.The WeSell site houses a few escape functions especially in the database enviroment

Session & Cookie Hacking — It affects the users account as it cannot affect the website or the database. To prevent such you change the user ID at some time, user IDS are assigned numerically with auto increments which the ID field is a primary key

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	id	int(11)			No	None		AUTO_INCREMENT	Change Drop Primary Unique Index ▼ More
<input type="checkbox"/> 2	username	varchar(255)	latin1_swedish_ci		No	None			Change Drop Primary Unique Index ▼ More
<input type="checkbox"/> 3	email	varchar(255)	latin1_swedish_ci		No	None			Change Drop Primary Unique Index ▼ More
<input type="checkbox"/> 4	password	varchar(255)	latin1_swedish_ci		No	None			Change Drop Primary Unique Index ▼ More

Figure 20:Simple structure of login and registration Database in PHPmyadimin

Work breakdown of the development

Salmaan Vally

- Log in
- Registration
- View project
- Introduction
- Technologies and Extension
- Use of SQL
- Coding

Marc kishinkwa

- Create project
- Conclusion
- Multi-Language
- View Project
- Coding
- Background study

Mathapelo Ngoasheng

- Create project
- How to use SQL
- Coding
- create project
- Background study
- Conclusion

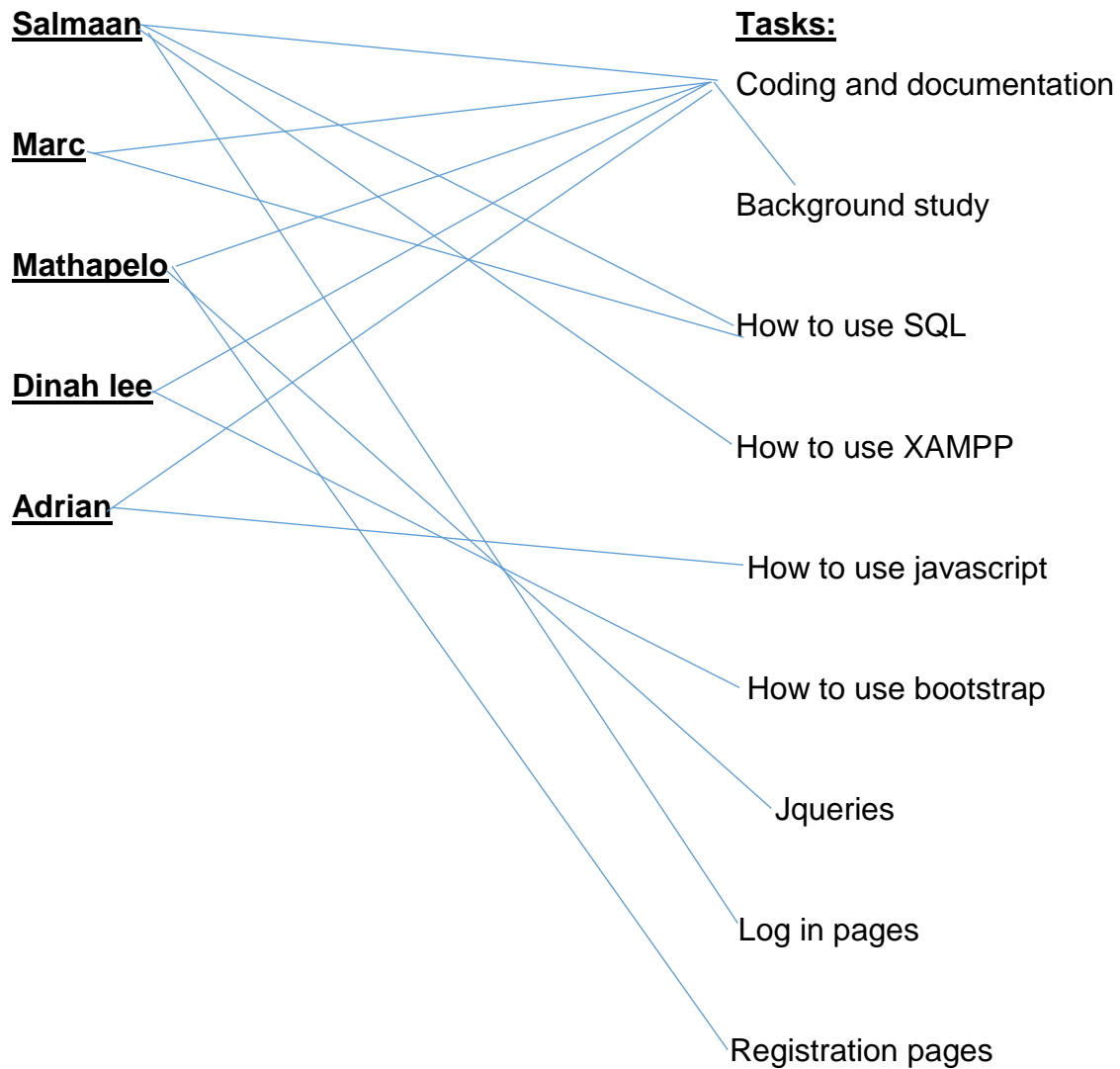
Dinah lee booyesen

- Log in
- Registration
- User guide
- Documenting technologies used
- Coding

Adriaan Van kraayenburg

- User guide
- Images
- Background study
- introduction

Structural view of work breakdown



How the website is processed

With the use of virtual machines and Ubuntu the webservice can run alongside the website running on Microsoft windows.

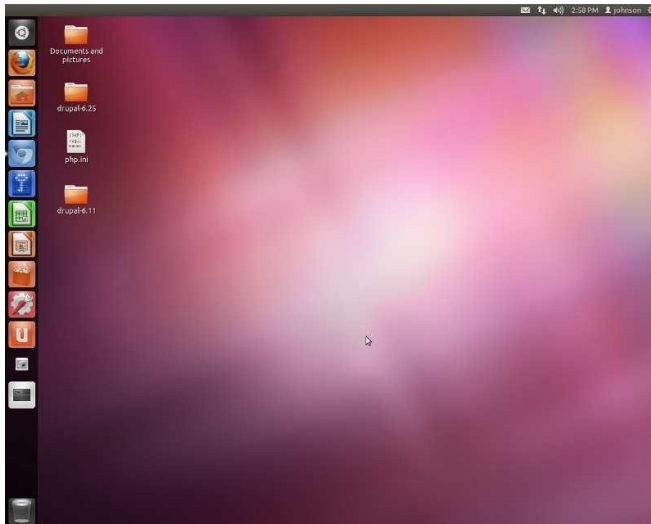







Figure 21: ubuntu OS








The guest machine requires port forwarding to and from it while on the NAT tab of the virtual network editor port forwarding has to be set up and selected which ports are forwarded to the virtual machine from the host machine. By forwarding the host port to the virtual machine we can gain access to the web service and database located on the virtual machine by using the IP address of the virtual machine.

This technique contributes towards the security of the website since the webservice and website are on “Two different machines” but in this case Virtual box is used instead of two computers














List of Files used in development

- List of php files


 errors.php	2017-07-09 05:09 ...	PHP File	1 KB
 index.php	2017-07-09 05:58 ...	PHP File	2 KB
 login.php	2017-08-13 04:24 ...	PHP File	2 KB
 register.php	2017-08-13 04:22 ...	PHP File	2 KB
 server.php	2017-07-09 05:10 ...	PHP File	3 KB

 detailsmodal.php	2017-08-14 07:43 ...	PHP File	3 KB
 footer.php	2017-08-14 07:43 ...	PHP File	1 KB
 head.php	2017-08-14 07:43 ...	PHP File	1 KB
 headerFull.php	2017-08-14 07:43 ...	PHP File	1 KB
 leftbar.php	2017-08-14 07:43 ...	PHP File	1 KB
 navigation.php	2017-08-14 07:43 ...	PHP File	2 KB
 rightbar.php	2017-08-14 07:43 ...	PHP File	1 KB

- List of CSS files used in development

 bootstrap.css	2017-08-14 07:43 ...	Cascading Style S...	188 KB
 bootstrap.css.map	2017-08-14 07:43 ...	MAP File	231 KB
 bootstrap.min.css	2017-08-14 07:43 ...	Cascading Style S...	148 KB
 bootstrap.min.css.map	2017-08-14 07:43 ...	MAP File	67 KB
 bootstrap-grid.css	2017-08-14 07:43 ...	Cascading Style S...	25 KB
 bootstrap-grid.css.map	2017-08-14 07:43 ...	MAP File	31 KB
 bootstrap-grid.min.css	2017-08-14 07:43 ...	Cascading Style S...	19 KB
 bootstrap-grid.min.css.map	2017-08-14 07:43 ...	MAP File	13 KB
 bootstrap-reboot.css	2017-08-14 07:43 ...	Cascading Style S...	6 KB
 bootstrap-reboot.css.map	2017-08-14 07:43 ...	MAP File	10 KB
 bootstrap-reboot.min.css	2017-08-14 07:43 ...	Cascading Style S...	5 KB
 bootstrap-reboot.min.css.map	2017-08-14 07:43 ...	MAP File	3 KB
 min.css	2017-08-14 07:43 ...	Cascading Style S...	2 KB

- List of javascript files used in development

 bootstrap.js	2017-08-14 07:43 ...	JavaScript File	98 KB
 bootstrap.min.js	2017-08-14 07:43 ...	JavaScript File	46 KB

- Example of how the JPG and PNG files are stored



Conclusion

In the development of the website, the group learned how to incorporate files through combining a variety of languages as well as creating a webservice on a different virtual machine. Our website is a platform that one uses to buy clothes online from the comfort of their homes. Our development successfully achieved the list of problems which we aimed to resolve through doing things a bit more different and interesting. Creating a webservice was a huge learning curve for all group members and we hope to improve in phase two of development and increase our knowledge drastically.

BIBLIOGRAPHY

Duckett, J., 2014. *JavaScript and JQuery: interactive front-end web development*. Wiley Publishing.

Georgiev, M., Jana, S. and Shmatikov, V., 2014, February. Breaking and fixing origin-based access control in hybrid web/mobile application frameworks. In *NDSS symposium* (Vol. 2014, p. 1). NIH Public Access.

Katawetawaraks, C. and Cheng, L.W., 2013. Online shopper behavior: Influences of online shopping decision.

Lei, K., Ma, Y. and Tan, Z., 2014, December. Performance comparison and evaluation of web development technologies in php, python, and node. js. In *Computational Science and Engineering (CSE), 2014 IEEE 17th International Conference on* (pp. 661-668). IEEE.

Duckett, J., 2014. *JavaScript and JQuery: interactive front-end web development*. Wiley Publishing.