ONLINE GROCERY STORE
CSE3002 – INTERNET & WEB PROGRAMMING

J COMPONENT PROJECT DOCUMENT

FALL 2019 - 2020

INDIVIDUAL PROJECT
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UNDER THE GUIDENCE OF
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SCOPE

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DECLARATION

I hereby declare that the J Component project entitled **"Online Grocery Store"** submitted by me to the School of Computer Science and Engineering, VIT University, Vellore-14 in partial fulfillment of the requirements for the **Internet and Web Programming (CSE3002)** course, is a record of bonafide work carried out by me/us under the supervision of **Naveen Kumar N, Assistant Professor (Sr).** I further declare that the work reported in this project has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma of this institute or of any other institute or university.

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ABSTRACT

Systems and methods provided for the management of products sold/bought. This system includes the usage of both back-ended and front-ended programming languages with the knowledge of system architecture. To be a leading market company, one needs a good Database Management system for its management.

For this we need to have a role-based access control system which gives different rights to different users. There are various entities such as supplier, product, price list, quantity, vendors etc. and attributes such as id of every entity, email, phone number also their types such as primary key, alternate key etc. which are needed to be maintained.

The purpose of this website is to provide with an online market for vendors to sell their groceries online. Also the system aims to provide users with variety of groceries easily available online. The website is well managed with independent modules which are tightly coupled together to provide a good solution for vendors to keep track of their stock and also an easy stop and go place for the user.

1. INTRODUCTION

Nowadays we mostly see, or as we have been seeing through our childhood, that many or most of the distributors are using pen format to keep records but the young ones or perhaps the shopkeepers/distributors of this era wants to use computer technology, which is indeed a trend now, to keep a track of all its transactions and day to day operation to achieve its business goal.

We also see that there is no place present for buying day to day groceries online. The market still relies on small vendors for daily groceries. Our aim is to provide users access to groceries online and order them online. We will help them link with small vendors who sell these items.The modern technology is bringing everything closer and easily accessible through online services.

Our project includes the database with user friendly interface with user authentication derived from the previously proposed data model as designed.

Currently online shopping portals like Flipkart and Amazon don't sell these types of items which are required daily, they sell other kinds of products. Our projects main focus is to sell all these day to day items online and make it accessible to the user more easily. Our goal is to link small scale vendors and help them reach out to a large people who need day to day groceries easily.

1.1. AIM

Objective of proposed project, is to provide Online Grocery Shopping solution to consumers and vendors. It will automate some of the basic operations of an online store. Scope would be to provide basic functionalities using a web application so that those manual process can be automated. It will include to provide administration access to vendors and admins and user specific access to customers.

1.2. OBJECTIVE

The objective of the project is to make an application in web platform to purchase items in an existing shop. In order to build such an application complete web support need to be provided. A complete and efficient web application which can provide the online

shopping experience is the basic objective of the project. The web application can be implemented in the form of a web application with web view.

2. SYSTEM REQUIREMENTS

The system required for the project is not a high-tech system. The basic requirements of the projects are a

- Web browser
- Php server
- Text editor
- Mongodb server
- Node application.

3. SOLUTION FOR EXISTING PROBLEM

3.1. SOLUTION 1: DIFFERENT LANGUAGES

3.1.1. PROBLEM DESCRIPTION AND ITS SOLUTION

In today's world if we want to expand to every location of the world, we need to provide the facility in their own native or local language. If we have one common language, then we may tend to lose our customers. Hence to solve this problem I have come up with the solution of translating the page into the customer chosen language using Google API. Using this Google API, we can translate any webpage into the customer selected one. This API provides the luxury of 157 world recognized language and we can select any one of them. For e.g. If a person from north India does not understand English he can translate the entire webpage in Hindi and benefit himself and will also help us in increasing our customer base.

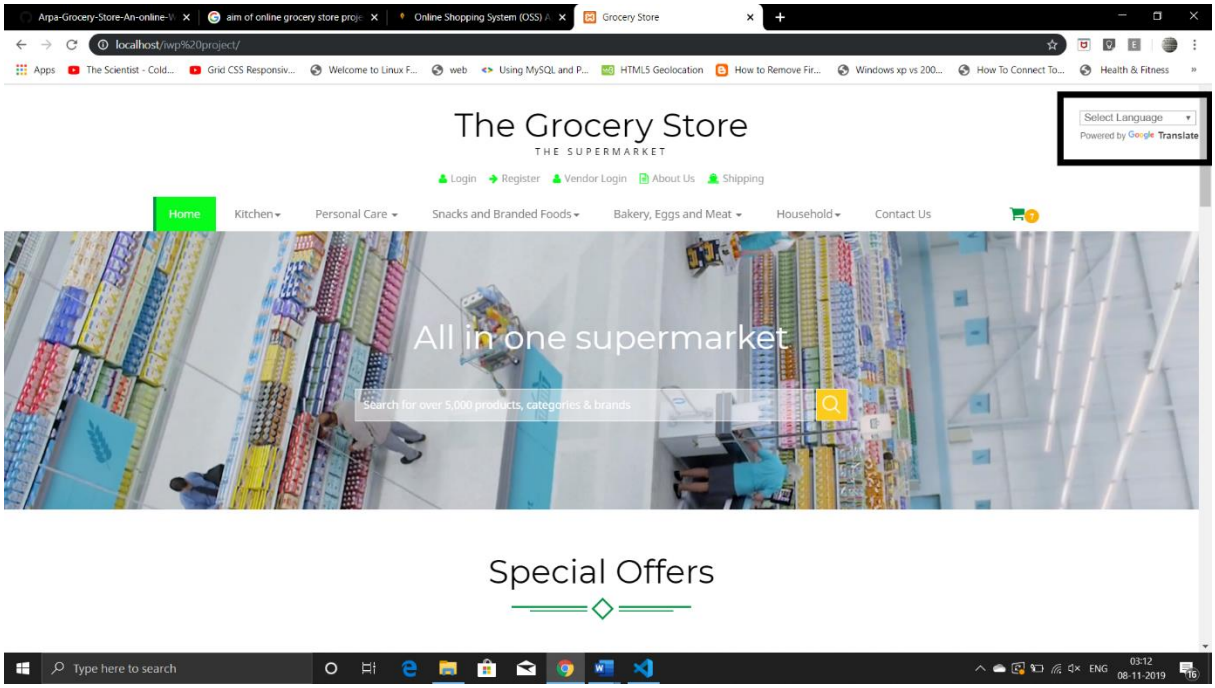
3.1.2. SAMPLE CODE

The below sample code displays the option of changing the language from English to any language from the dropdown list.

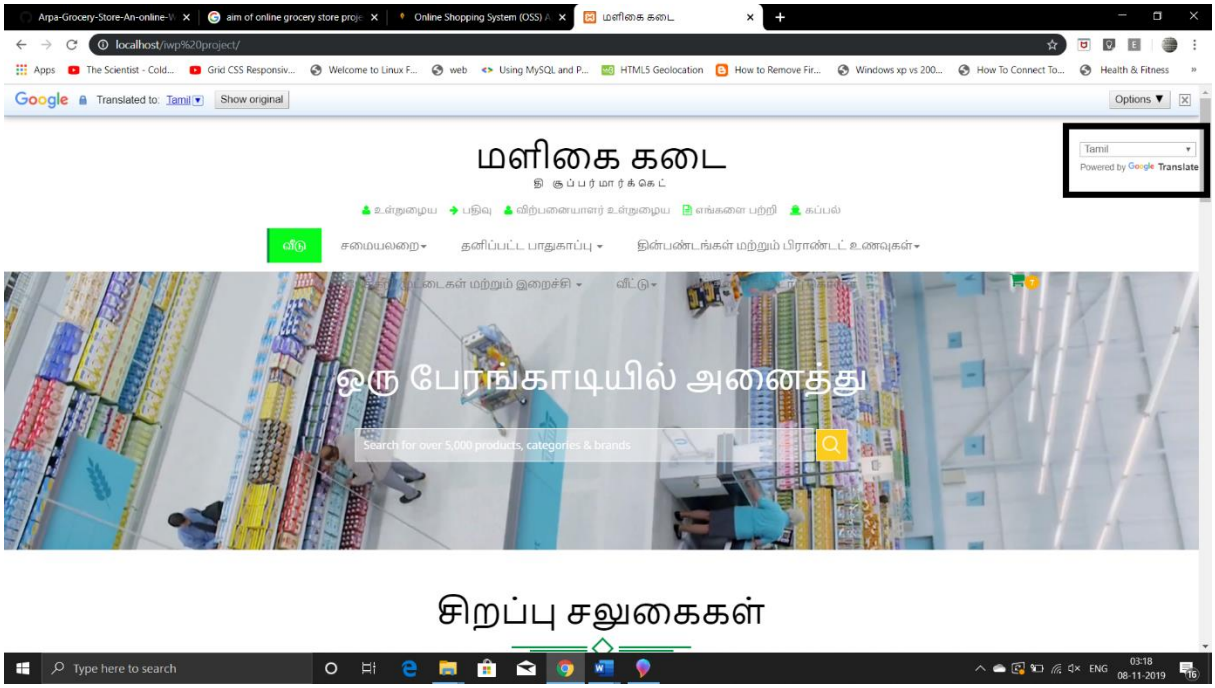
```
<!DOCTYPE html>
<html lang="en-US">
<head>
</head>
<body>
    <div style="float: right;" id="google_translate_element"></div>
    <script type="text/javascript">
```

```
        function googleTranslateElementInit() {
            new google.translate.TranslateElement(
               {pageLanguage: 'en'}, 'google_translate_element'
            );
        }
    </script>
    <script type="text/javascript" src= "https://translate.google.com/translat
e_a/element.js?cb=googleTranslateElementInit">
    </script>
</body>
</html>
```

3.1.3. SAMPLE SCREENSHOTS



Input Image 1



Input Image 2

3.2. SOLUTION 2: SENDING MAIL FROM DIFFERENT CHECKPOINTS DURING DELIVERY OF THE PRODCUT

3.2.1. PROBLEM DESCRIPTION AND ITS SOLUTION

In recent times we have seen many online grocery stores are coming in the market. But there are few issues with them and important among them is that they don't provide the tracking the order and they do not receive the conformation mail from the company of successful placement of the order. In order to receive an mail from the website it needs a proper hosting and the server. Without the hosting we cannot send the email to our customer. There are 2 ways the customer can pay for the order. One is online mode and the other one is offline mode. As soon as the order is received, we generate the order id and the confirmation mail is sent through a repository of the GitHub. Currently since we don't have a hosting, we cannot send the mail and there will be an error from the GitHub repository.

3.2.2. SAMPLE CODE

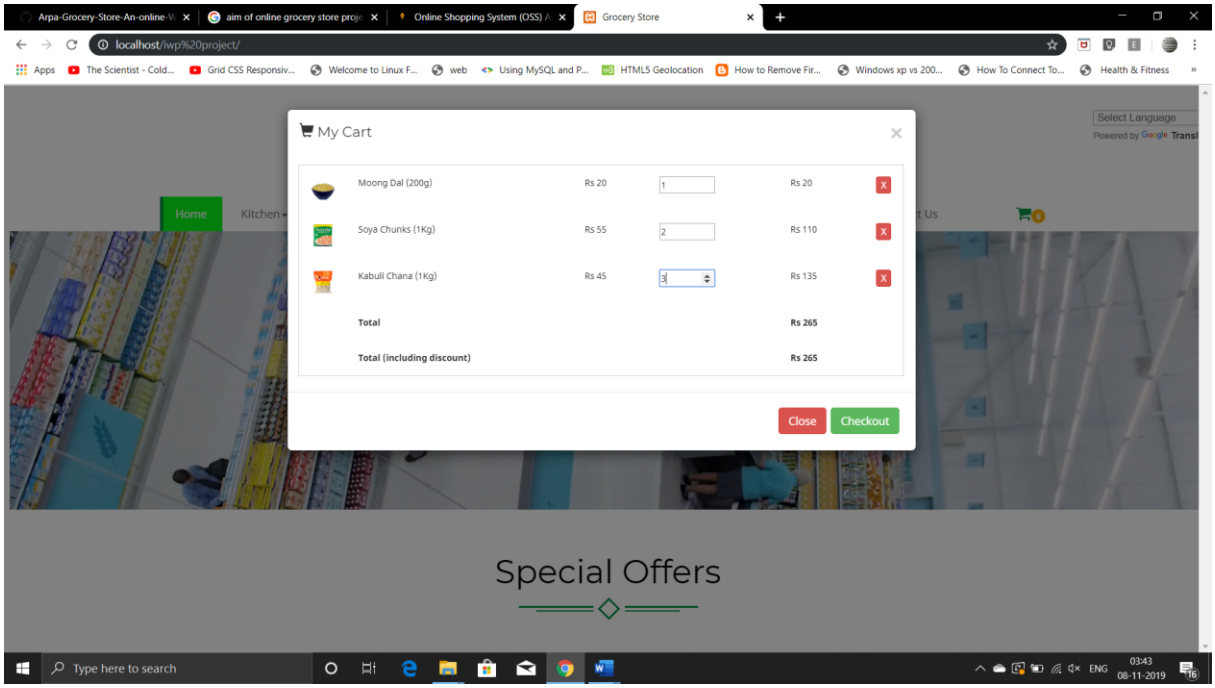
The below sample code displays the php code to send the mail from website to the registered customer once the order number is received.

```
<?php
```

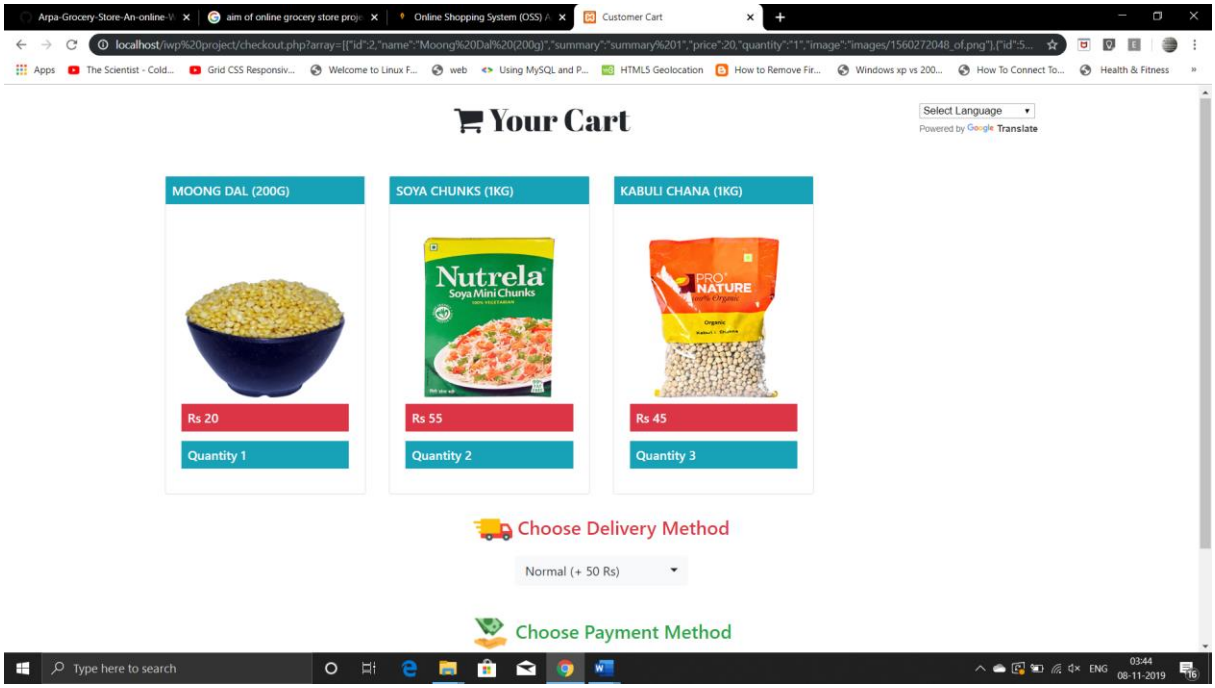
```php
/**
 * PHPMailer SPL autoloader.
 * PHP Version 5
 * @package PHPMailer
 * @link https://github.com/PHPMailer/PHPMailer/ The PHPMailer GitHub project
 * @author Marcus Bointon (Synchro/coolbru) <phpmailer@synchromedia.co.uk>
 * @author Jim Jagielski (jimjag) <jimjag@gmail.com>
 * @author Andy Prevost (codeworxtech) <codeworxtech@users.sourceforge.net>
 * @author Brent R. Matzelle (original founder)
 * @copyright 2012 - 2014 Marcus Bointon
 * @copyright 2010 - 2012 Jim Jagielski
 * @copyright 2004 - 2009 Andy Prevost
 * @license http://www.gnu.org/copyleft/lesser.html GNU Lesser General Public
License
 * @note This program is distributed in the hope that it will be useful -
 WITHOUT
 * ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or
 * FITNESS FOR A PARTICULAR PURPOSE.
 */

/**
 * PHPMailer SPL autoloader.
 * @param string $classname The name of the class to load
 */
function PHPMailerAutoload($classname)
{
    //Can't use __DIR__ as it's only in PHP 5.3+
    $filename = dirname(__FILE__).DIRECTORY_SEPARATOR.'class.'.strtolower($cla
ssname).'.php';
    if (is_readable($filename)) {
        require $filename;
    }
}

if (version_compare(PHP_VERSION, '5.1.2', '>=')) {
    //SPL autoloading was introduced in PHP 5.1.2
    if (version_compare(PHP_VERSION, '5.3.0', '>=')) {
        spl_autoload_register('PHPMailerAutoload', true, true);
    } else {
        spl_autoload_register('PHPMailerAutoload');
    }
} else {
    /**
     * Fall back to traditional autoload for old PHP versions
     * @param string $classname The name of the class to load
     */
    function __autoload($classname)
    {
```

```
        PHPMailerAutoload($classname);
    }
}
```

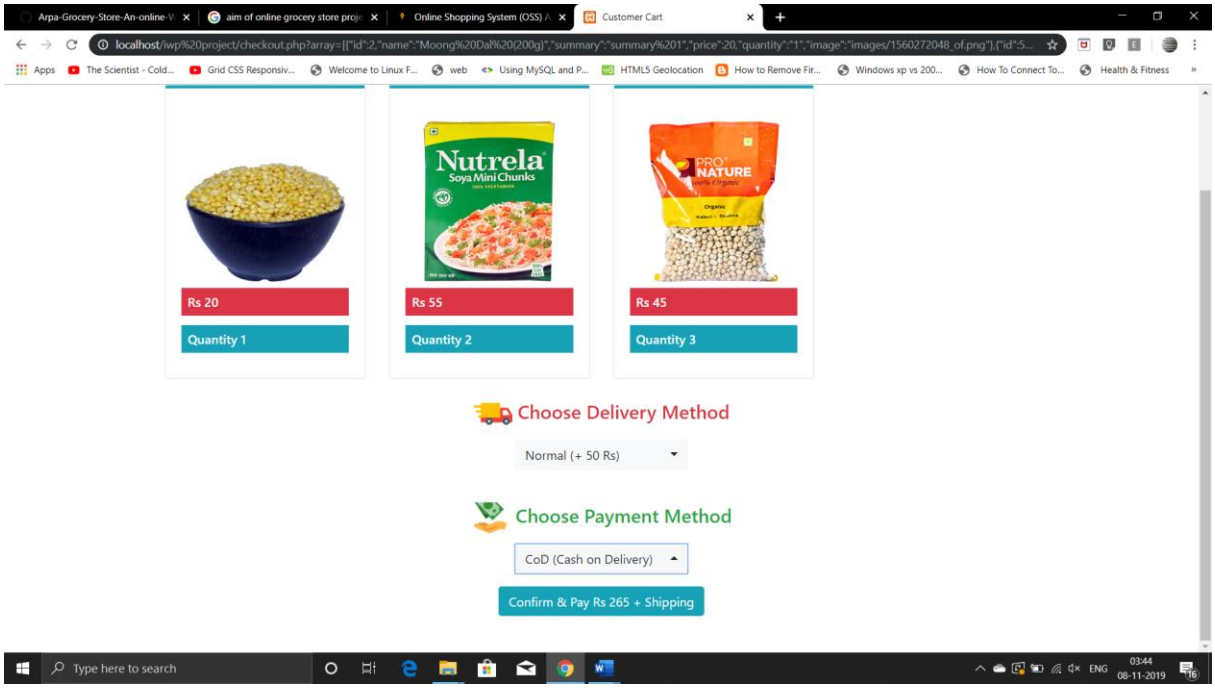
3.2.3. SAMPLE SCREENSHOTS



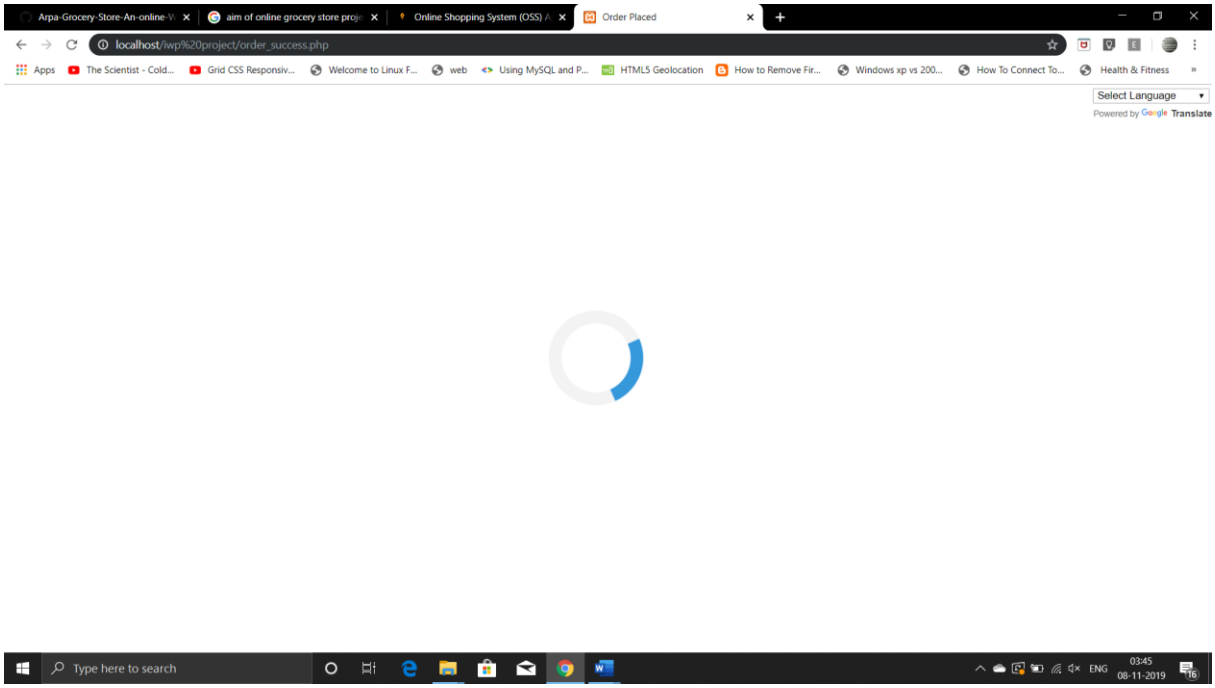
Input Image 3



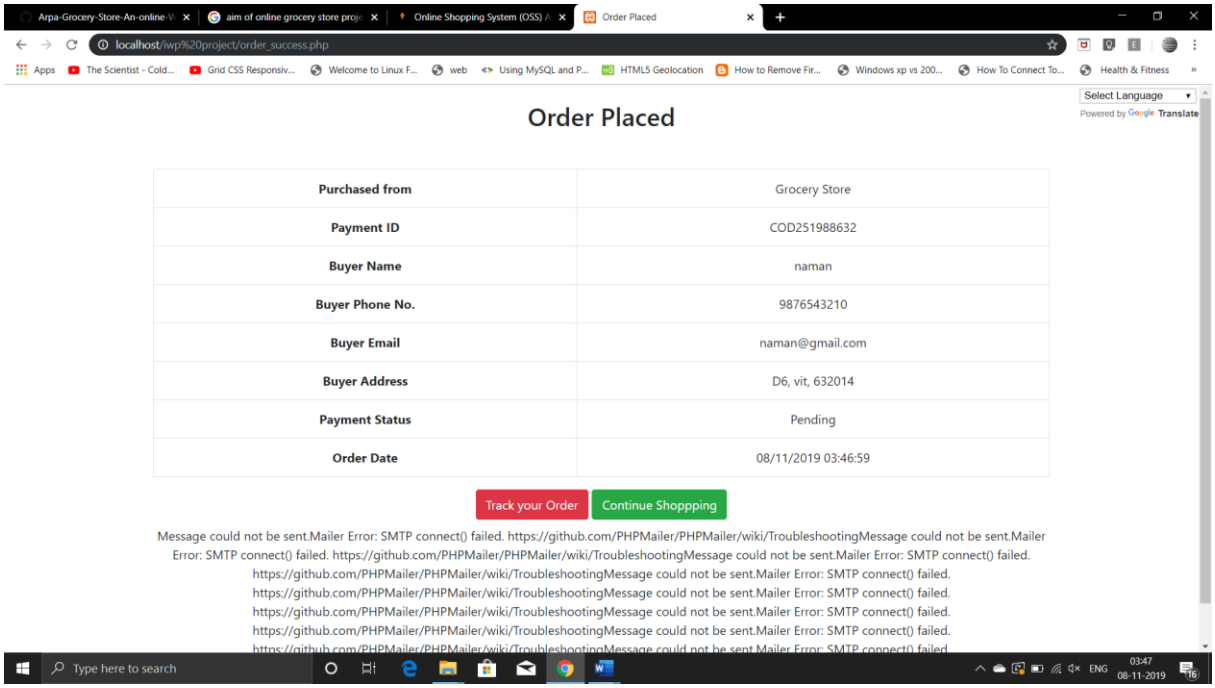
Input Image 4



Input Image 5



Input Image 6



Input Image 7

4. RECENT TECHNOLOGY

4.1. TECHNOLOGY 1: GOOGLE API

4.1.1. IMPORTANCE OF TECHNOLOGY

Everybody who needs to translate a document or any other piece of text will come across a dilemma of whether to find a translator or use a machine to cope with this task. There are a lot of online translation tools you can use and it seems pretty reasonable to save your money and avoid turning to a professional translator. There are 103 of them now. The service translates more than 100 billion words a day and is one of the most popular tools for people worldwide to have a conversation with each other without any barriers. It's convenient. All you have to do is just paste your text to get its immediate translation. There's no need for communicating with people and discuss terms of cooperation. It's fast. It takes seconds to receive a ready translation of your source text. It's free. You don't have to pay anyone for the translation services. It recognizes almost any language. It's very difficult to find a human translator who knows all the languages in the world.

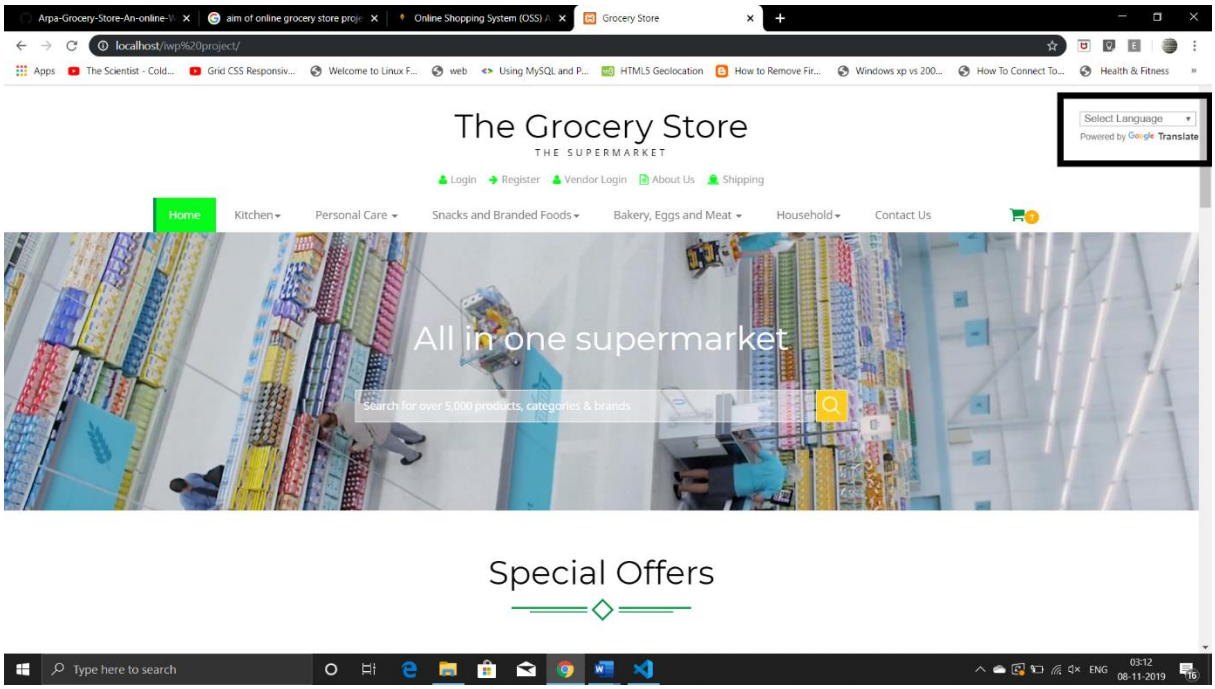
4.1.2. SAMPLE CODE

The below sample code displays the option of changing the language from English to any language from the dropdown list.

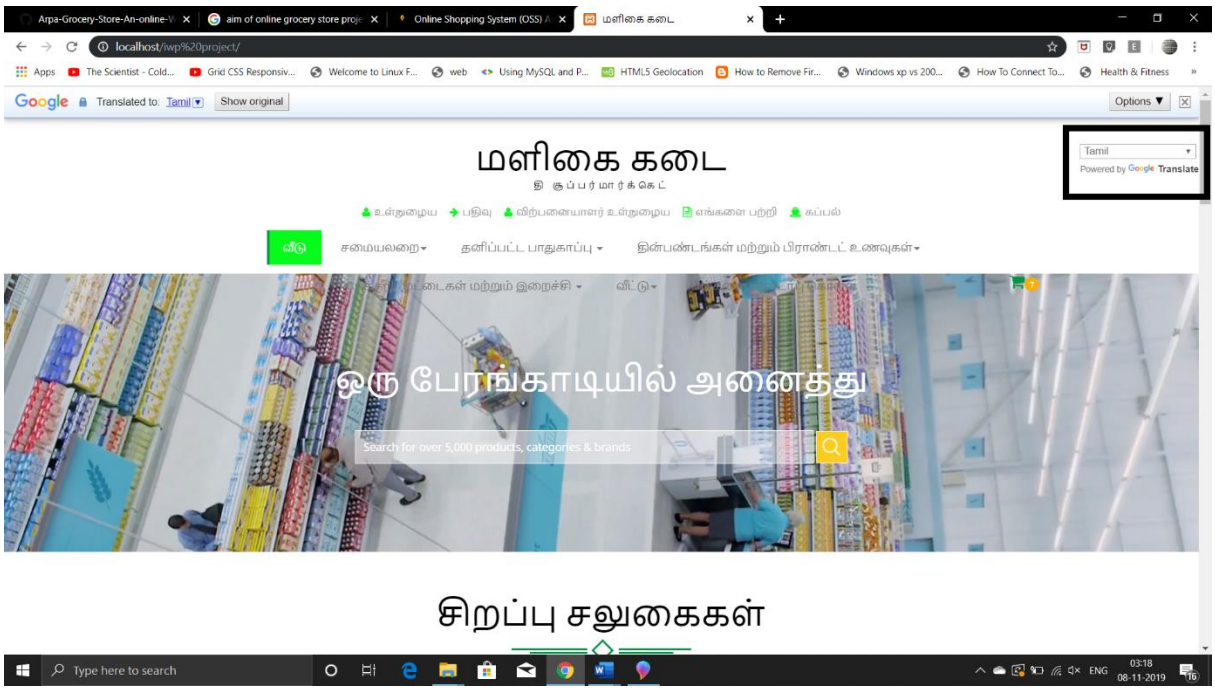
```
<!DOCTYPE html>
<html lang="en-US">
<head>
</head>
<body>
    <div style="float: right;" id="google_translate_element"></div>
    <script type="text/javascript">
        function googleTranslateElementInit() {
            new google.translate.TranslateElement(
               {pageLanguage: 'en'}, 'google_translate_element'
            );
        }
    </script>
    <script type="text/javascript" src= "https://translate.google.com/translat
e_a/element.js?cb=googleTranslateElementInit">
    </script>
</body>
```

```
</html>
```

4.1.3. SAMPLE SCREENSHOTS



Input Image 8



Input Image 9

4.2. TECHNOLOGY 2: NODE JS

4.2.1. IMPORTANCE OF TECHNOLOGY

As a cross-platform runtime environment, Node.js enables web programmers to build a variety of server-side applications using JavaScript. Node.js executes JavaScript code using Google V8 engine. Unlike other JavaScript interpreters, V8 engine compiles the JavaScript code into native machine code. Thus, it enables the runtime environment to boost the performance of web server applications by executing JavaScript code in a faster and more efficient way. Node.js further performs all I/O operations asynchronously through a single-treaded event look. The modern approach makes the Node.js application perform I/O operations by sending the asynchronous task to an event loop along with a call-back function. After sending the asynchronous task to the event loop, the application continues executing the remaining code. After completing the asynchronous operation, the event loop returns to the task, and executes the call-back function. In addition to consuming less memory, the feature enables Node.js to handle a large number of concurrent connections efficiently.

4.2.2. SAMPLE CODE

APP.JS

```
/* importing node module files */
const bodyParser = require('body-parser');
const cookieParser = require('cookie-parser');
const cookieSession = require('cookie-session');
const exphbs = require('express-handlebars');
const express = require('express');
const handlebars = require('handlebars');
const handlebarsIntl = require('handlebars-intl');
const handlebarsPaginate = require('handlebars-paginate');
const flash = require('connect-flash');
const passport = require('passport');
/* express server configuration */
const app = express();
/* session  configuration */
app.use(require('express-session')({
    secret: 'keyboard cat',
    resave: false,
    saveUninitialized: true,
    cookie: { secure: false }
}));
app.use(flash());
app.use(cookieParser());
/* passport authenticator initialization */
app.use(passport.initialize());
```

```
app.use(passport.session());
/* body parser configuration */
app.use(bodyParser.json());
app.use(bodyParser.urlencoded({ extended: true }));
/* static pages configuration */
const static = express.static(__dirname + '/public');
app.use("/public", static);
/* view or handlebars configuration */
handlebarsIntl.registerWith(handlebars);    // handlebars formatting
handlebars.registerHelper('paginate', handlebarsPaginate);  // paging
app.engine('handlebars', exphbs({ defaultLayout:'main' }));
app.set('view engine', 'handlebars');
/* routing configuration */
const configRoutes = require("./routes");
configRoutes(app);
/* running server on port 3000 */
app.listen(3000, () => {
    console.log("We've now got a server");
    console.log("Your routes will be running on http://localhost:3000");
});
```

INDEX.JS

```
const contactsData = require('./contacts');
const credentialsData = require('./credentials');
const productsData = require('./products');
const subscriptionsData = require('./subscriptions');
const transactionOrderData= require('./transactionOrder');
const transactionWalletData = require('./transactionWallet');
const usersData = require('./users');
const usersCardData = require('./usersCard');
const usersCartData = require('./usersCart');
const usersWalletData = require('./usersWallet');

let dataMethod = (app) => {
    app.use("/contacts-us", contactsData);
    app.use("/credentials", credentialsData);
    app.use("/products", productsData);
    app.use("/subscription", subscriptionsData);
    app.use("/user", usersData);
};

module.exports = {
    contacts: require('./contacts'),
    credentials: require('./credentials'),
    products: require('./products'),
    subscriptions: require('./subscriptions'),
    transactionOrder: require('./transactionOrder'),
```

```
    transactionWallet: require('./transactionWallet'),
    users: require('./users'),
    usersCard: require('./usersCard'),
    usersCart: require('./usersCart'),
    usersWallet: require('./usersWallet')
};
```

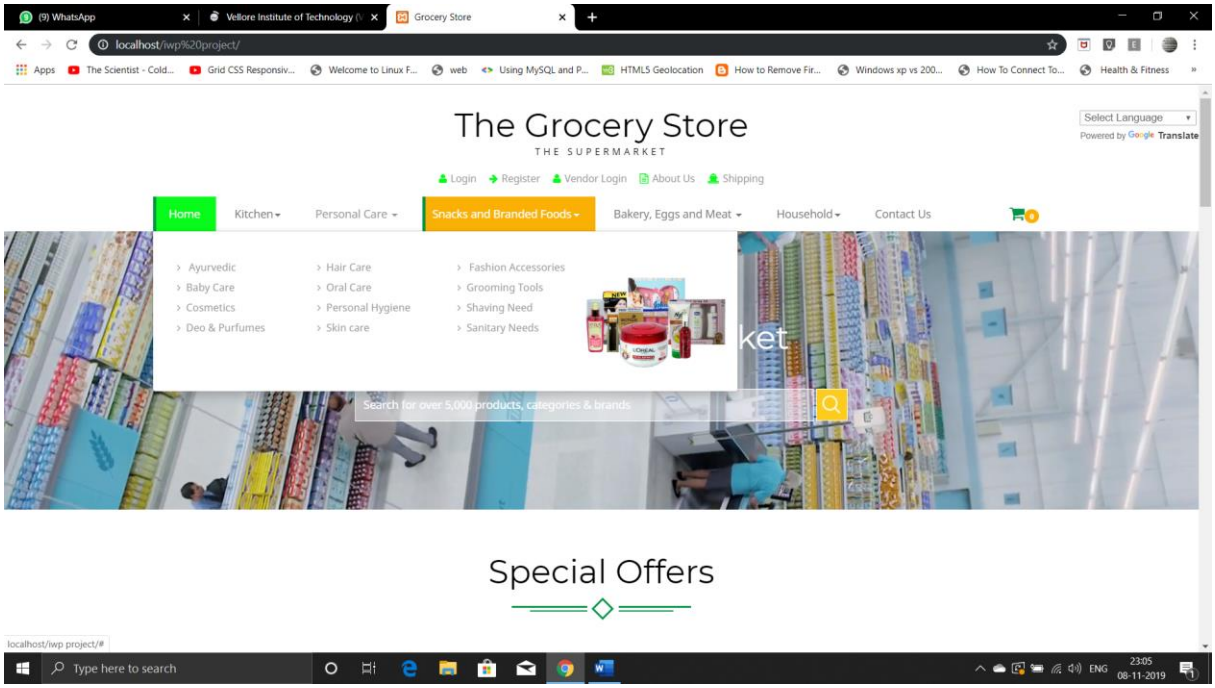
PRODUCTS.JS

```
/* importing required files and packages */
const uuid = require('uuid');
const xss = require('xss');
const mongoDbCollection = require('../config/mongodb-collection');
const products = mongoDbCollection.products;

/* exporting controllers apis */
module.exports = productsControllers = {

    //------------------------ fetch a product information by email id
    getProductById: (id) => {
        return products().then((productsCollection) => {  // returning a found
 json document else returning null
            return productsCollection.findOne({ _id:id });
        })
        .catch(() => {  // returning a reject promise
            return Promise.reject("Server issue with 'products' collection.");
        });
    },

    //------------------------ fetch a product information by email id
    getProductByCategory: (category) => {
        return products().then((productsCollection) => {  // returning a found
 json document else returning null
            return productsCollection.find({ category: { $regex : `.*${categor
y}.*`, $options : 'i' } }).toArray();
        })
        .catch(() => {  // returning a reject promise
            return Promise.reject("Server issue with 'products' collection.");
        });
    },

    //------------------------ fetch a product information by search string
    getProductBySearch: (keyword) => {
        return products().then((productsCollection) => {  // returning a found
 json document else returning null
```

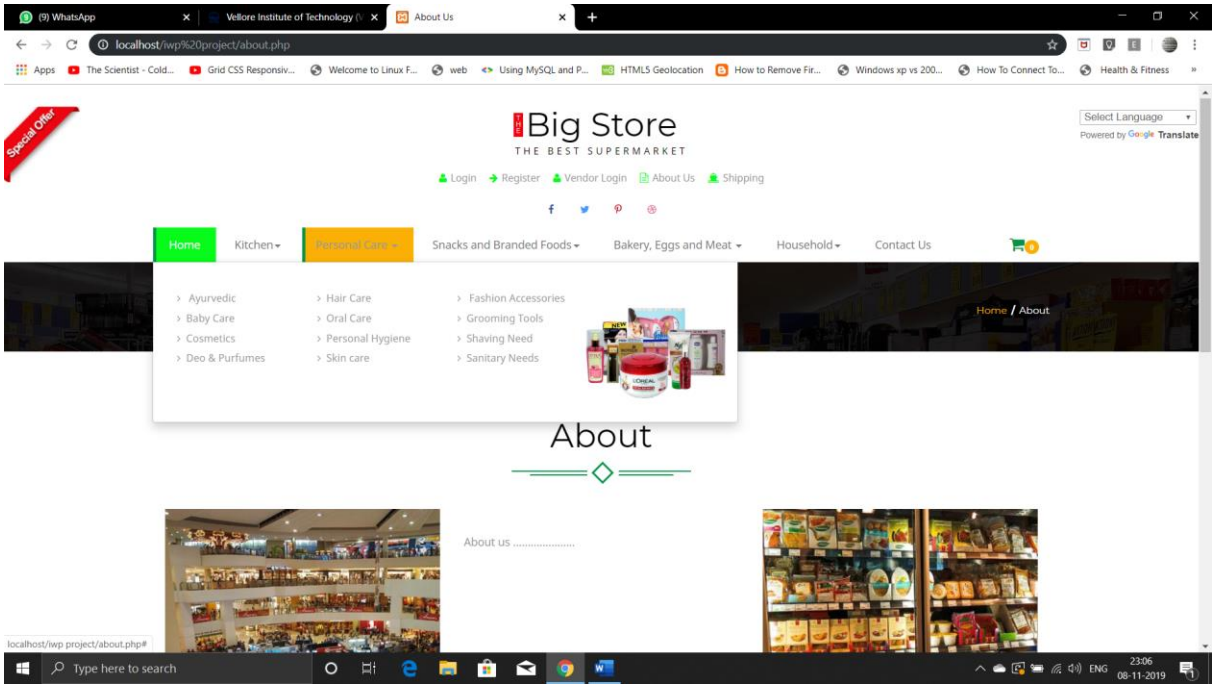
```
            let query = [
                { _id:keyword },
                { title: { $regex : `.*${keyword}.*`, $options : 'i' } },
                { category: { $regex : `.*${keyword}.*`, $options : 'i' } },
                { description: { $regex : `.*${keyword}.*`, $options : 'i' } }

            ];

            return productsCollection.find({ $or: query }).toArray();
        })
        .catch(() => {  // returning a reject promise
            return Promise.reject("Server issue with 'products' collection.");
        });
    },

    //------------------------ fetch a product information by search string
    getProductBySearchFilter: (keyword, startRange, endRange) => {
        return products().then((productsCollection) => {  // returning a found
 json document else returning null

            let query = [
                { _id:keyword },
                { title: { $regex : `.*${keyword}.*`, $options : 'i' } },
                { category: { $regex : `.*${keyword}.*`, $options : 'i' } },
                { description: { $regex : `.*${keyword}.*`, $options : 'i' } }

            ];

            return productsCollection.find({ $or: query, price: { $gte: startR
ange, $lte: endRange } }, { _id:1, title:1, category:1, price:1, images:1 }).t
oArray();
        })
        .catch(() => {  // returning a reject promise
            return Promise.reject("Server issue with 'products' collection.");
        });
    },

    //------------------------ fetch a product information by filter string
    getProductByFilter: (category, startRange, endRange) => {
        return products().then((productsCollection) => {
            return productsCollection.find({ category: { $regex : `.*${categor
y}.*`, $options : 'i' }, price: { $gte: startRange, $lte: endRange } }, { _id:
1, title:1, category:1, price:1, images:1 }).toArray();
        })
        .catch(() => {  // returning a reject promise
            return Promise.reject("Server issue with 'products' collection.");
        });
```

```
    },
//
    //------------------------ fetch all product information
    getAllProducts: () => {
        return products().then((productsCollection) => {  // returning a found
 json document else returning null
            return productsCollection.find({ }).toArray();
        })
        .catch(() => {  // returning a reject promise
            return Promise.reject("Server issue with 'products' collection.");
        });
    },

    //------------------------ insert/create a new product record
    addNewProduct: (title, description, category, brand, expDate, mfdDate, siz
e, price, stock, images, suggestion, allegations) => {
        return products().then((productsCollection) => {

            // new product object
            let newProduct = {
                _id: uuid.v4(),
                title: xss(title),
                description: xss(description),
                category: xss(category),
                brand: brand,
                expDate: xss(expDate),
                mfdDate: xss(mfdDate),
                size: xss(size),
                price: parseFloat(xss(price)),
                stock: xss(stock),
                images: images,
                suggestion: suggestion,
                allegations: allegations
            }

            // adding a record in to the collection
            return productsCollection.insertOne(newProduct)
                .then((newProductInformation) => {
                    return newProductInformation.insertedId;
                });
        })
        .catch(() => {  // returning a reject promise
            return Promise.reject("Server issue with 'products' collection.");
        });
    },
};
```

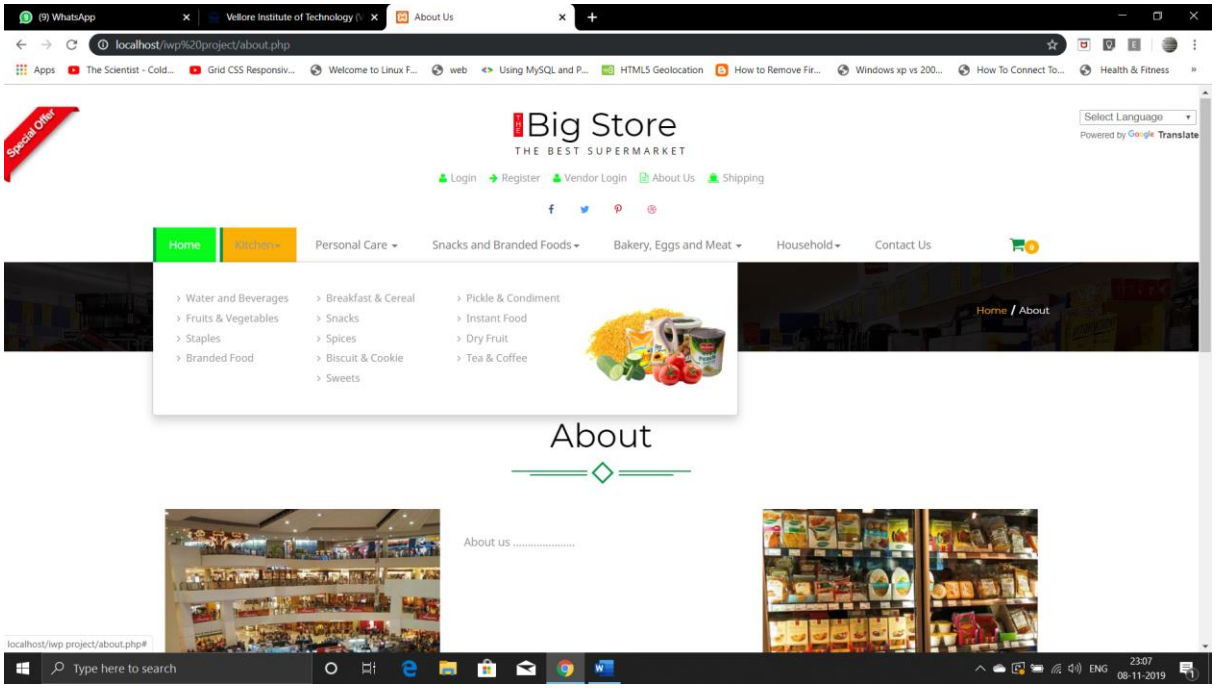
4.2.3. SAMPLE SCREENSHOTS



Input Image 10



Input Image 11



Input Image 12

4.3. TECHNOLOGY 3: MONGO DB

4.3.1. IMPORTANCE OF TECHNOLOGY

MongoDB is one of the most popular NoSQL databases around and is gaining popularity exponentially. Many more developers have started using it and increasing numbers of applications are built using MongoDB. As organisations adopt MongoDB as an integral architectural component of their solutions, it is important that they build it on the solid foundation of data Modelling. The very basic feature of MongoDB is that it is a schema-less database. No schema migrations anymore. Since MongoDB is schema-free, your code defines your schema. The ability to derive a document-based data model is one of the most attractive advantages of MongoDB. Because, the way it stores the data in the form of BSON (Binary JSON), ruby hashes etc., helps to store the data in a very rich way while being capable of holding arrays and other documents. The document query language supported by MongoDB plays a vital role in supporting dynamic queries. Very easy to scale. Due to the structuring (BSON format - key value pair) way of the data in MongoDB, no complex joins are needed. Performance tuning is absolutely easy compared to any relational databases. No need of mapping the application objects to the data objects. Enables faster access of the data due to its nature of using the internal memory for the storage. Since, it is a NOSQL database, then it is obviously secure because no sql injection can be made.

MongoDB can also be used as a file system, which helps in easier way of load balancing. MongoDB supports, the search by regex and fields as well. MongoDB can be run as windows service as well. Good amount of documentation is available. MongoDB does not require a VM to be run. MongoDB follows regular release cycle of its newer versions. The support for Sharding is one of its key feature. Sharding is the process of storing the data in different machines and MongoDB's ability to process the data, as and when the size of the data grows. This results in the horizontal scaling. With sharding, more amount of data can be written and read back as and when there is an increase in the data growth.

4.3.2. SAMPLE CODE

COLLECTION FILE

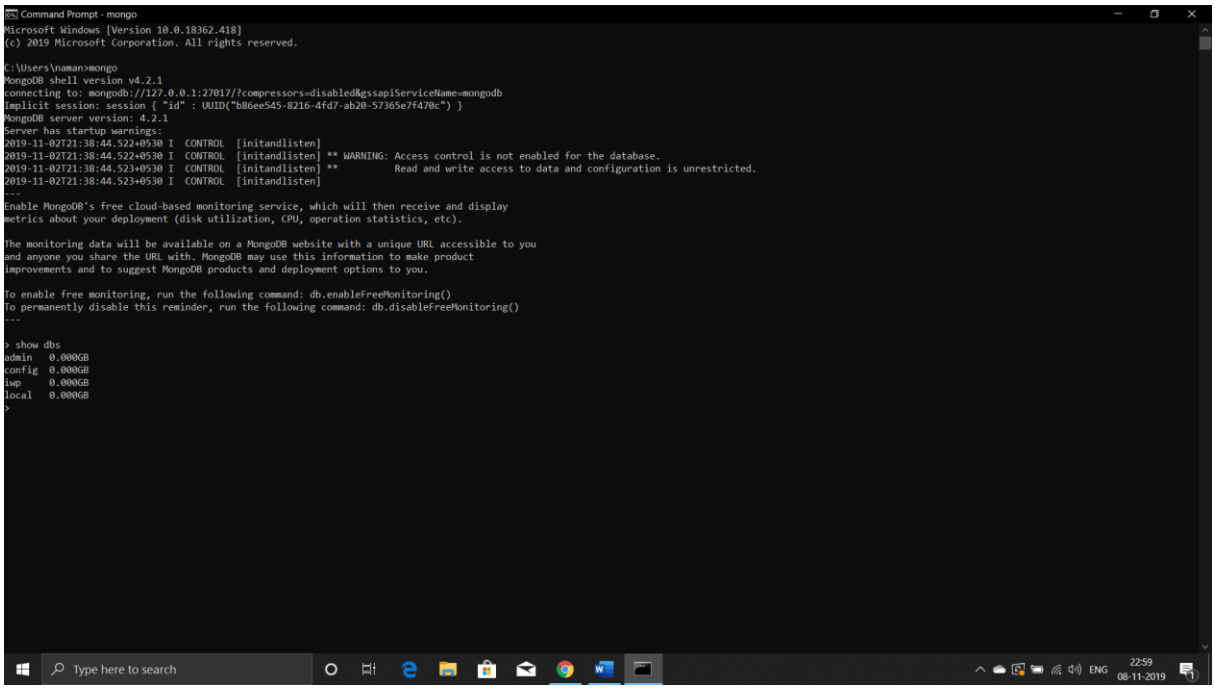
```
/* database collection configuration */
const dbConnection = require('./mongodb-connection');
/* This will allow to have one reference to each collection per app */
let getCollectionFn = (collection) => {
    let _col = undefined;
    return () => {
        if (!_col) {
            _col = dbConnection().then((db) => {
                return db.collection(collection);
            });
        }
        return _col;
    }
}

/* listing collections here: */
module.exports = {
    contacts: getCollectionFn("contacts"),
    credentials: getCollectionFn("credentials"),
    products: getCollectionFn("products"),
    subscriptions: getCollectionFn("subscriptions"),
    transactionOrder: getCollectionFn("orderTransaction"),
    transactionWallet: getCollectionFn("walletTransaction"),
    users: getCollectionFn("users")
};
```

CONNECTION FILE

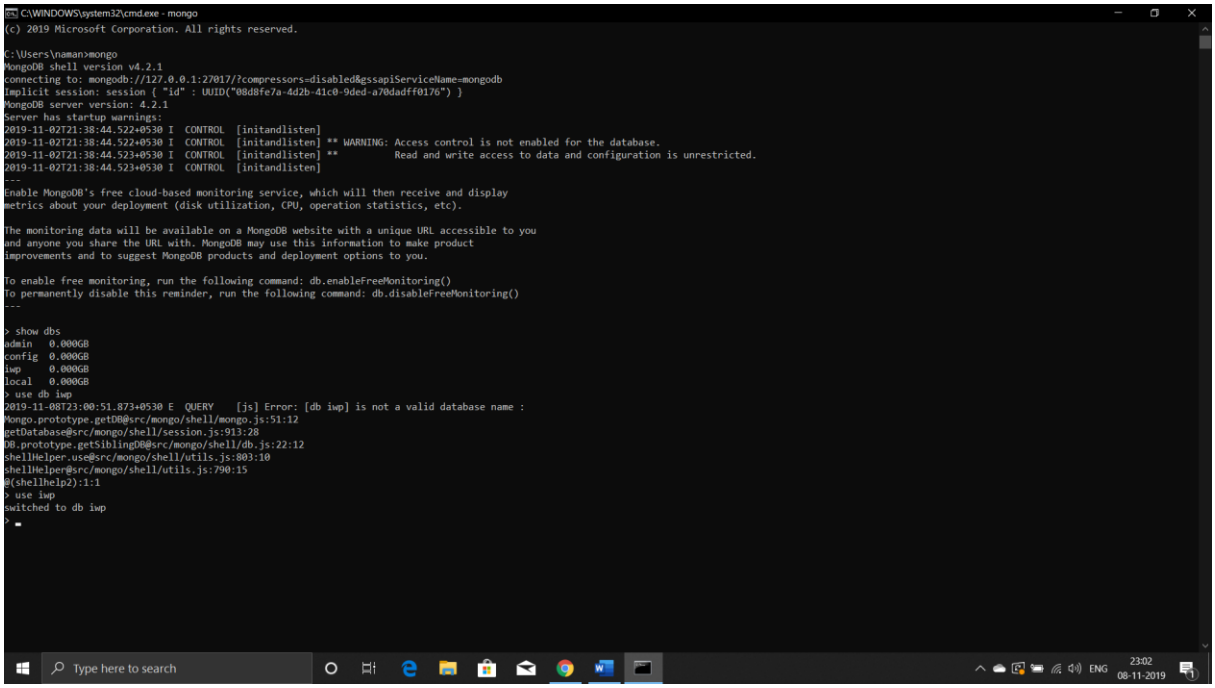
```
/* database configuration */
const MongoClient = require('mongodb').MongoClient;;
```

```
const settings = {
    mongoConfig: {
        serverUrl: "mongodb://localhost:27017/",
        database: "db-grocery"
    }
};

let fullMongoUrl = settings.mongoConfig.serverUrl + settings.mongoConfig.datab
ase;
let _connection = undefined;

let connectDb = () => {
    if (!_connection) {
        _connection = MongoClient.connect(fullMongoUrl)
            .then((db) => {
                return db;
            });
    }

    return _connection;
};

module.exports = connectDb;
```

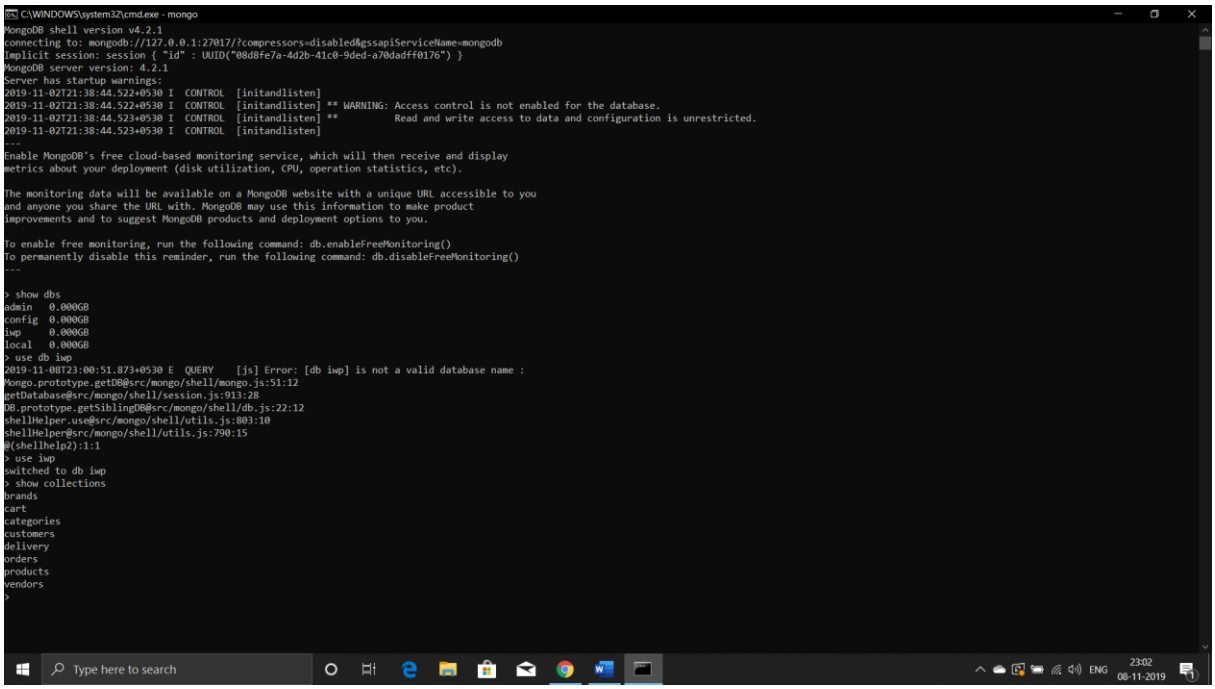
4.3.3. SAMPLE SCREENSHOTS



Show dbs



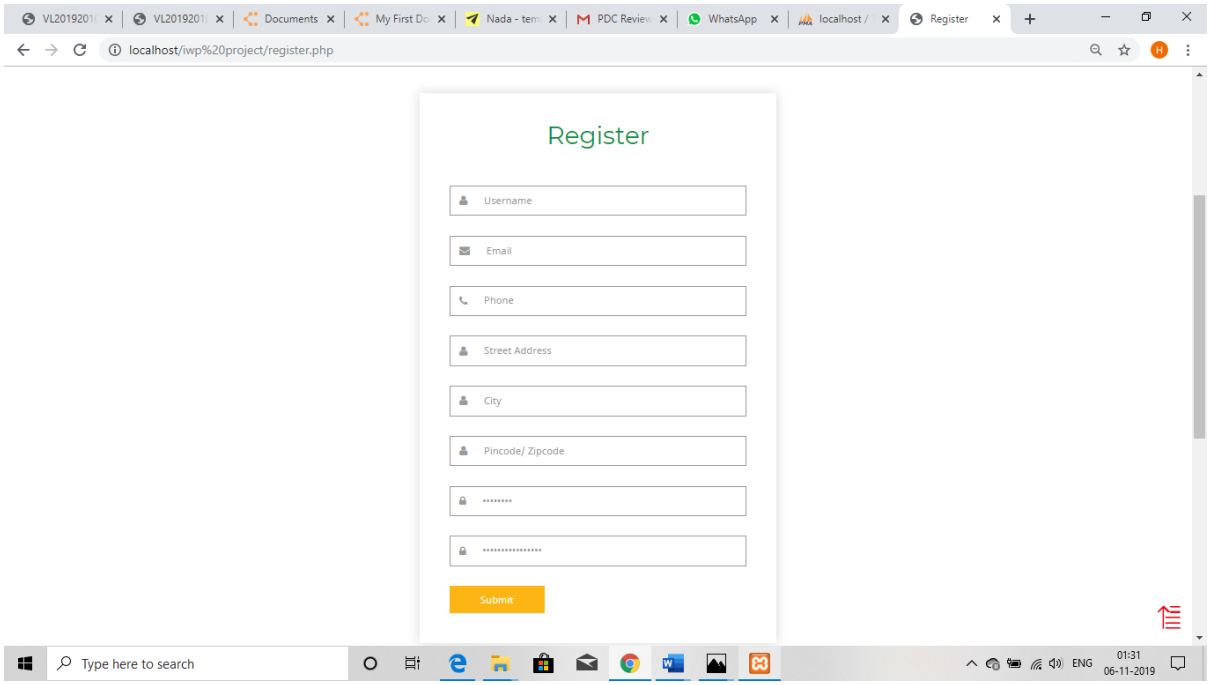
Use iwp



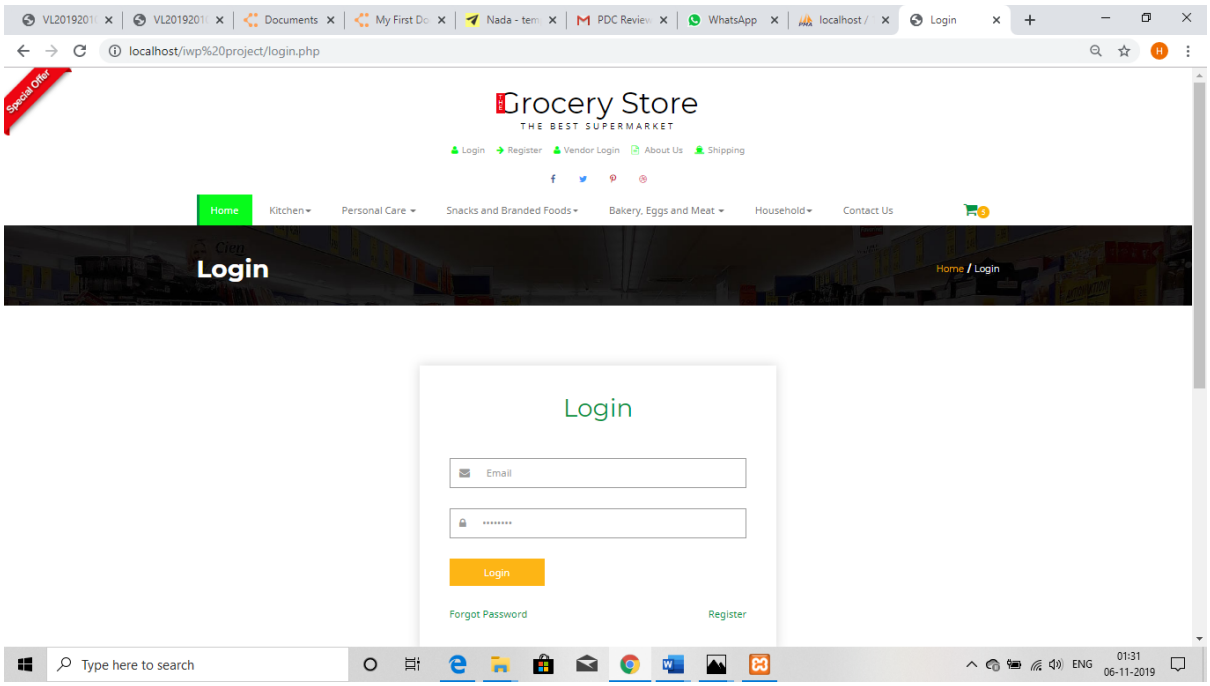
Show collections

5. SCREENSHOTS

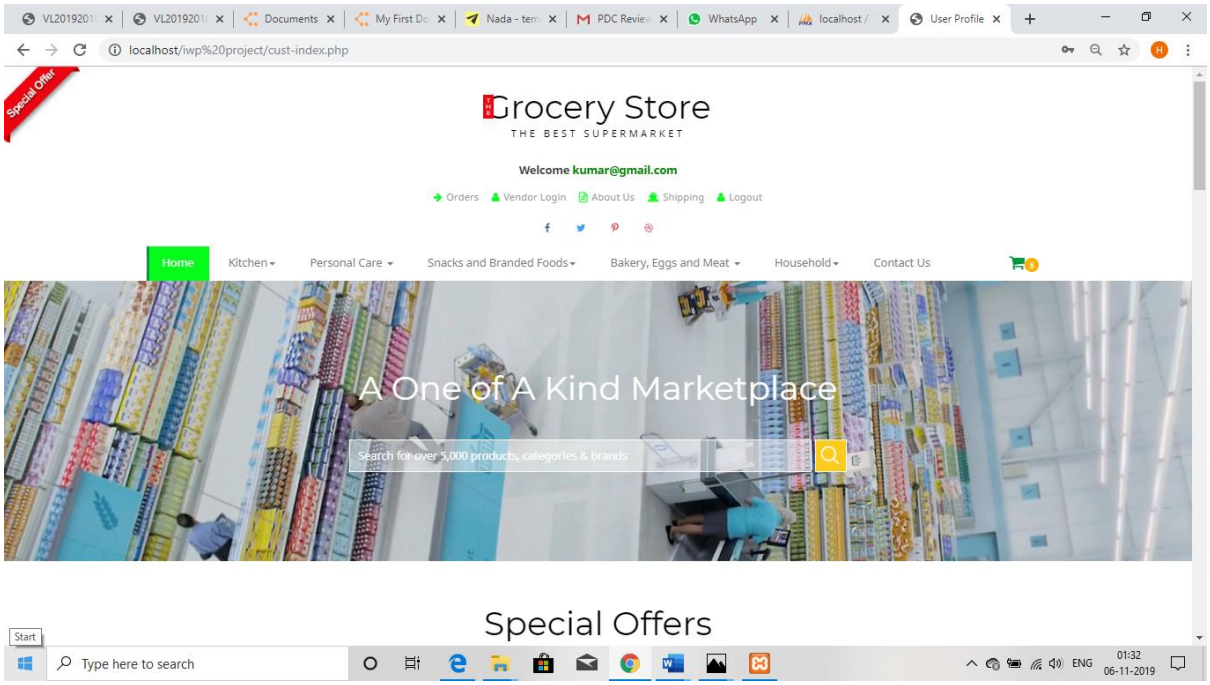
5.1. CUSTOMER MODULE



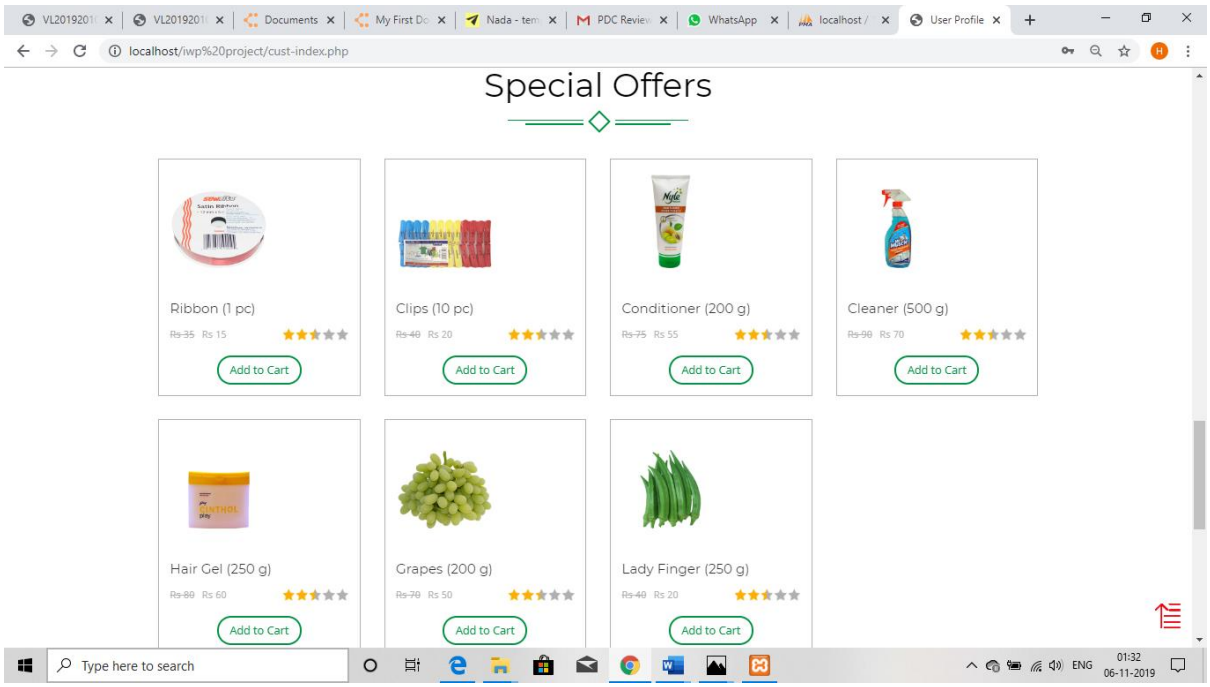
Register As New User(Customer)

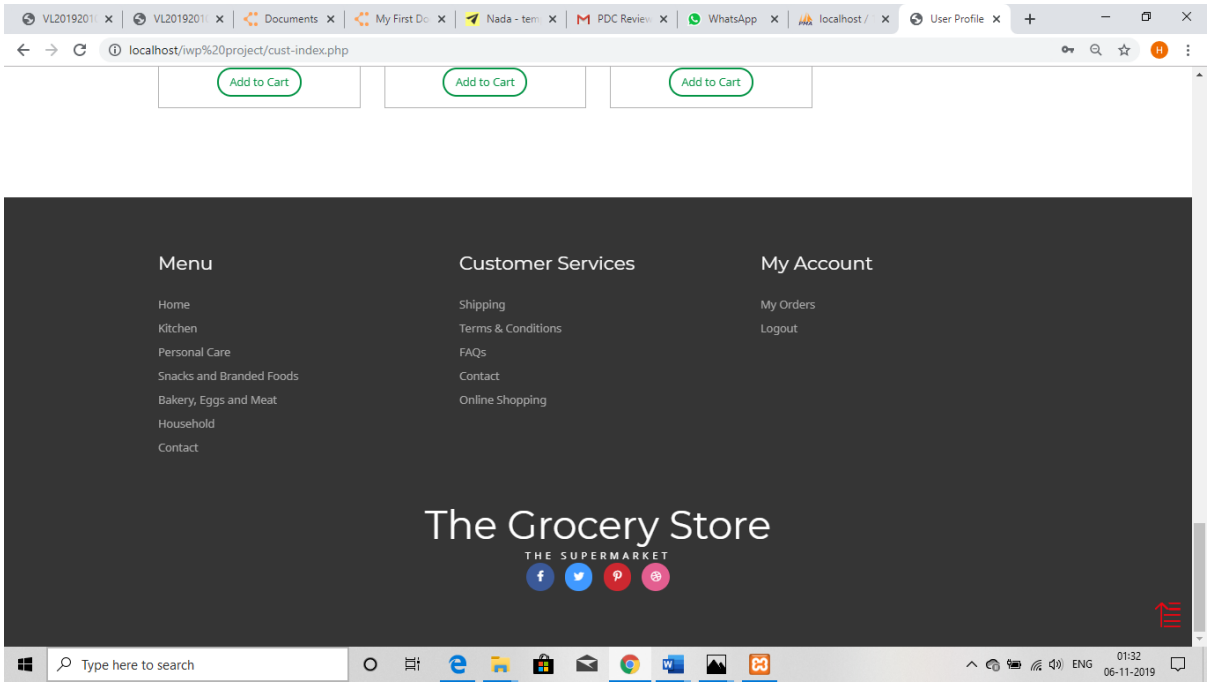


Existing User

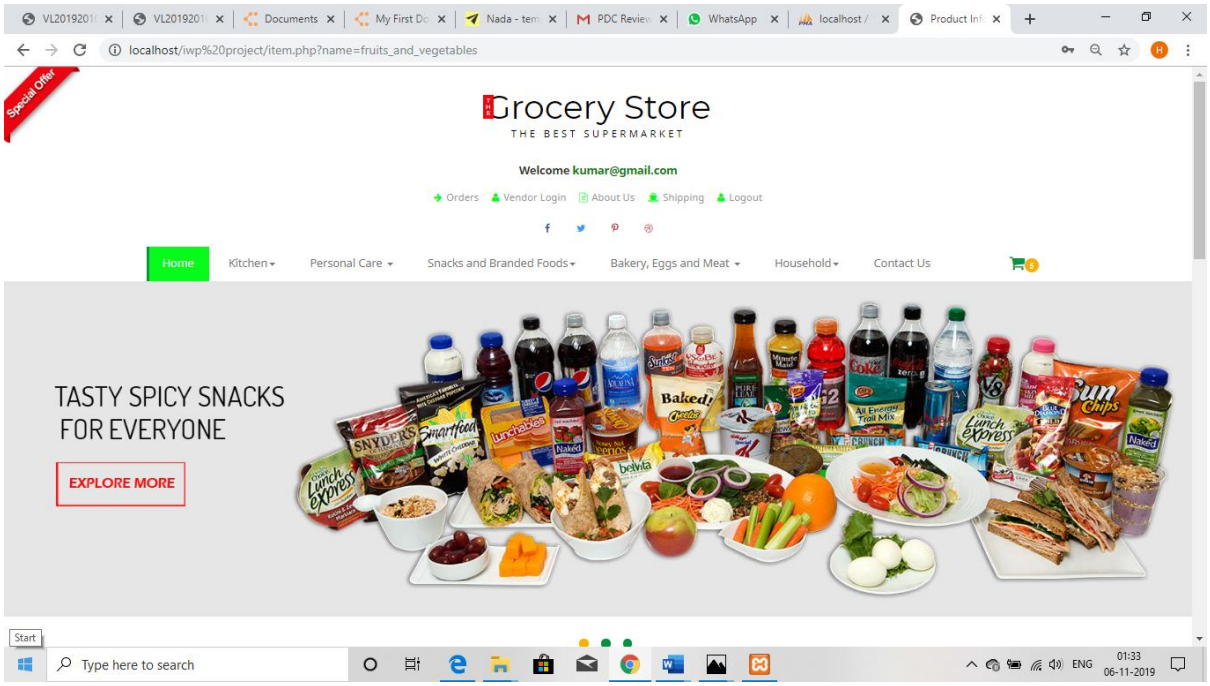


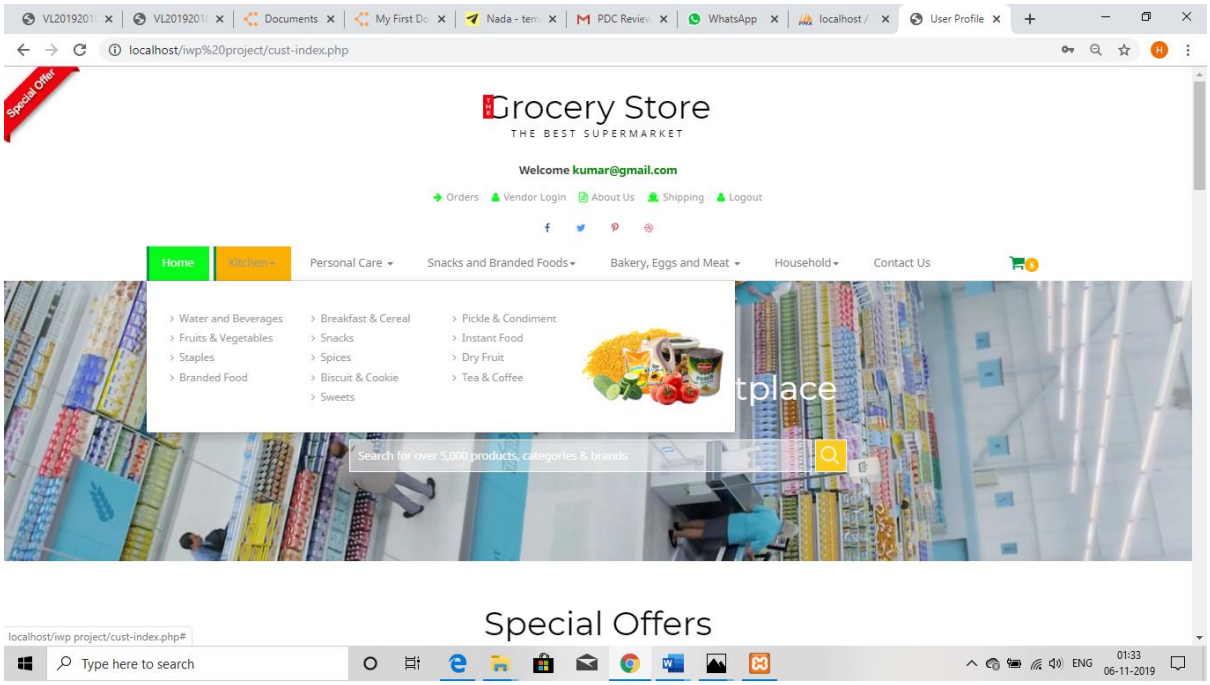
Splash Screen after login



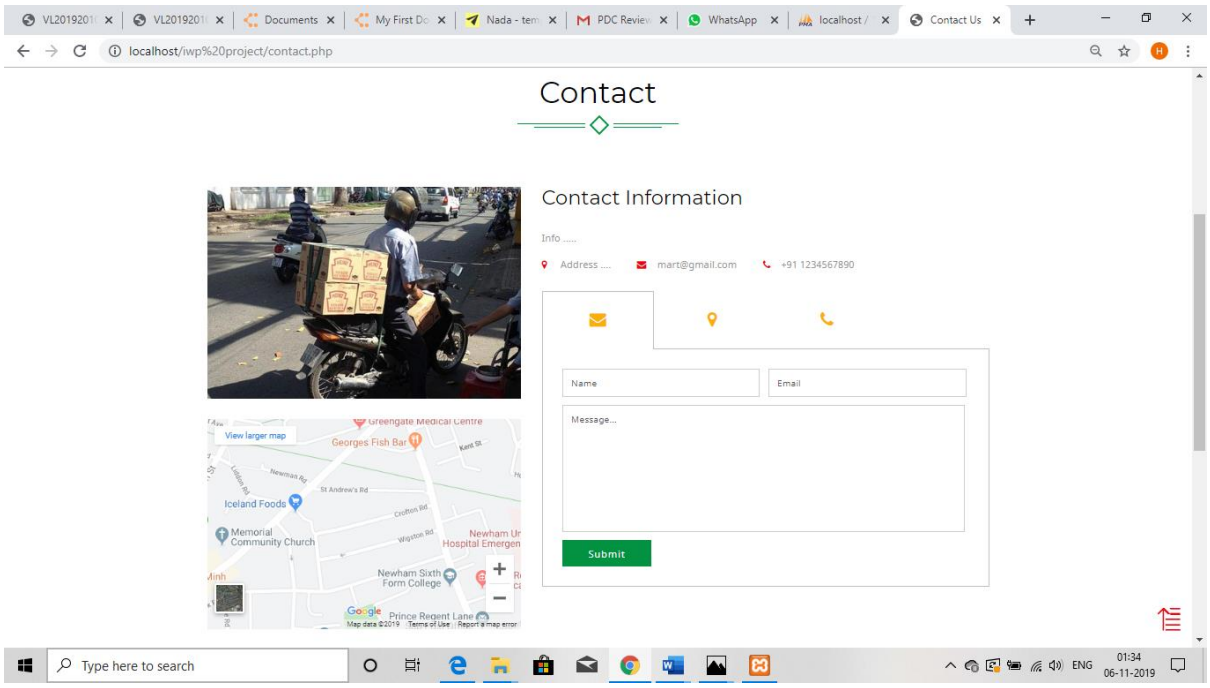


Offers and products visible to user

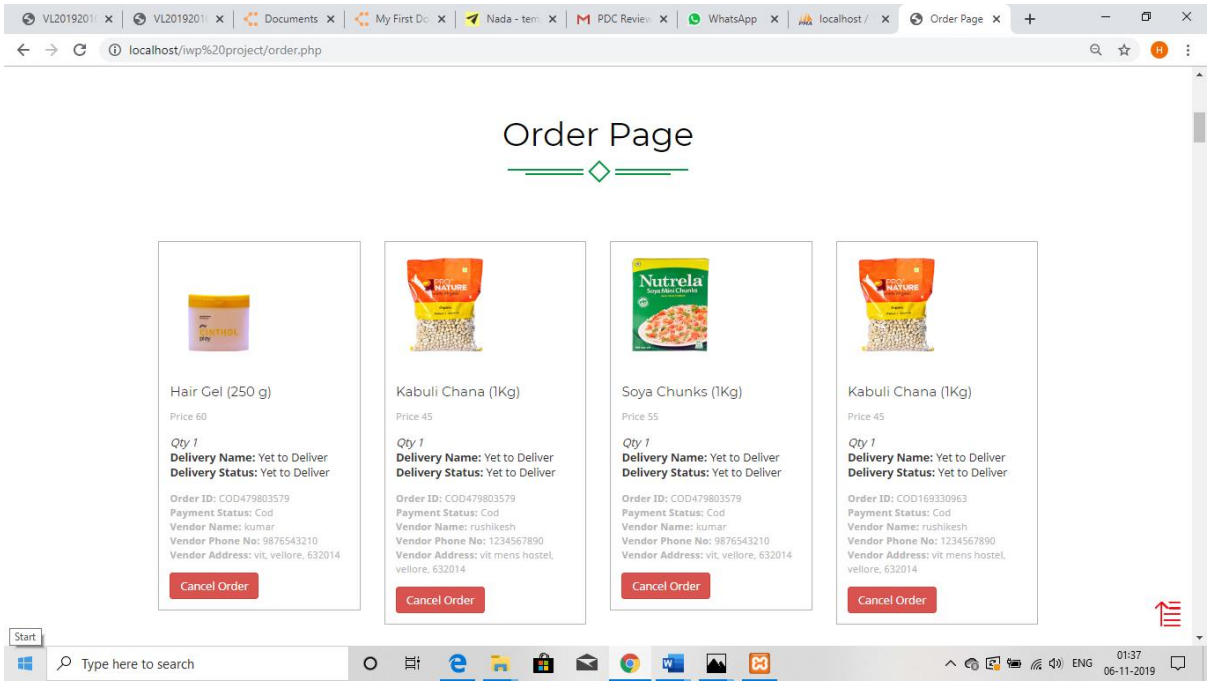




CATEGORIES OF PRODUCTS

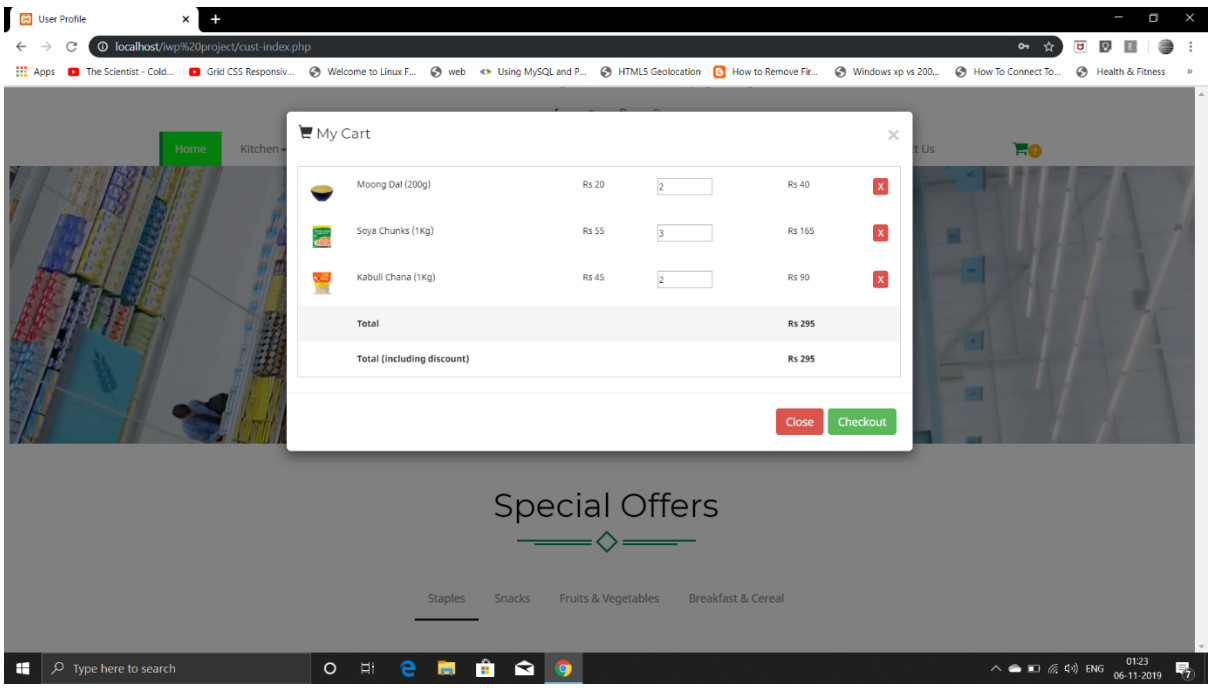


CONTACT INFORMATION

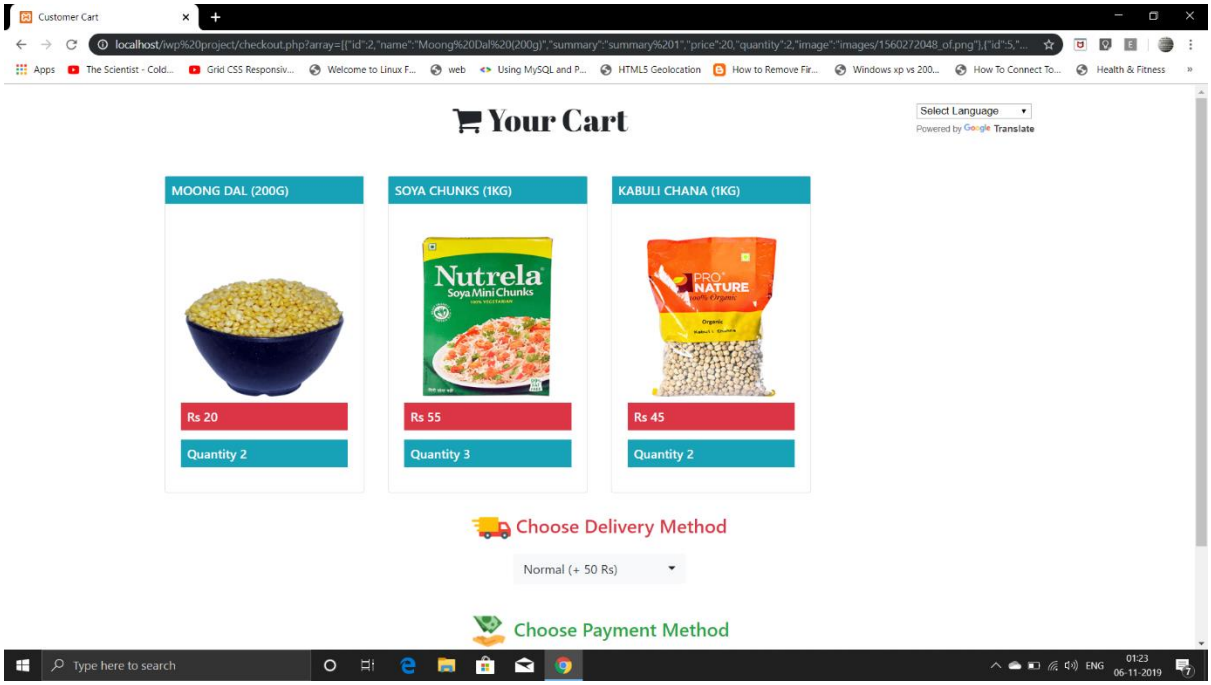


ORDER PLACING PAGE

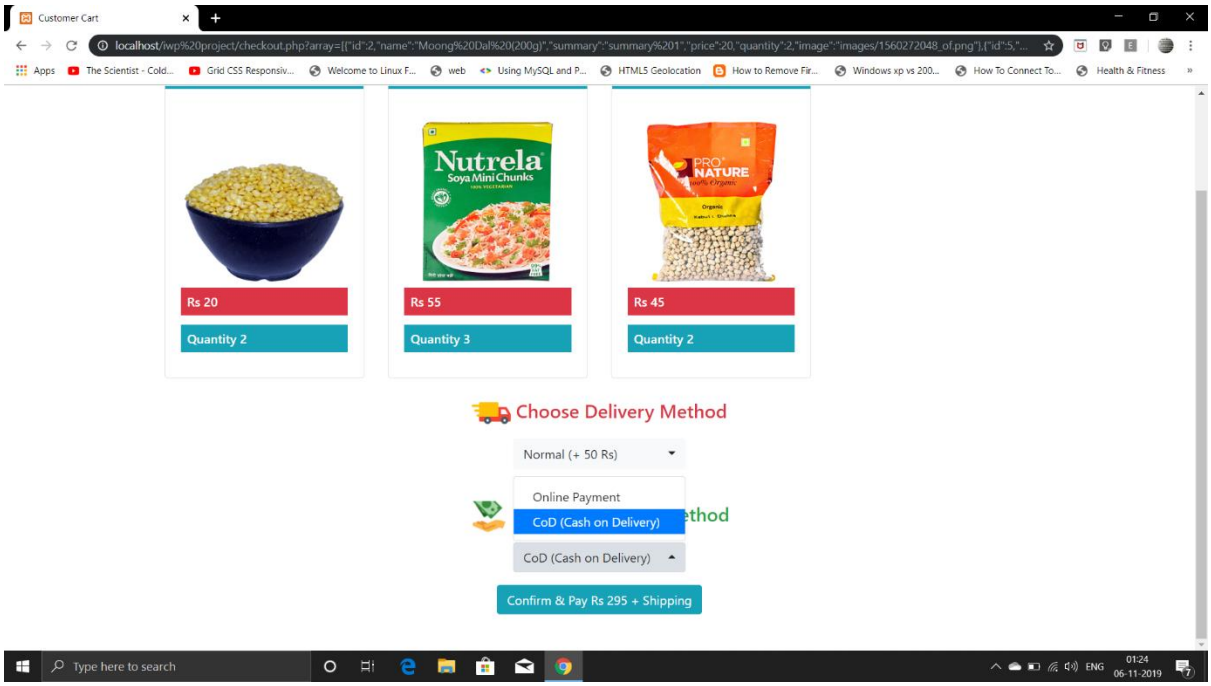
5.2. CART



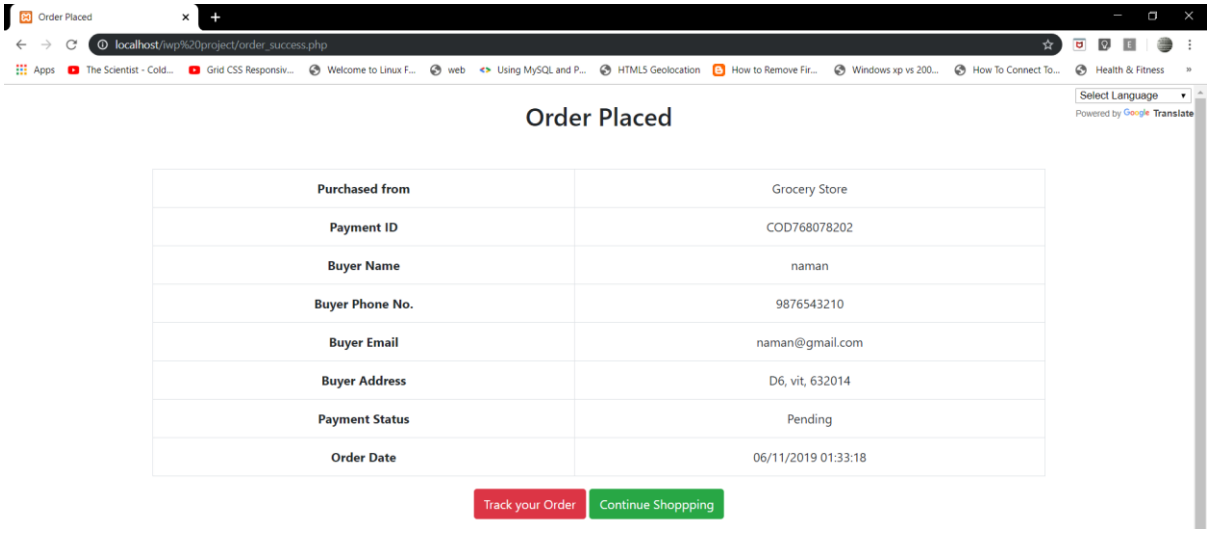
Adding items to Cart



Items in Cart

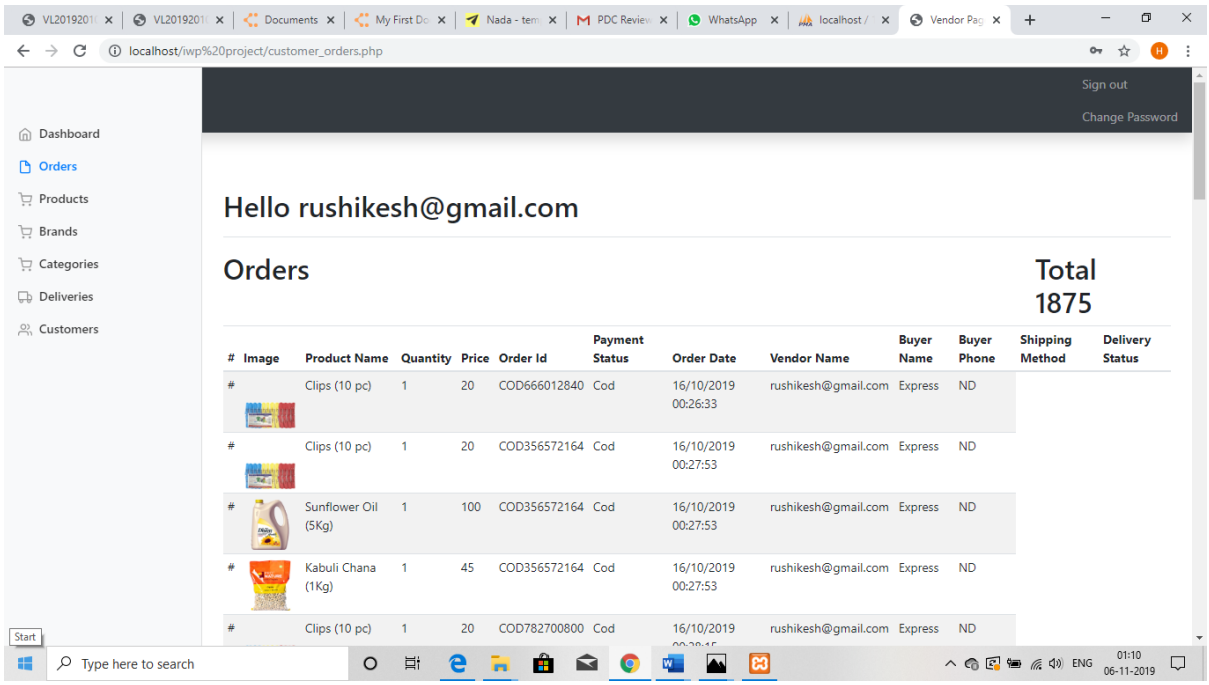


Delivery Options

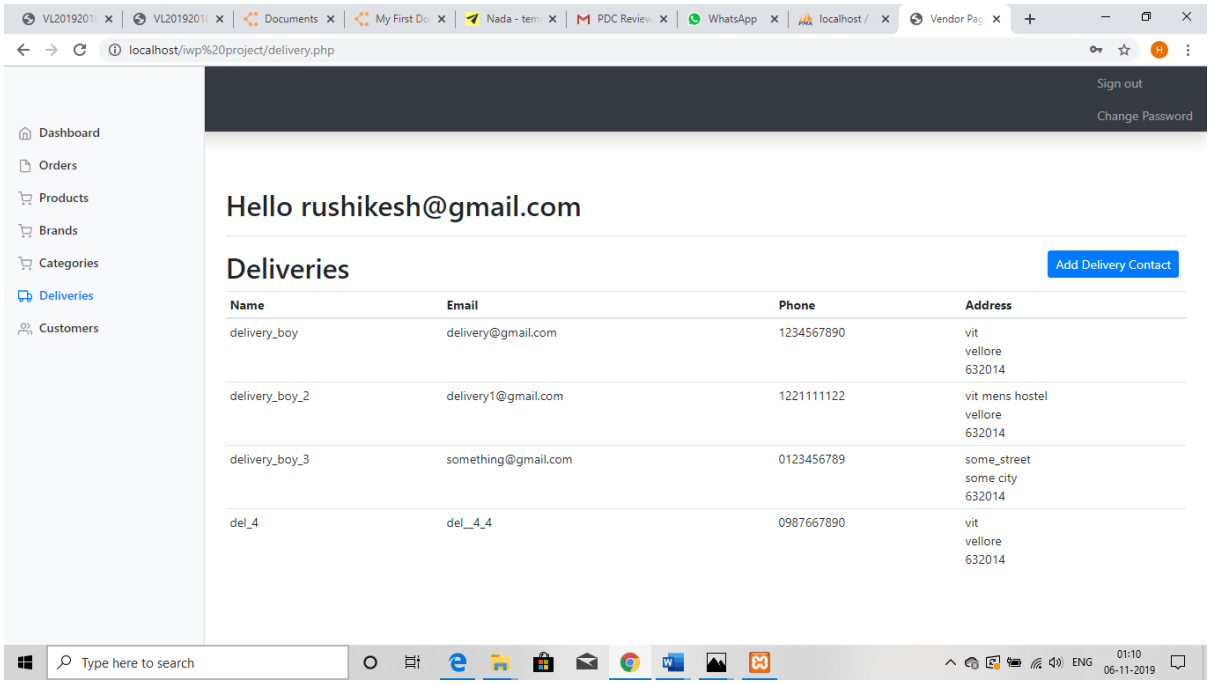


ORDER PLACED DESCRIPION

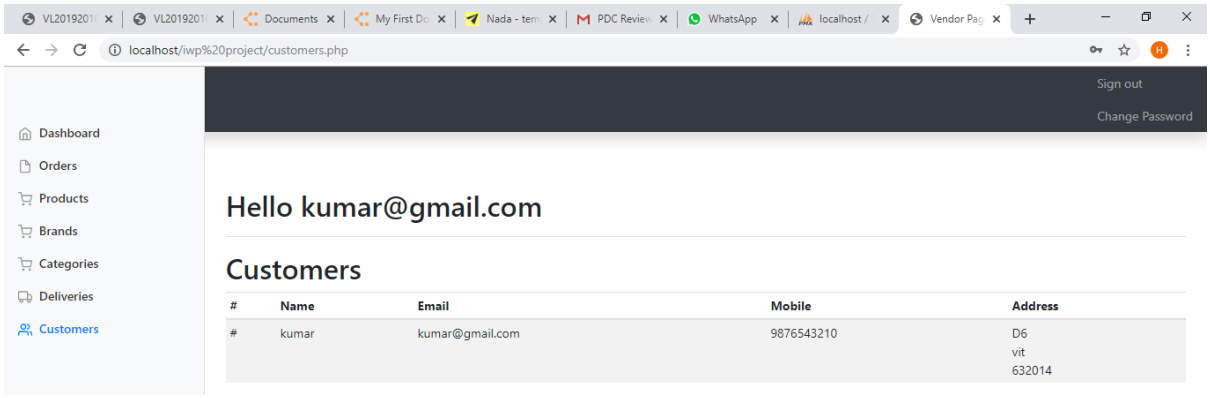
5.3. Vendor Module



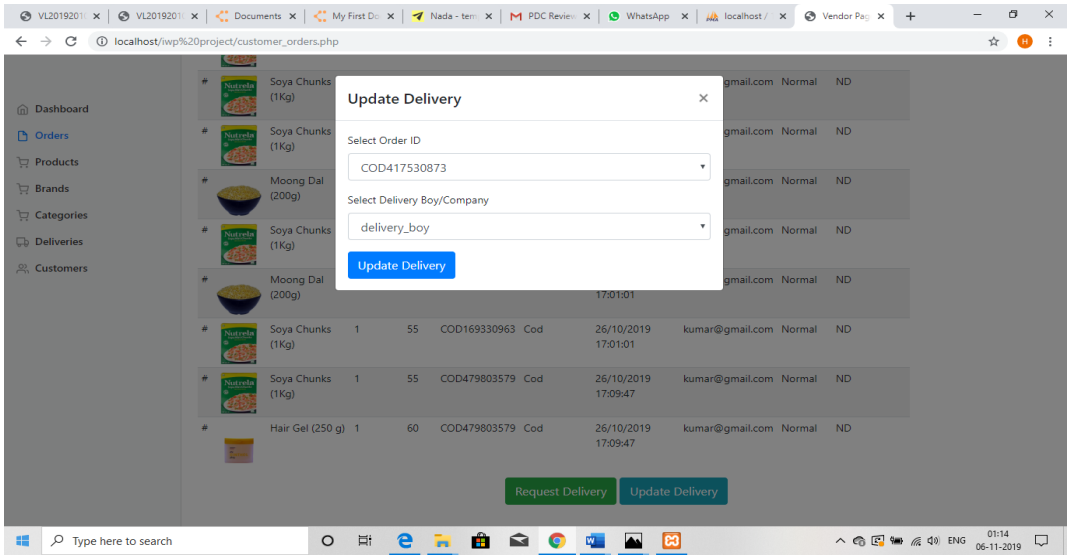
Vendor orders



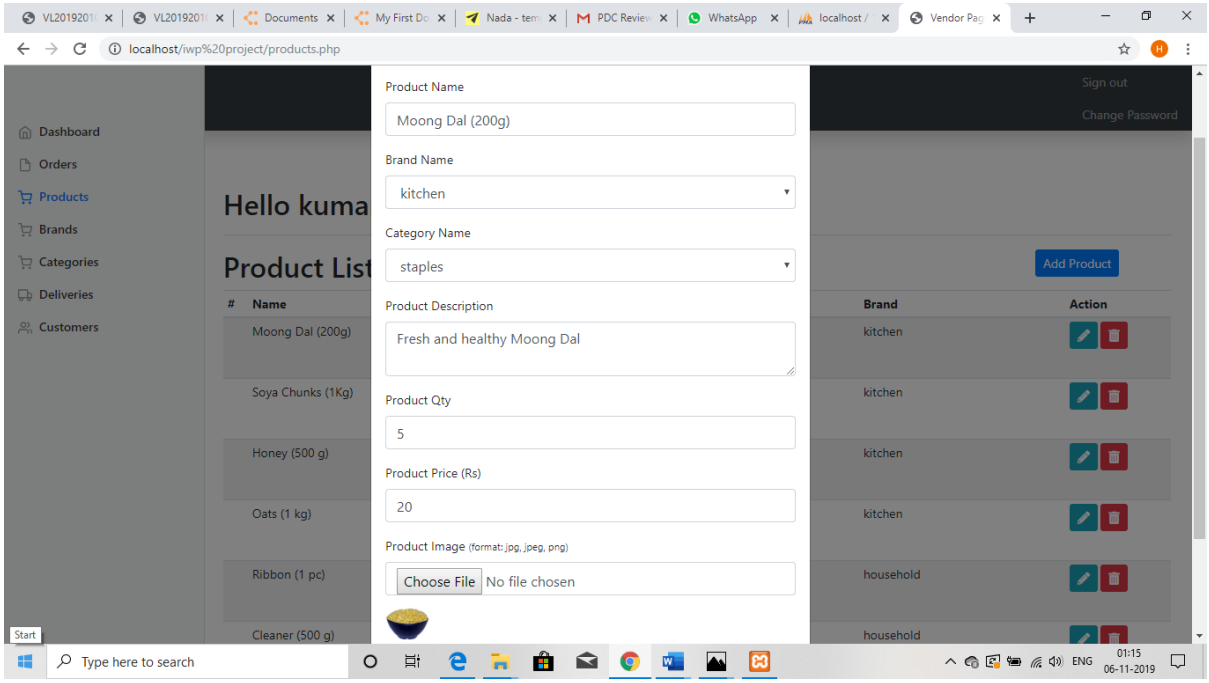
Vendor Deliveries



Customers Ordering



Delivery Boys



Add Product

6. CONCLUSIONS

This is a small prototype of a sales management application for a grocery business. The limitation of the application is that it lacks some features that can be removed and some to added so that it can be implemented in a real-life business situation.

The system is such that it requires the user (customer/vendor or the admins) to login before access other function on the system which are the most important credentials provided by the company or as the user(customer) as filled in their details, without this no proper authentication or validation of the customer is possible.

This project aim is to simplify the daily business activity of the grocer and reduce the time consumed for processing business activity. This project will allow the wholesales man to have a better understanding of the distribution of product and amount stocks.

This project will contribute to improve the efficiency and performance of the business activity of the grocer man. This system will increase the performance of recording all the information related with business activity of grocer salesman like supplier, customer, staff and product and payment information orderly.

Also as we see the younger retailers are taking over the shops and thus they would like this method of online ordering and doesn't have to travel themselves to a number of suppliers/whole salesmen and do bargaining and then order and then wait to receive the

requested goods, also there will be some discount or if possible there can made be a feature such that retailer and whole salesman can bargain over phone or something like that.

Therefore, we would love to see the more proper implementation of our project which would help the grocer salesman or a company to acquire this method of online ordering which is in fact similar to e-commerce but in that the amount of products ordered by a customer is not in bulk. This method of management is for supplying goods in bulk either by small or sometimes big retailers, whoever finds it convenient.