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Web Technologies

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This document delivers the specifications needed for our eCommerce website project.

This Project was build for the Undergraduate course “Web-Technologies”

In Slovak University of Technologies Faculty of Informatics and Information Technologies.

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2) RELEVANT TOOLS AND TECHNOLOGIES:

This chapter presents some discussions about the relevant tools and technologies used to develop the e-commerce web application. Some of the tools and technologies are HTML, CSS(bootstrap) and PHP(Laravel), Javascript (Vue Js), PostgreSQL. PhpStorm Ide.

The frond end of the website is developed in using html, and css.

The backend is in Php and Javascript using Laravel and Vue js frameworks.

Using relational database PostgreSQL for data manipulation.

HTML stands for Hyper Text Markup Language. It is used as the standard markup language for building web applications and web pages. It was originally developed by Tim Berners-Lee in 1991. HTML5 is the latest version of HTML. /8/ CSS stands for Cascading Style Sheet. It is used to style web pages for different kinds of devices and screen sizes. It also saves a lot of time and stress since it can be used to style multiple web pages simultaneously. Its latest version is CSS3

Php storm:

JetBrains PhpStorm is a commercial, cross-platform IDE for PHP built on JetBrains' IntelliJ IDEA platform. PhpStorm provides an editor for PHP, HTML and JavaScript with on-the-fly code analysis, error prevention and automated refactorings for PHP and JavaScript code.

PostgreSQL

PostgreSQL, often simply Postgres, is an object-relational database management system (ORDBMS) with an emphasis on extensibility and standards compliance. It can handle workloads ranging from small single-machine applications to large Internet-

facing applications (or for data warehousing) with many concurrent users; on macOS Server, PostgreSQL is the default database;[9][10][11] and it is also available for Microsoft Windows and Linux (supplied in most distributions).

Application Description:

This application is divided into two parts –The admin part and the client part.

The client part consists of The home page is where customers (buyers) can order and pay for products, and optionally subscribe to an email list while the admin page is where the admin can carry out administrative tasks. The admin page is restricted and can only be accessed through authentication .This means that all the web resources in the admin page can only be accessed by an authorized user.

Normal Requirements

1. The home page of the application should display available products whose quantity is not less than one.

2. Customers should be able to add products to a shopping cart.

3. Customers should be able to view products in the shopping cart.

4. Customers should be able to update product quantity in the cart.

5. Customers should be able to remove any product from the cart.

6. Customer should be able to empty all the products in the cart.

7. Customers should have an option to subscribe to an email list.

9. Customers should be able to view order confirmation after a successful order completion.

10. The admin should be authenticated in order to have access to the admin page of the application to perform any administrative task.

11. The admin should be able to manage (add, update and delete) products and their categories.

12. The admin should be able to view the lists of products and categories.

13. The admin should be able to view the email subscribers' list.

14. The admin should be able to view payment and order details.

15. The admin should be able to update order status.

16 The application should save all customer, product, order, payment and admin data on postgreSQL database.

The use case diagrams for this application illustrate the interactions that exist between users (actors) and use cases (actions) within the application. There are two actors identified for this application – administrator (admin) and customer actors. As a result, there are two use case diagrams for the software application – admin use case diagram and customer use case diagram. The admin is the owner of the e-commerce store who performs various administrative tasks such as add products, view orders, and update order status while the customer is any individual who buys a product or products from the online store.

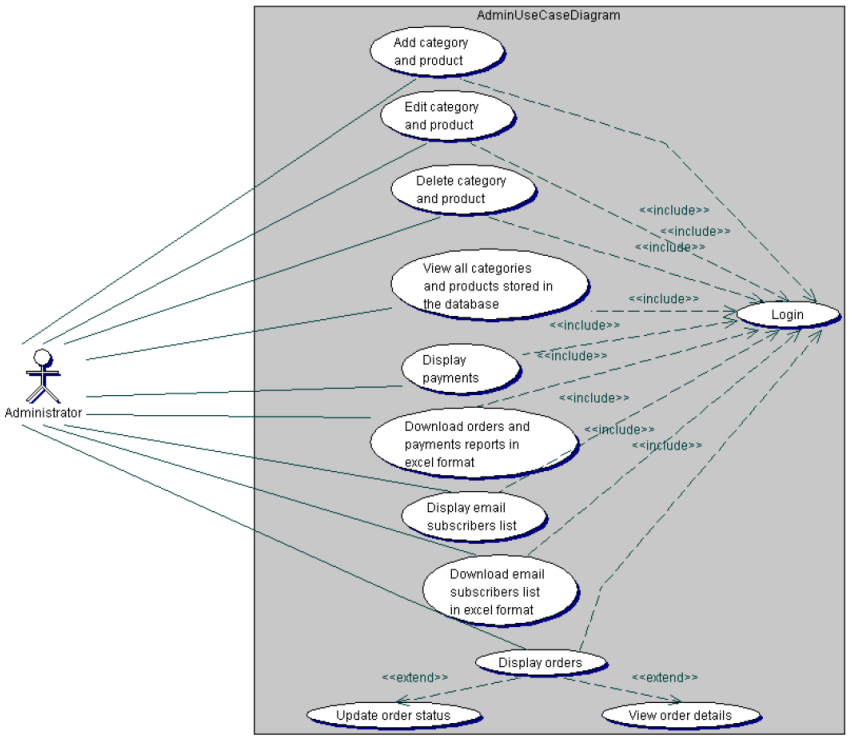
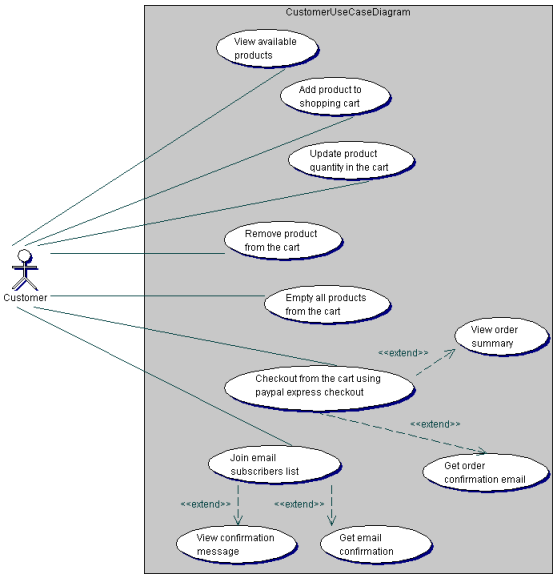
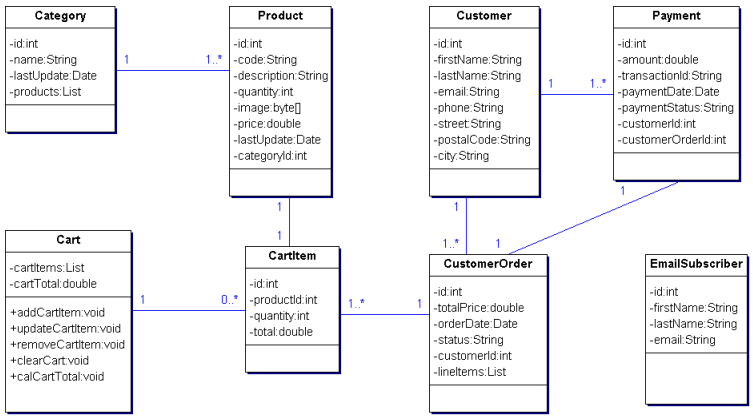


Figure 3 shows the customer use case diagram. It describes the different use cases that can be executed by the customer on the e-commerce application.



A class diagram depicts the classes in a software system and how they interact with each other. Also, the class attributes and functions are illustrated in a class diagram. Figure 4 shows the class diagram for this application. It shows the relationships between classes in the application and constraints applied to these relationships.



DATABASE AND GUI DESIGN

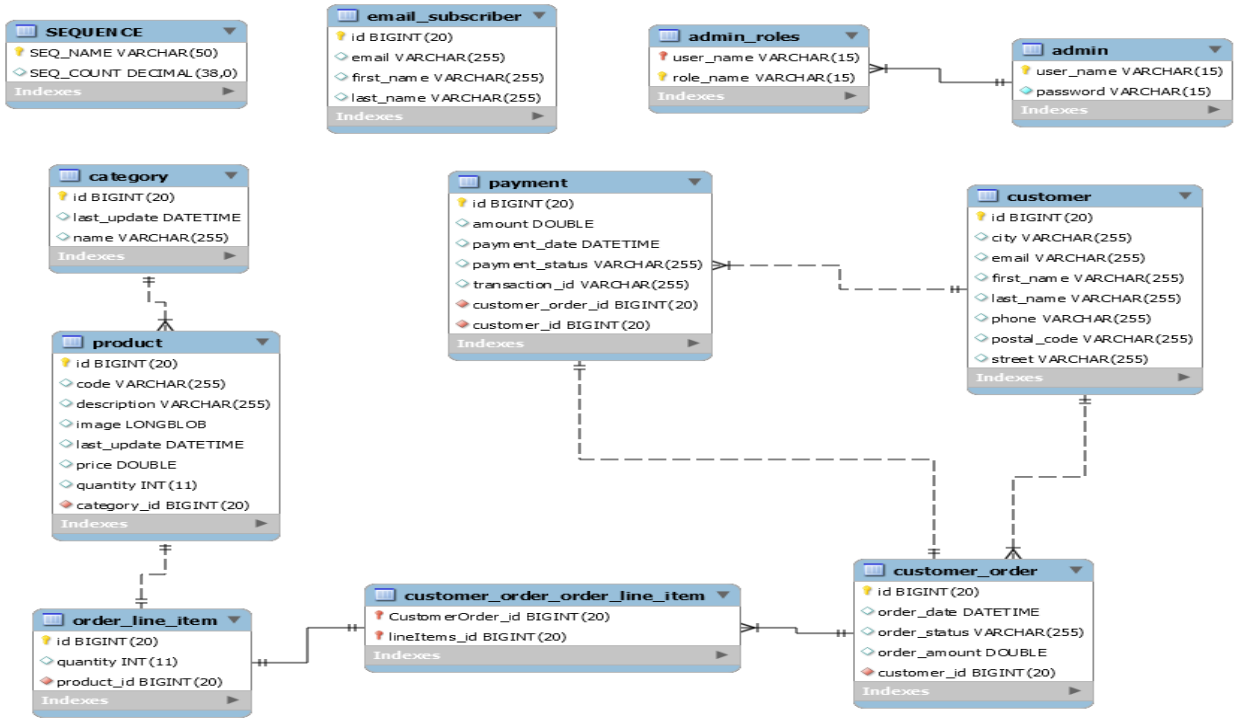
Every web application needs to have an operational database to store its generated data. More so, a simple and interactive Graphical User Interface (GUI) is one of the success indicators of any web application project. This chapter presents the database and GUI design for this e-commerce application.

postgreSQL database management system is the most popular database system for Web applications because of its speed, reliability, and flexibility. All the data generated by this application are managed on PostgreSQL database system. Figure 9 shows the Entity Relationship Diagram of the application database. All the tables (except admin and admin_roles) were generated by migrations based on the relationships that exist among the entities defined for the application, and these relationships are clearly evidenced in the ER diagram. The admin and admin_roles tables were defined for authentication purpose. The following numbered list gives a brief explanation of these tables.

1. Category – Contains category data for the products.
2. Product – Contains product data.
3. Customer – Contains customer data.
4. Customer_order – Contains customer order information.
5. Order_line_item – Contains order line items information.
6. Customer_order_order_line_item – This is a bridge table automatically generated as a result of the one-to-many relationship that exists between customer_order and order_line_item tables.
7. Payment – This contains order payment data.
8. Sequence – Contains data used to automatically generate primary key values.
9. Email_subscriber – Contains email subscribers information.

10. Admin – Contains the administrator credentials for login (authentication) purpose.

11. Admin_roles – Contains roles data of admin.



ER: Diagram

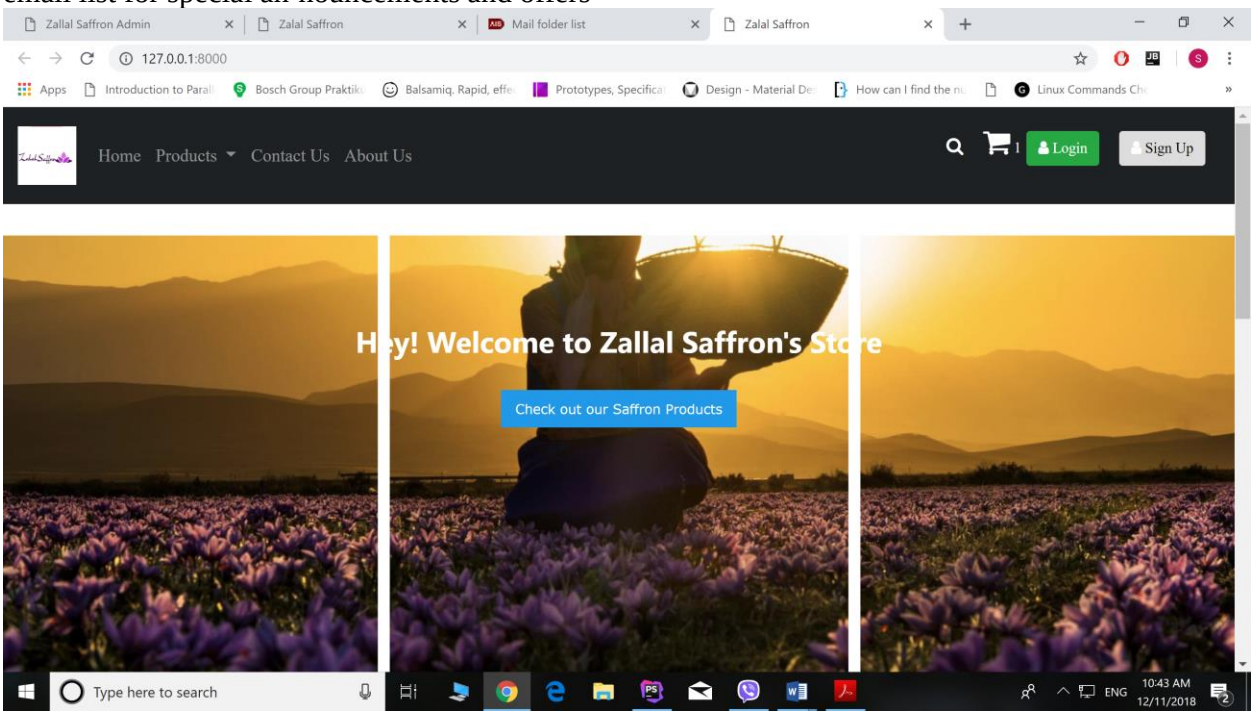
GUI Design

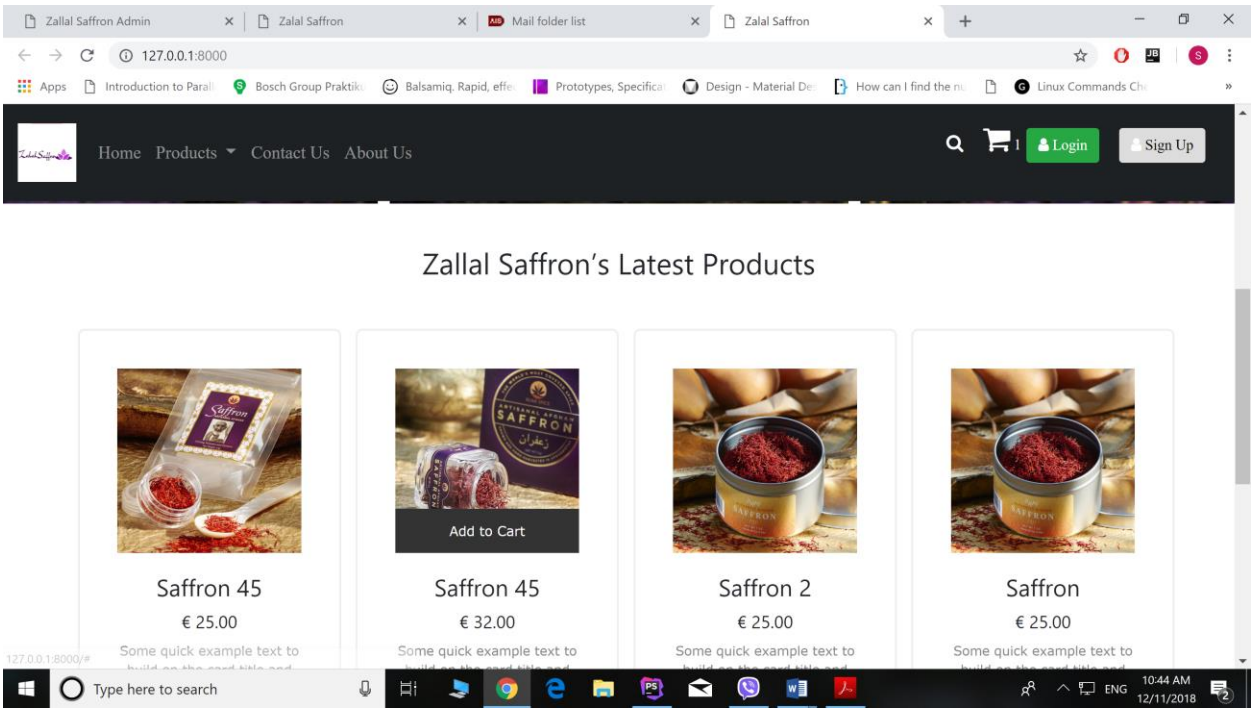
The user interfaces for this e-commerce web application were designed using HTML and CSS. Also, some elements of HTML5 were used in designing the interfaces. The following subsections present the descriptions of these interfaces.

Home Page

The home page of this application is shown in Figure 10. It is the start page of the application where all available products with a quantity greater than zero are displayed and less than four. Also, customers or visitors to the e-commerce store can browse available products by category. On this page, customers can add products to the shopping cart, and there is a link provided to view products added to the shopping cart. More so, a link is provided 31

for customers and visitors to display and fill the email subscription form in order to subscribe to an email list for special an nouncements and offers

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Products
Contact Us
About Us
Login
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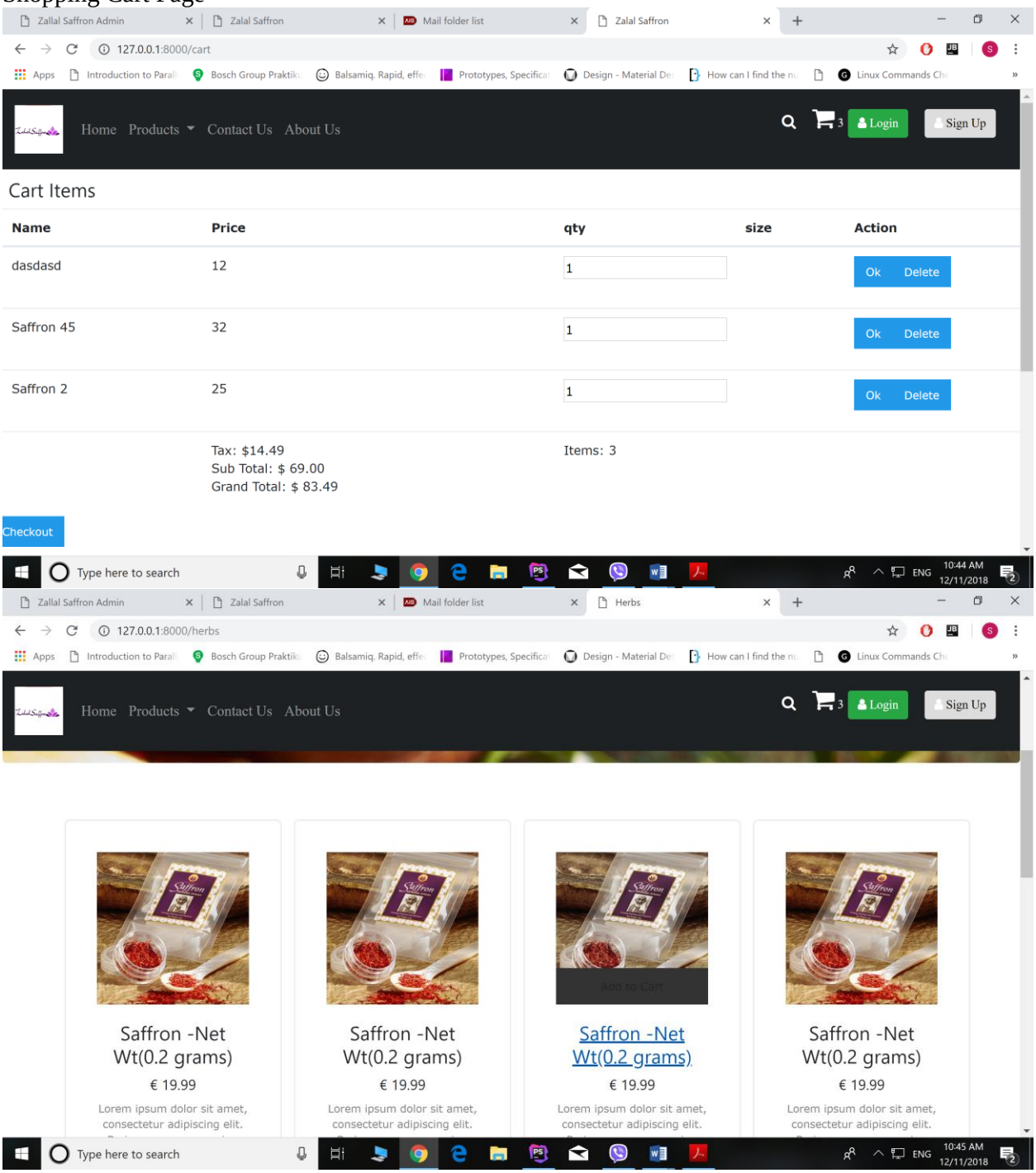
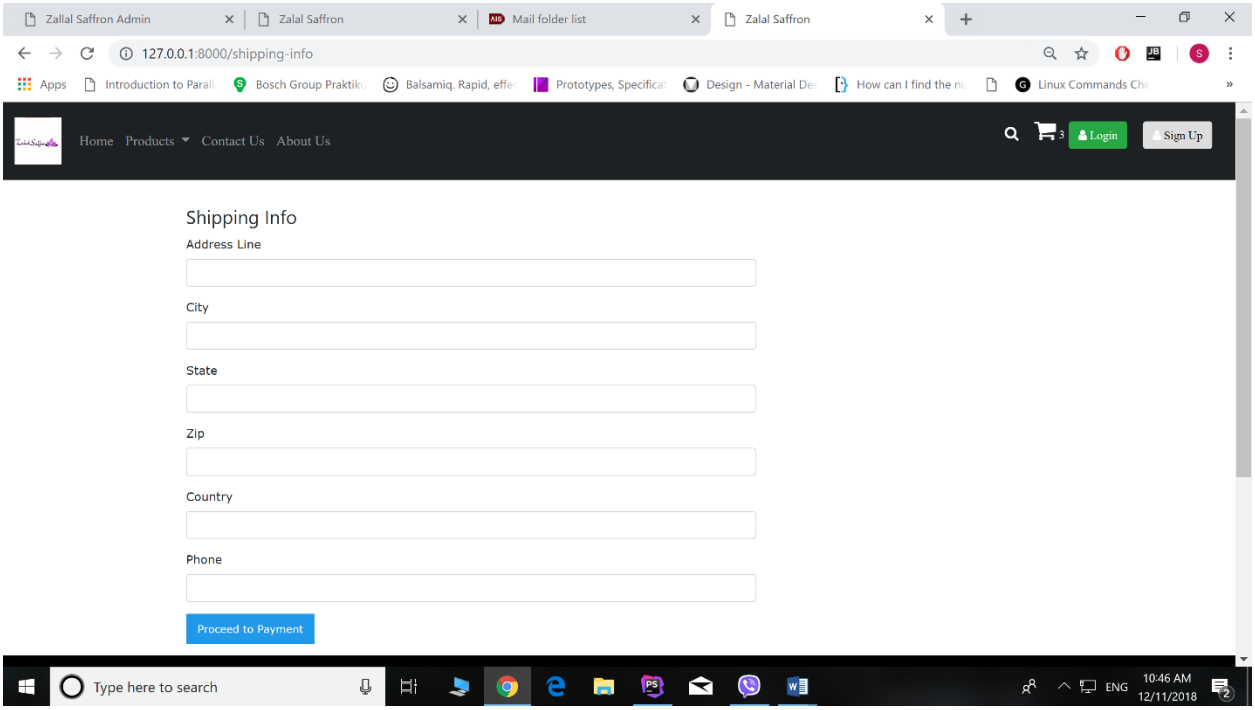
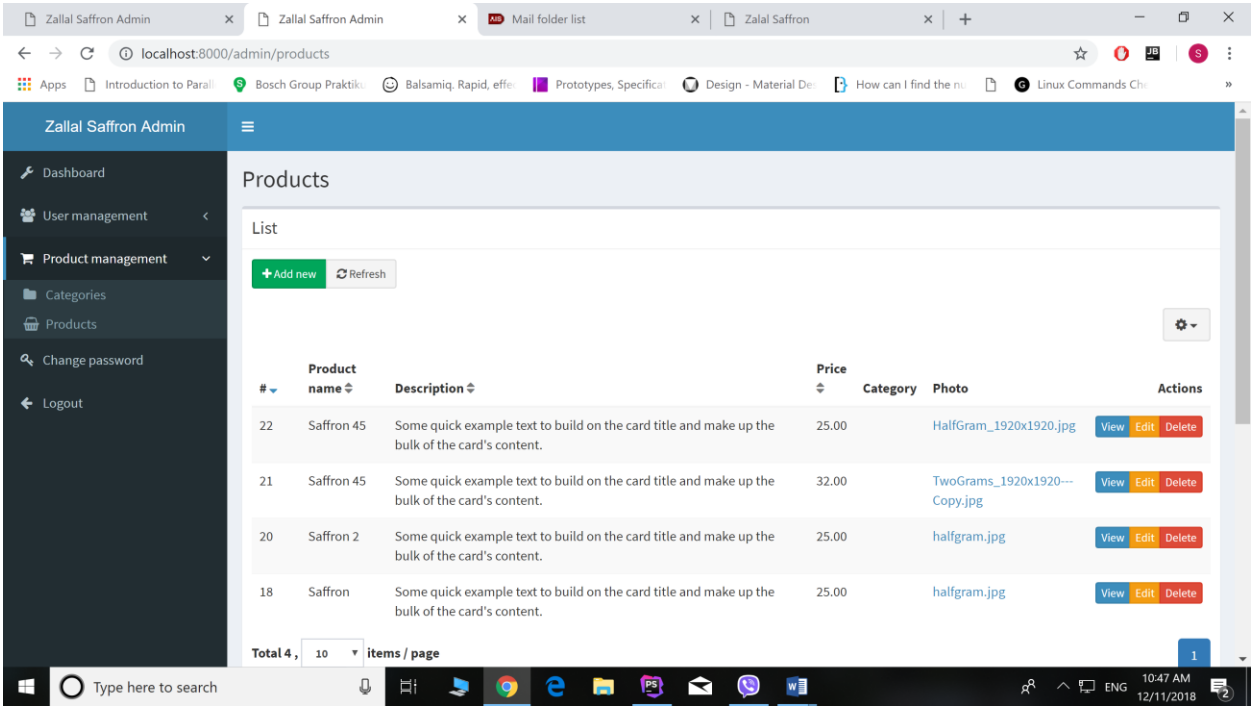
Shopping Cart Page



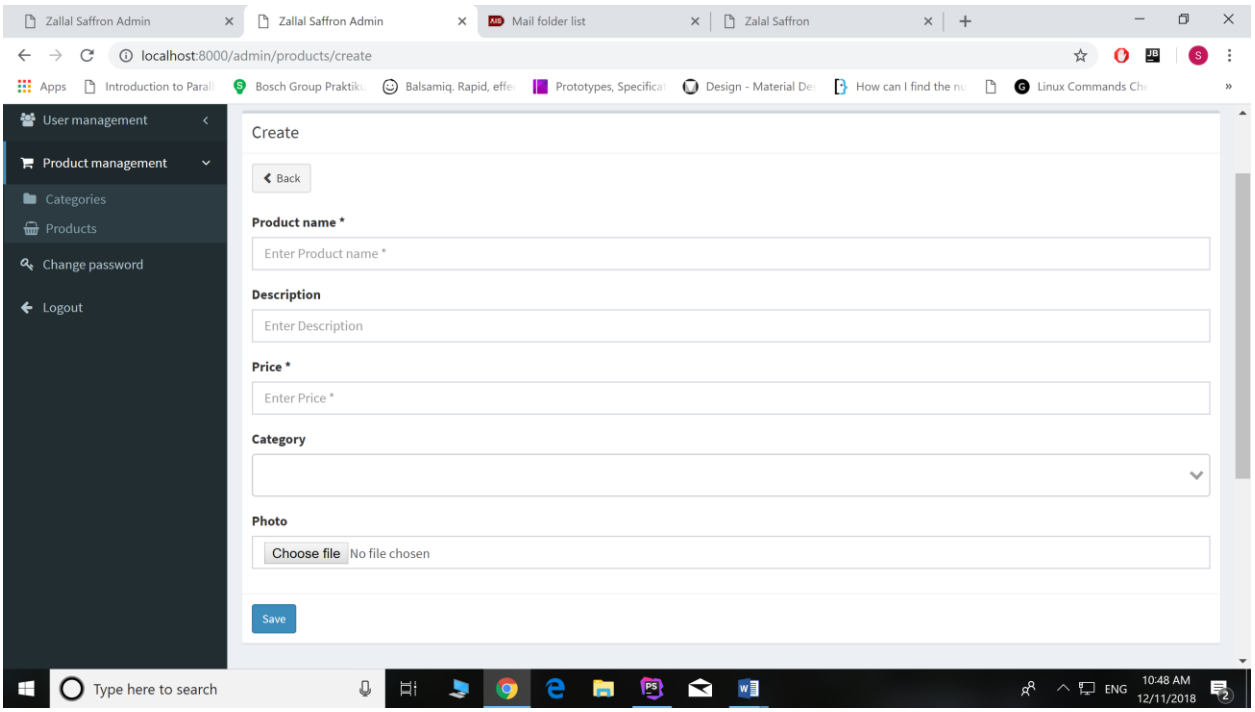
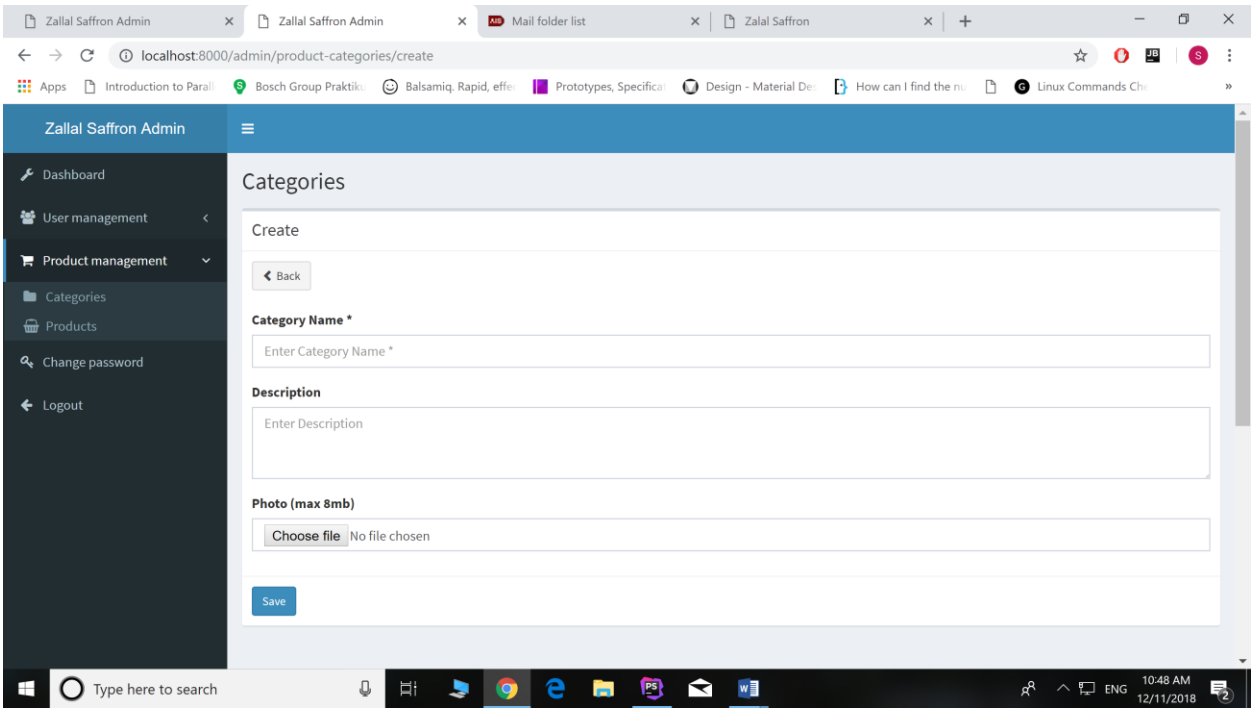
Shipping Formular



Admin Panel



Adding new Product,



Adding Categories for Products