Final Report on

E-commerce Website

"Pc Arena"

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Source Code: https://github.com/sidraziz98/PC-Arena

Abstract

Online commerce websites are a fast gaining as an accepted and a business paradigm. A person sitting on the couch of his home, chair of the office and in the front of the computer can access all the facilities of buying, selling any product.

E-Commerce is now seen as a reality for many businesses and a normal part of a business plan. The immediate benefits, in terms of cost savings, efficiencies and enhanced profitability are clear at every stage in the supply chain. E-commerce website has played a vital role in saving the time and the effort carried out physically by a person to go and get the products. The major advantages of the E-commerce website are user can browse online shops, compare prices and order merchandise sitting at home on their PC.

This paper also identifies the implementation of E-commerce website through the user requirements and the step-by-step process of implementing the website in an effective way. Building a website comprises a complete rethink of traditional modes of behavior, the need and importance to involve internal staff and external suppliers and customers right from the conceptual stage, need to re-evaluate company's core competences, and requires substantial investment in IT. Still Security is the challenge facing e-commerce today & there is still a lot of advancement made in the field of security.

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1. Introduction

This website provides a market place where customers can buy new, used and refurbished products. Cash on Delivery option available for users. There will be unlimited number of site Users and Products Listing. It allows the visitors to view the website in their own preferred way. There will be two product categories: Laptop and Phones. Customer can buy any item just sitting on their couch.

1.1 Purpose

The purpose of this website is to create a platform where people can buy new featured items of laptop and phones, who are fond of such things, can add items to their wish list and can order it through their account on the website.

1.2 Scope

The Scope of this project is to attract people who want to get feasible way of buying items with online convenience where they can order at all hours of the day. The major advantage of this project is time saving. You can make offers even you are at home or Lunch break. User have multiple choices all around the world through which travelling cost is cut off. The use of this website will help you in the select exactly what you are looking for and it will filter out the rest.

1.4 Overview

In today's world, everything is shifted towards remote control. People like to have new technologies in their use. Some people just hates electronic shopping because they are changed timely. Whereas, E-commerce website is a place where you can buy any item from all over the world, it gives you many options to choose perfectly. It's an online sites which saves your time and money too. You can buy new featured items while sitting in the couch of your home or your office. With the secure and safe place Users find a convenient way to buy an item which reduces illegal and fraud cases. The benefits of e-commerce sites make a lot of sense in the world of online shopping.

2.Motivation to this project:

We all know that how actually annoying is to go for a shopping when your busy with the daily Office/University tasks. Beside this in the year 2020-2021, the lock down due to covid-19 invoked the people to move towards the home delivery options without actually visiting to the store. In a technical era, everything is fastly growing towards the technology as it's a cost and time effective. Just like the advancement in the web development, desktop applications are moving towards the websites because it's user friendly and it grabs the audience attention easily. Our basic motivation to do the e-commerce website is to learn the web development so we hqave an idea of how the business websites work? How

important it is to manage the customer attention towards the website through designing the user-friendly interface. The other reason was to launch a website which facilities the user in an effective manner.

2.1 Aims and Objectives:

The Aim of this website is to create a platform where people can easily buy new featured items of laptop and phones, who are fond of such things, can add items to their wish list and can order it through their account on the website.

The aims to build an E-commerce website is;

- To sell more goods and services by using the web.
- To provide customer "e-care", ie. online support.
- To improve customer service and interaction.
- To expand geographic reach.
- To expand into new markets.
- To reduced operating costs
- To reduce the traveling cost
- To save the time of the user by providing the facility of online shopping
- Attract the user towards the usage of the technology [How websites work]

2.3 Description of a few existing similar projects

There are many websites working to provide an effective online shopping facility.

There are many projects some of types are listed below.

Online goods and services:

Any tangible product or service used in between computers or operating systems.

Like Daraz.pk, Amazon, Ali baba, E bay. These all are Vast project operating in the different countries. These all are user friendly websites with multiple functionalities. These websites are build on multiple languages like React js, Scratch, Native React with bootstrap etc. The backend side includes Postgres, My SQL, Django etc. These websites have played an important part in the economy and a banking system through banking payment options.

Banking: Balance inquiries, cash transfers, bills payments, and other banking services can be transacted through the use of a computer and internet connection. Websites like HBL. National Bank, etc.

Food ordering: Food chains and top-tier restaurants offer food delivery through online orders from their dedicated company websites, e.g: Foodpanda.

These all websites work on the idea of online ordering system through browser via active internet. These websites have played an important role in the situation like Covid-19. In 2018, an estimated 1.8 billion people worldwide made an online purchase. Chinese platform, Taobao, is the biggest online marketplace with a gross market value (GMV) of $484 billion. For context, Tmall and Amazon ranked second and third with $458 and $339 billion GMV in annual third-party global market value respectively.

2.4 Innovation in the project:

For small business, e-commerce websites open many doors to the opportunities. This website has been made on a small platform to entertain the small community. This project will be carried out in the future on larger scale with the idea of entertaining the larger community. Our website has user-friendly interface as like a Layman can easily use it. It has very basic functionalities in order to engage the audience interest. This website is made on the latest technical languages like React js, MySQL which provide a smooth flow for user requirements.

3. The Overall Description

The product will consist of two categories, Laptops and Phones etc. The product will be displayed on website as soon it comes from Company, So, user will have a chance to get latest products in their hands!

Major components and their interaction

- User can see the displayed item only with valid Email id and password.
- In case of forget password, system will allow user to reset the password.
- User can search any item and view it.
- User can save the items
- User can like, share and report the item.
- User can view his shopping annually; Administrators will save a Database Backup periodically.
- New Arrivals and Featured Products (manageable by portal admin team).
- Buyer can create multiple wish lists and can add their favorite products to any of the wish lists

- Ability to edit personal information

- Billing & Shipping Addresses Management
- Orders History & Order Confirmation
- User can contact admin in case of facing any issue from websites.

USER REGISTRATION PROCESS

- User Registration with specific fields like Username, Name, Email, Password, Login Module for user login from the front end and user has Recovery Password Option too.

User Profile:

- After login user can view and edit their profile page. User can change the password. The profile page has My accounts, My orders, My wishlist options.

ADMIN FUNCTIONALITY

- Admin can view the entire user list, and can edit the user profile details. Admin has authority to delete Block any user.
  - Admin can able to add images and Admin can also view/edit the images. Admin can delete the images too! Website will have following Menus in the Home page.
- Home
- About us
- Products
- Categories and sub categories
- Contact us

3.1 Product Perspective

The Website has two users Buyers and Seller. Product will be displayed in the form of image. Seller can manage all items for sell according to his choice. System will have some database online connection to faster retrieve the data.

3.2 User Characteristics and classes

User and buyer should know how to use internet and basic actions. This website will allow following user actions.

For user: Signup, Search, Follow, Add to cart, Save

For seller: upload item, set price, sell item

3.3 Assumptions and Dependencies

The user can use this website only with authentic ID and password.

To switch to seller account, you need to first register as a user.

4. BEHAVIOR REQUIREMENTS

4.1 Use Case Diagrams:

Software Requirement Specification
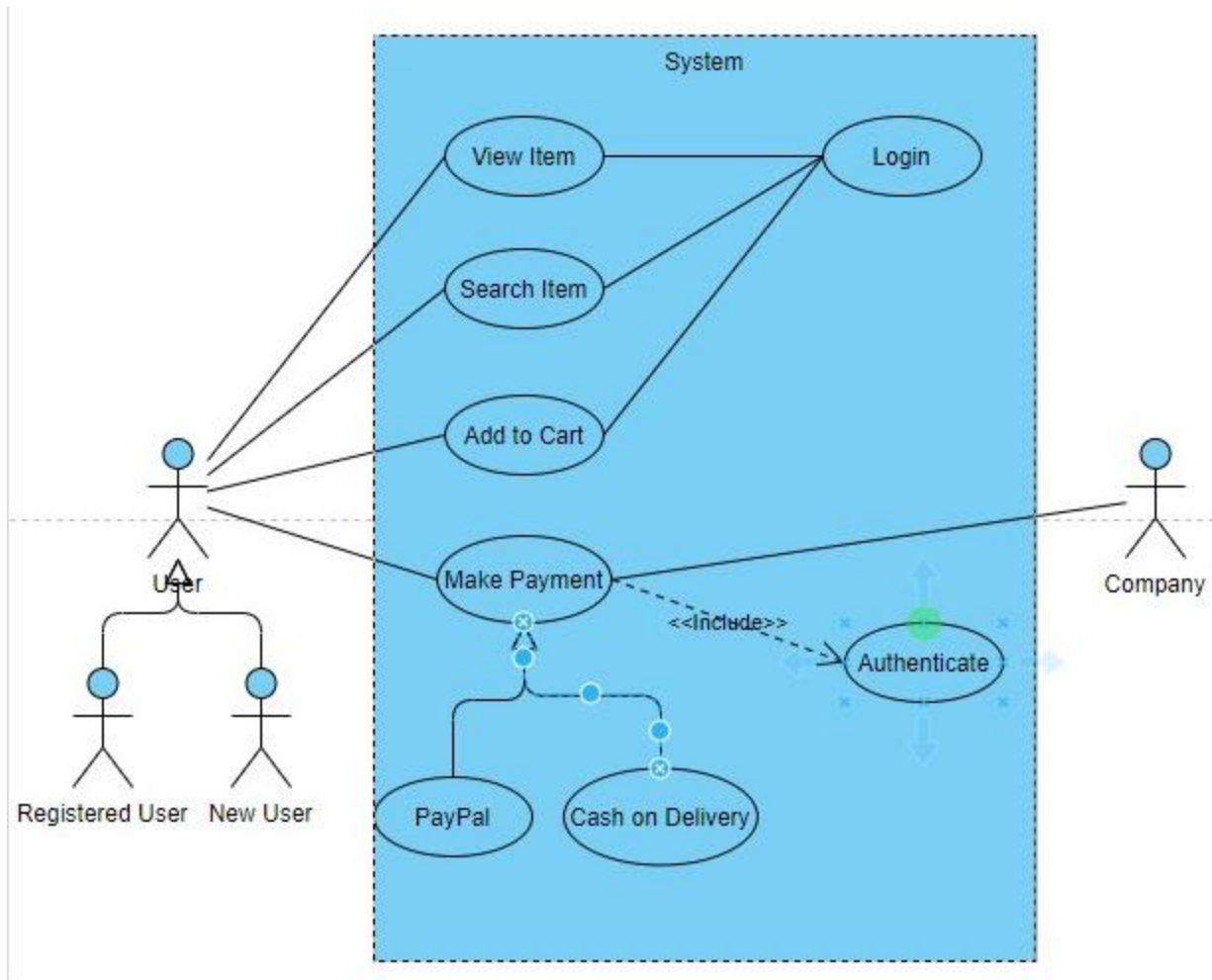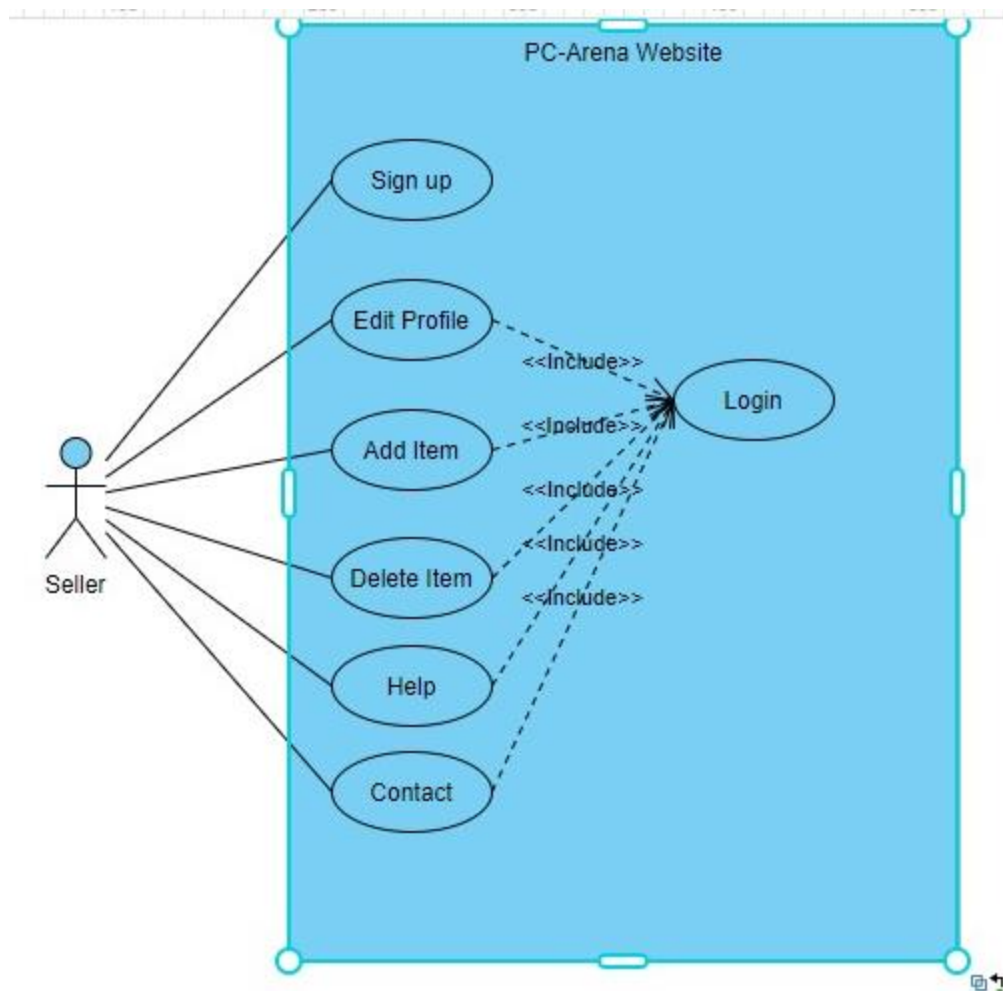
User Characteristics: User should be familiar with the terms like login, register, order system Principle Actors: Principle Actors are Customer and Administrator.

4.2 Class Diagrams:

Class Diagrams show the super class and the components of the class. This idea is implemented while designing the backend of the website.
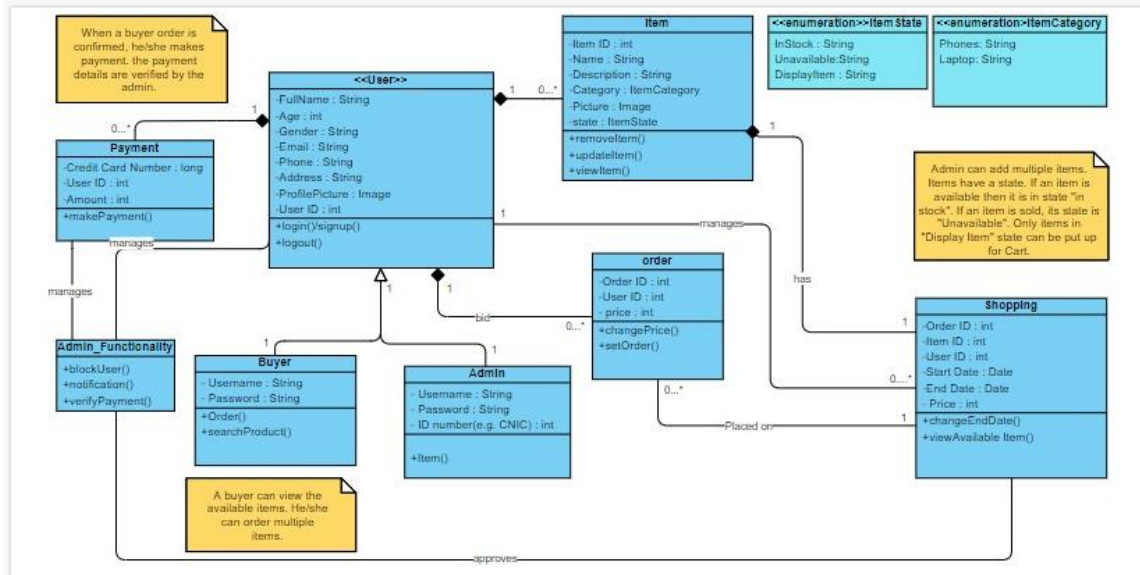
4.3 Sequence Diagram

A sequence diagram is a type of interaction diagram because it describes how—and in what order—a group of objects works together. It shows object interactions arranged in time sequence. ... A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously,

and, as horizontal arrows, the messages exchanged between them, in the order in which they occur.
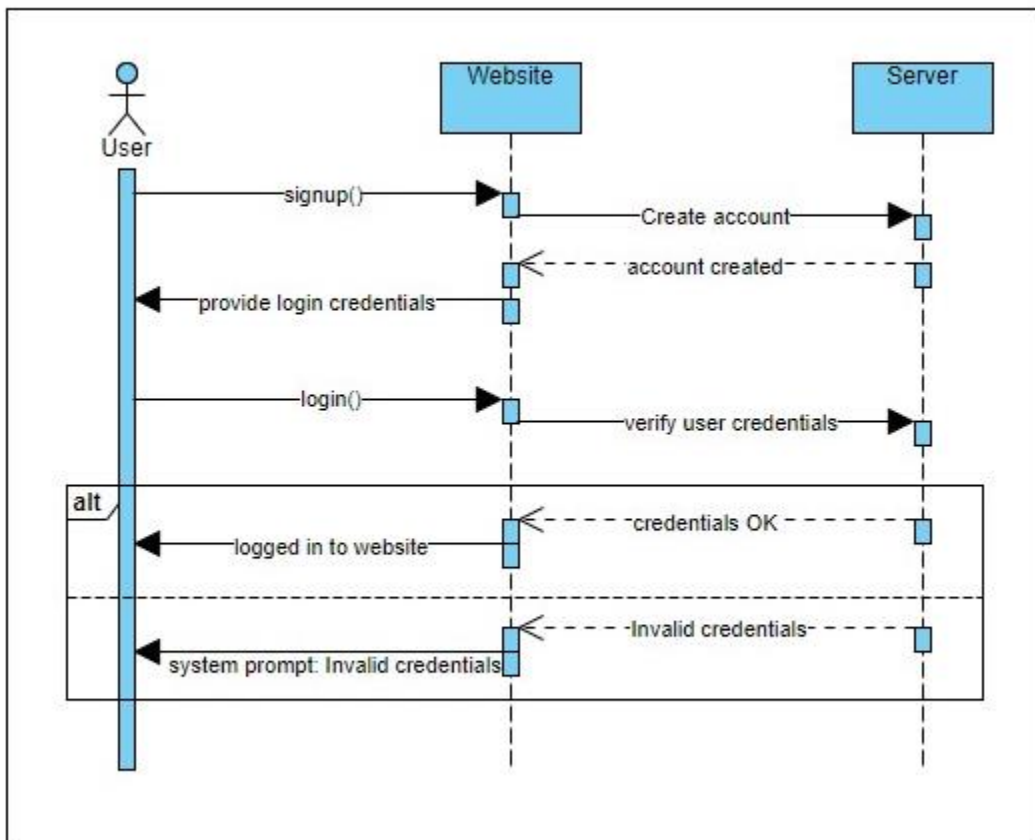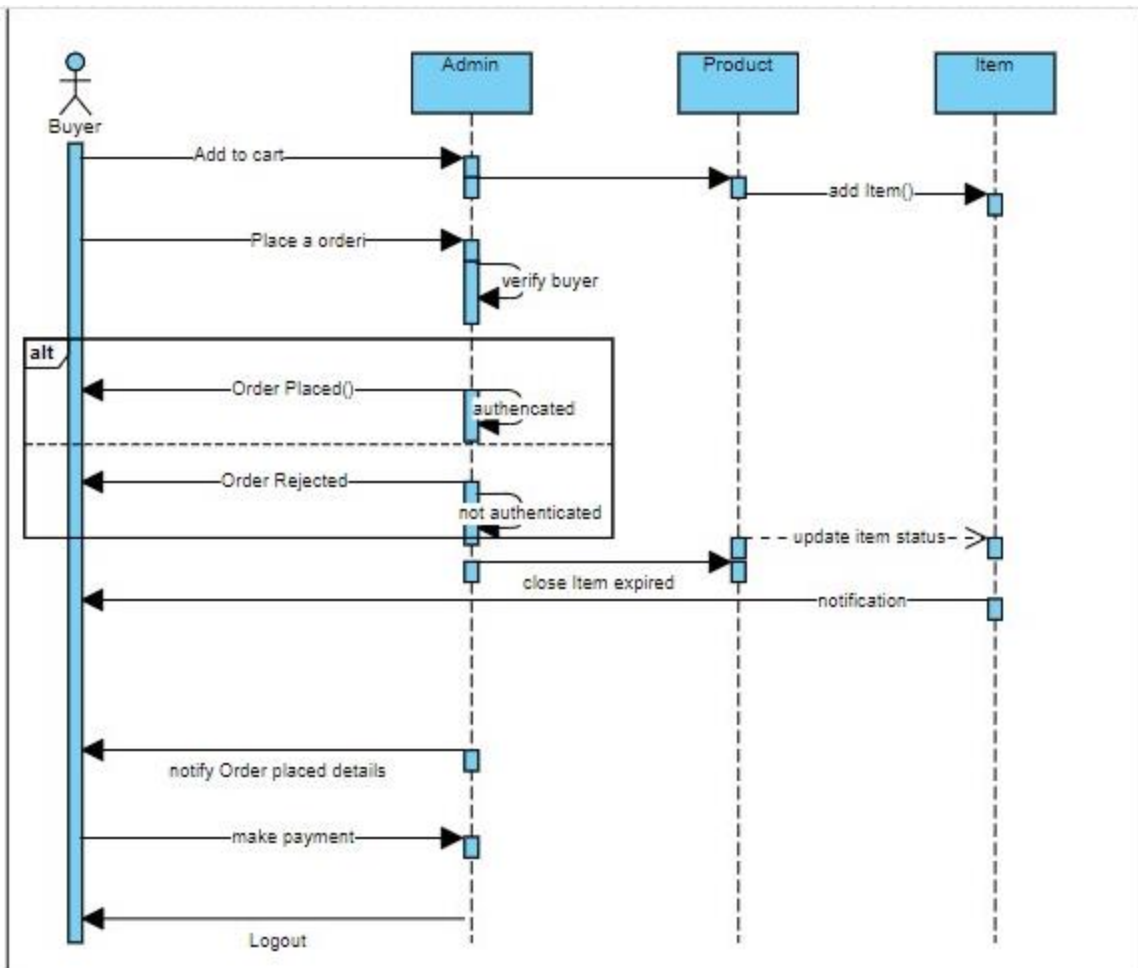
4.4 Activity Diagram:

An activity diagram is the visually representation of the series of actions or flow of control in a system similar to a flowchart or a data flow diagram.
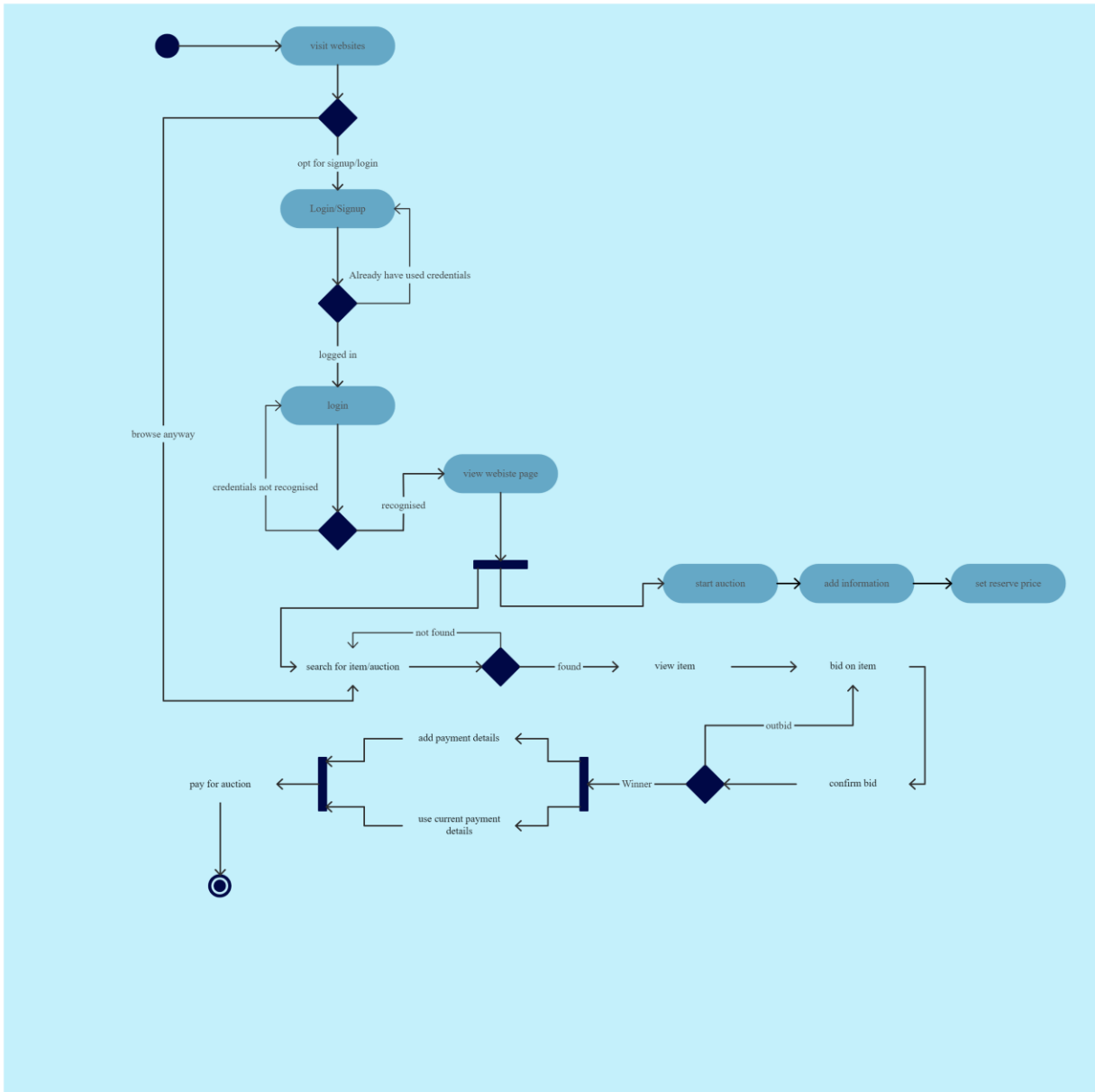
4.5 ERD Diagram:

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how "entities" such as people, objects or concepts relate to each other within a system.
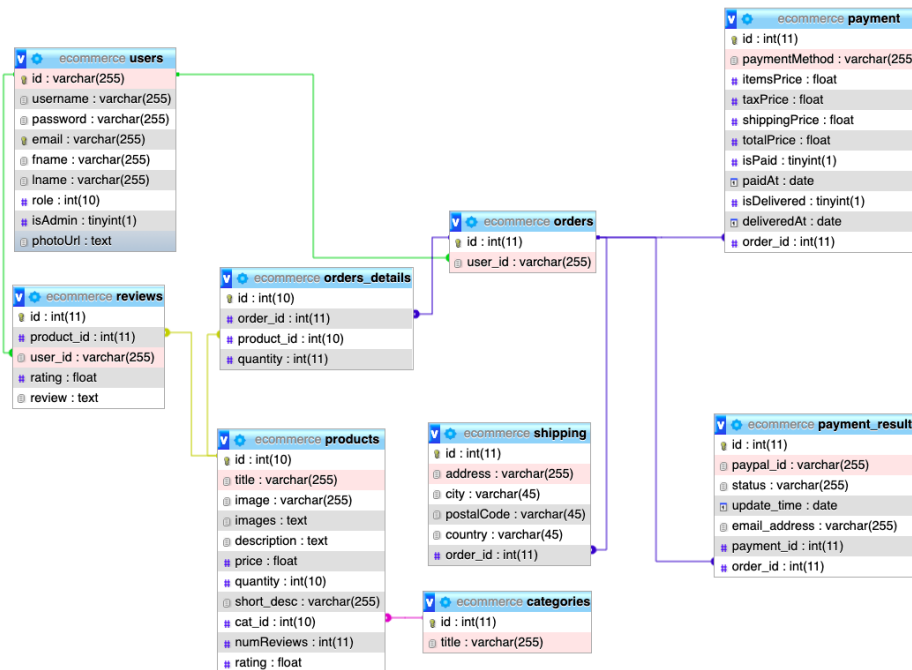
5 Code and Components:

The frontend is designed by using React Js and redux. The major screens include Homepage, with navbar Logo, Profile and Cart button. In the main body Products are displayed via image and the description of the products. The other screens include Cart, Product Description, Login/Sign in screen, Profile update screen and user order history screen. React Js along with function-based components have been used to design these screens. To add the style in the website CSS has been used along with HTML and React Js. Redux is used for application state management and it maintains the state of an entire application in a single immutable state tree (object), which can't be changed directly. When something changes, a new object is created (using actions and reducers)

The backend includes MYSQL with some libraries. The Libraries include Express and the primary use of Express is to provide server-side logic for web. JWT for the tokenization, JSON Web Token is a standard used to create access tokens for an application. It works this way: the server generates a token that certifies the user identity, and sends it to the client. Bcrypt: it is used for password hashing as it reduces the number of passwords by second an attacker could hash when crafting a dictionary attack.

The data table includes the table of users, reviews, order_details, orders, products, shipping, categories, payment, payment_result.

The several queries has been used to reteieve the user info and for email verification.

5.1 Installation Manual:

The source code can be downloaded using the following github link: https://github.com/sidraziz98/PC-Arena. After downloading the code, download Visual Studio Code, Xampp and Node.js. Then, open the code folder in Visual Studio Code. On the terminal set file directory to the code folder. Then run the command "npm install". Then, go to frontend folder directory in code folder through terminal and again run the command "npm install".

To setup the database, run ecommerce.sql file in folder on Xampp phpMyAdmin. Lastly, run the command "npm start" on both code directory terminal and frontend terminal on Visual Studio Code.

5.2 User Manual:

After opening the website, the following page and product will be shown to the user.
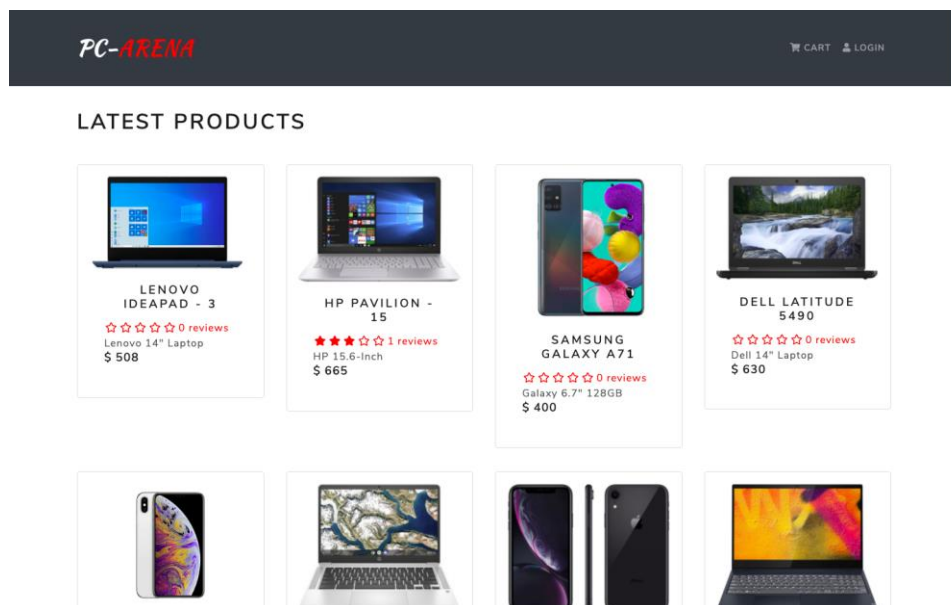
If user click on any product, following page will pop up. Here user can see the product details, add to cart, review section and go back to main page option. [Click on product]

Software Requirement Specification

After adding product to the cart, the following screen will be displayed. [Add to Cart button]
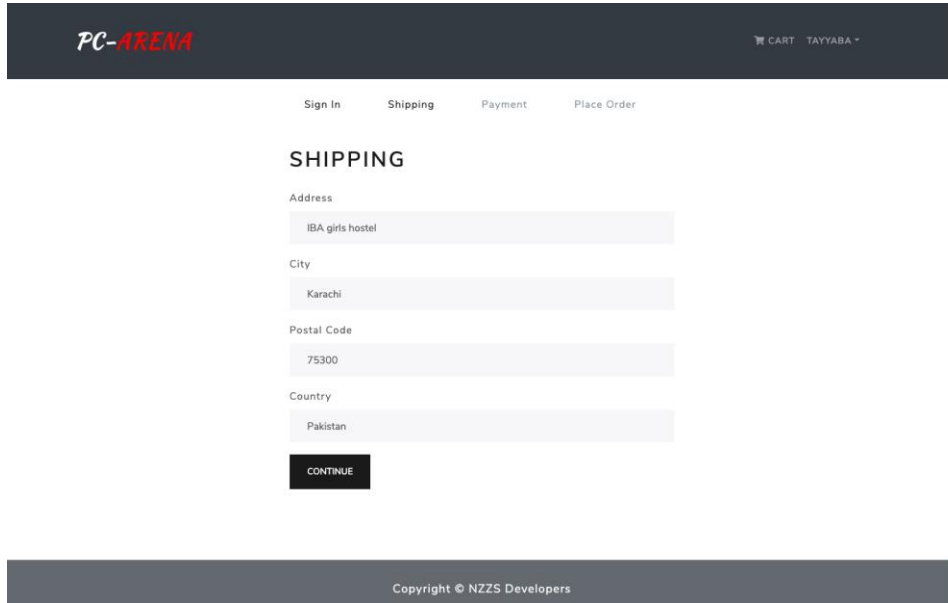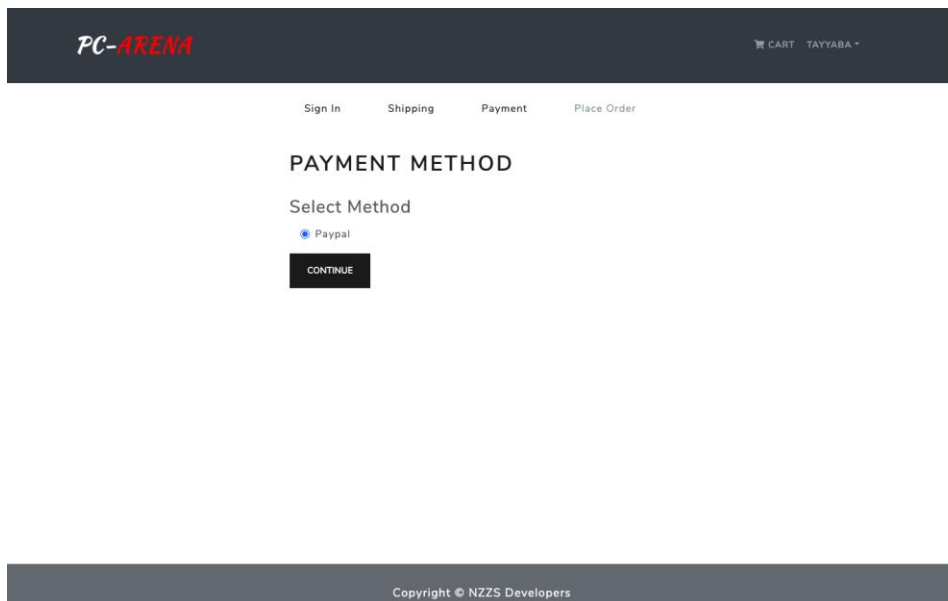
Here user can cancel his order or proceed to checkout. The following scree will be displayed. After clicking to proceed to checkout, the following screen will pop up.

User can choose payment option as:

After proceeding all the steps, the following screen will be diaplayed.

User can see their order history too.

Before going to proceed the checkout, the user needs to login/signup. [Login/Signup button]

User can update his profile by clicking on the Account button. [Profile]

6. Specific Requirements

6.1 System Feature:

The system provides a secure Login module for both Admin and user, system will redirect the administrator to other functionality.

6.2 User details:

User or Admin info like name, emails, password are handled by user module. User module will have saved info of user or Admin.

6.3 Product details:

This module will have product details like image, description, price and availability, type.

6.4 Order details.

This module will have User order history, where user can see his previous orders and invoices.

Method and paradigms:

7 External Interfaces

7.1 System Interfaces

In front-end HTML, CSS, JavaScript, Bootstrap, React js concepts is used.

The backend is designed using MySQL, redux and other libraries.

7.2 User Interfaces

This website is based on webpage. All the product is displayed in an image form along with the description. The website is minimal styled to make it user friendly.

7.3 Hardware Interfaces

Laptop, Windows, mobile.

7.4 Software Interfaces

Any Web browser.

7.5 Communications Interfaces

To transfer information Client to server HTTP protocol is used for communication. HTTP will be sending information secretly to web browser.

8 Performance Requirements

The website will be used on web browser so it needs an active internet to use properly. All the data is entered through internet from devices via internet. All the data will be stored on server database, so it requires connection.

8.1 Technical Issues

This system will work on client-server architecture. It will require an internet server and which will be able to run React js application. The system should support some commonly used browser such as IE, Mozilla Firefox, and Chrome etc.

8.1.1 Logical Database Requirements:

The system shall provide storage of all databases on redundant computers with automatic switchover. The system shall provide for replication of databases to off-site storage locations.

8.2 Design Constraints

It is web application system running over web page or browser environment.

8.3 Reliability

All are the information will be kept secretly from public to avoid the fraud cases.

8.4 Availability

Available with an active internet resources.

8.5 Security

This website uses an authentic login or registration which will be associated with administrator. All the details will be kept secretly. The user order history or info will not be displayed publicly.

Conclusion:

In today's world, everything is shifted towards remote control. People like to have new technologies in their use. Some people just hate shopping because they are time consuming. Whereas, E-commerce website is a place where you can buy any item from all over the world, it gives you many options to choose perfectly. It's an online site which saves your time and money too. You can buy new featured items while sitting in the couch of your home or your office. With the secure and safe place Users find a convenient way to buy an item which reduces illegal and fraud cases. The benefits of e-commerce sites make a lot of sense in the world of online shopping.

The Major advantages of Online E-commerce websites are Time Saving, Cost Effective, Delivery Options, No more waiting in the lines! User can make offers even you are at home or Lunch break. User have multiple choices all around the world through which travelling cost is cut off. The use of this website will help you in the select exactly what you are looking for and it will filter out the rest.