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Developing an E-Commerce Website for Electronic Devices Using Django Web Framework

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ABSTRACT: This study focuses on the development of an e-commerce website for electronic devices using Django web framework. E-commerce has become an essential platform for businesses to reach customers and sell their products online. With the rise of electronic devices, many e-commerce websites are focused on selling electronic gadgets. Django is a popular web framework for developing web applications that is built using the Python programming language. It is known for its robustness, scalability, and security features, making it an ideal choice for developing e-commerce websites. This literature review examines the use of Django web framework in developing e-commerce websites for electronic devices. The studies reviewed showed that Django web framework is a suitable choice for developing e-commerce websites for electronic devices due to its robustness, scalability, security features, and ease of use.

KEYWORDS: e-commerce, Electronic devices, Online market, Django e-commerce, online shop.

I. INTRODUCTION

The rise of electronic devices has created a significant demand for e-commerce websites that focus on selling electronic gadgets such as smartphones, laptops, and other gadgets. Developing an e-commerce website for electronic devices requires a robust web framework that can handle complex functionalities, scalability, and security features. Django web framework, built using the Python programming language, is known for its robustness, scalability, and security features, making it an ideal choice for developing e-commerce websites.

In this study, we will review the literature on the use of Django web framework in developing e-commerce websites for electronic devices. The goal of this literature review is to examine the advantages of using Django web framework in developing e-commerce websites and explore how Django can be used to build an efficient and secure e-commerce website for electronic devices.

The review will start by discussing the background and significance of the topic, followed by an overview of Django web framework and its features. Then, we will review the relevant literature on the use of Django in developing e-commerce websites, including comparative analysis of Django with other web frameworks. The review will conclude by highlighting the key findings and summarizing the advantages of using Django in developing an e-commerce website for electronic devices.

II. LITERATURE REVIEW

Django is a popular web framework for developing web applications that is built using the Python programming language. It is known for its robustness, scalability, and security features, making it an ideal choice for developing e-commerce websites. The following are some of the research studies that have been conducted on the use of Django in developing e-commerce websites:

In a research paper titled "Development of E-commerce Website using Django Framework", the authors evaluated the use of Django web framework in developing an e-commerce website. The study concluded that Django is a powerful and efficient web framework that is suitable for developing e-commerce websites due to its security features, scalability, and ease of use.

Another research study titled "Comparative Analysis of PHP and Django Web Framework for Developing E-commerce Website" compared the use of Django and PHP web frameworks in developing e-commerce websites. The study found that Django was more efficient and secure than PHP and was a better choice for developing e-commerce websites.

In a research paper titled "Design and Implementation of a Mobile E-commerce Website Based on Django Web Framework", the authors developed a mobile e-commerce website using Django web framework. The study found that Django was a suitable web framework for developing mobile e-commerce websites due to its scalability, ease of use, and mobile-friendly design.

In a study titled "Building E-commerce Websites with Django and Vue.js", the authors developed an e-commerce website using Django web framework and Vue.js frontend framework. The study concluded that Django and Vue.js were a powerful combination for building scalable and responsive e-commerce websites.

In summary, the above studies show that Django web framework is a suitable choice for developing e-commerce websites for electronic devices due to its robustness, scalability, security features, and ease of use. The studies also highlight the importance of combining Django with other frontend frameworks such as Vue.js to create a more responsive and user-friendly e-commerce website.

III. PROPOSED METHODOLOGY

Our proposed system is based on DJANGO Stack. The following diagram shows flowchart of the Web App.

III. 1. Work Flow For User

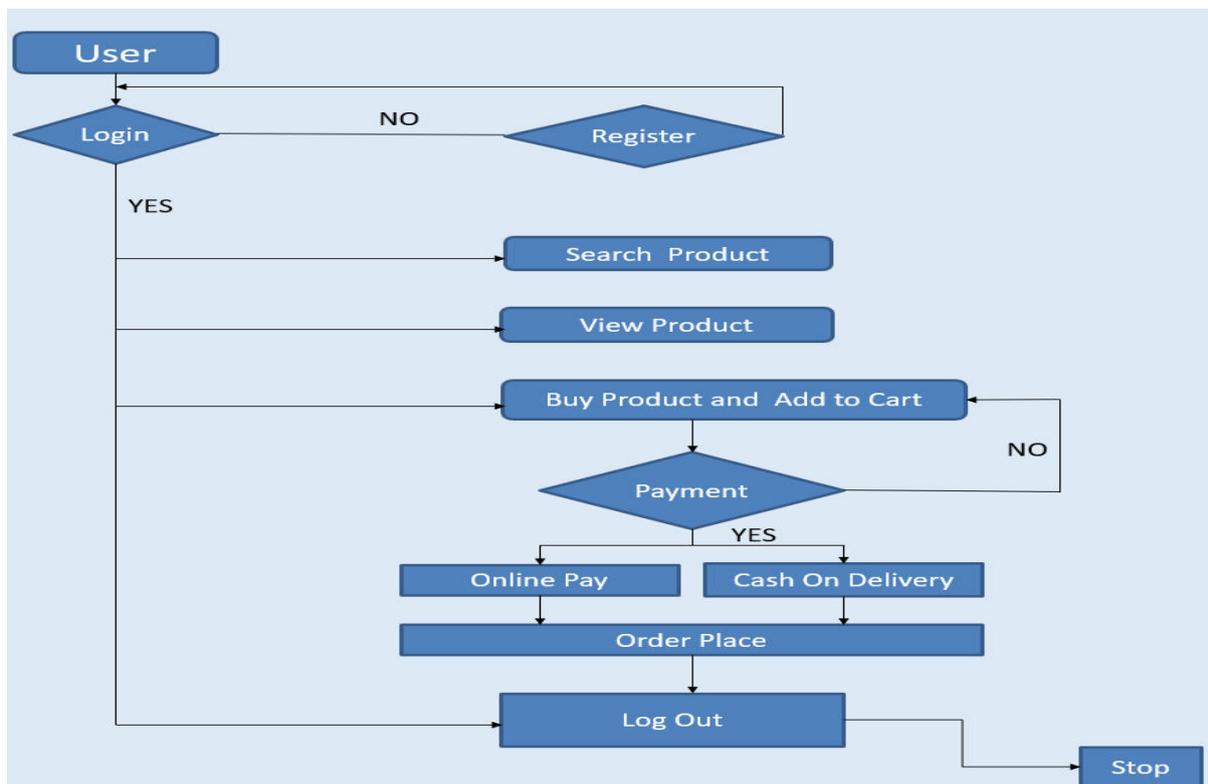


Fig. 01 Work Flow For User

III. 2. Work Flow For Admin

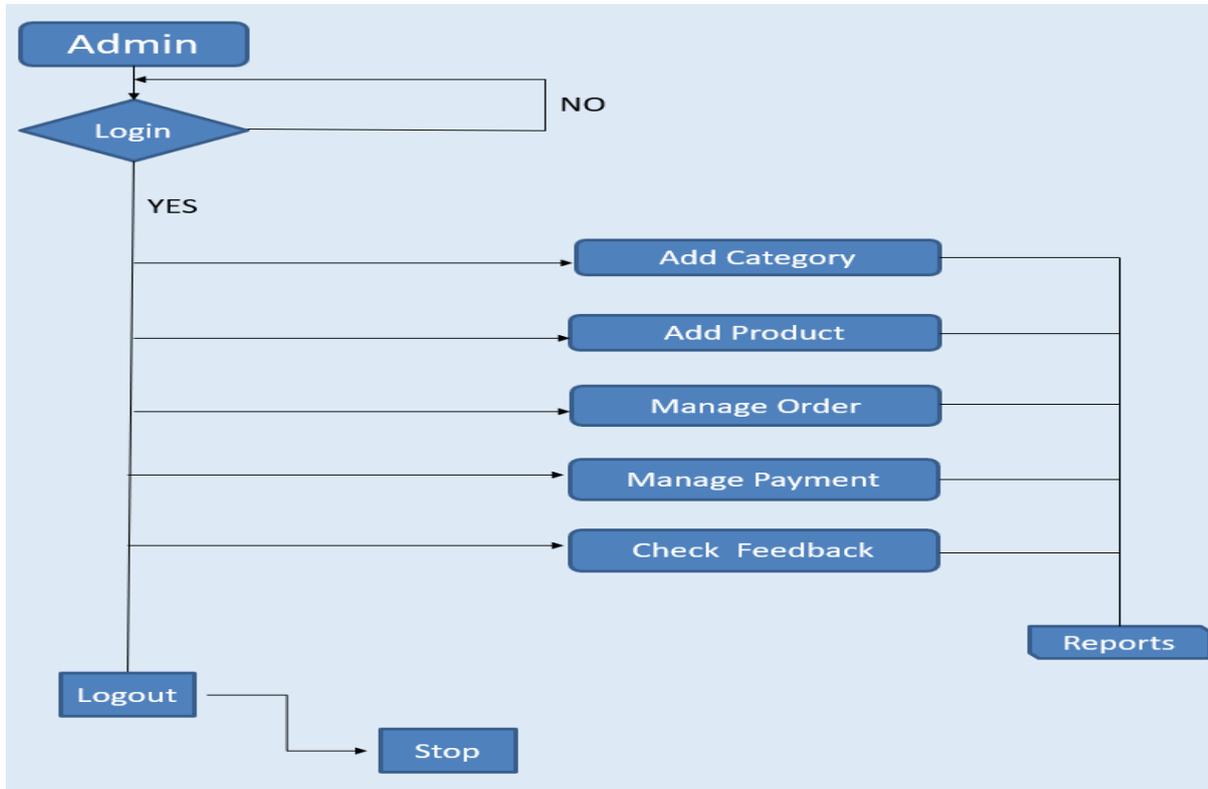


Fig. 02 Work Flow ForAdmin

III. 3. PBKDF2 ALGORITHM FOR USER AUTHENTICATION

PBKDF2 (Password-Based Key Derivation Function 2) is a widely used cryptographic function for deriving a secure key from a password. It is used to protect against brute-force attacks, where an attacker attempts to guess a password by trying many different possibilities in a short amount of time.

The advantage of PBKDF2 is that it makes it computationally infeasible for an attacker to try many password guesses in a short amount of time, even if the attacker knows the salt value. This helps to protect against brute-force attacks, as the attacker would need to perform the computationally expensive key derivation process for each password guess, making the attack unfeasible.

PBKDF2 is widely used in many security-sensitive systems, including password management systems, encryption systems, and more. It is recommended to use PBKDF2 or another secure key derivation function, such as Argon2 or scrypt, when storing passwords or other sensitive information in order to provide a high level of security.

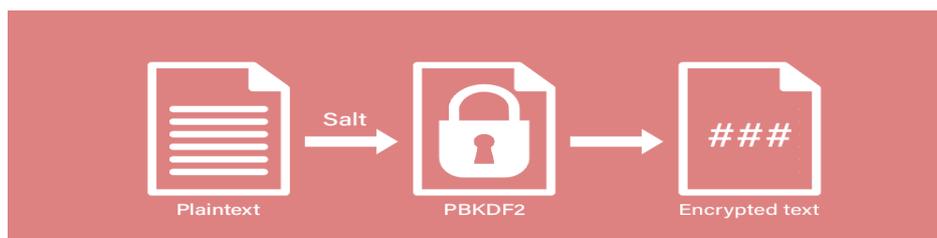


Fig.03 PBKDF2 Algorithm Working

PBKDF2 works by taking a password and a salt value, and then applying a key derivation function to these values in a computationally expensive manner. The output of the function is a derived key, which is used for encryption or other security purposes.

III. 4. SHA512 ALGORITHM FOR PAYMENT INTEGRATION

SHA-512 is a cryptographic hash function used to secure sensitive data by generating a fixed-length string of characters, known as a hash, from the input data. The hash function is considered secure because it is computationally infeasible to generate the same hash from two different inputs, and it is also infeasible to regenerate the original input from the hash.

SHA-512 is part of the SHA-2 family of hash functions, and is widely used for a variety of purposes, including digital signatures, password storage, and secure communication. Because of its security properties, SHA-512 is often used to secure sensitive data, such as financial transactions, medical records, and other confidential information.

In the context of e-commerce, SHA-512 can be used to secure sensitive customer information during the checkout process. For example, a secure checkout process might use SHA-512 to generate a hash of the customer's credit card number, which can then be securely transmitted to the payment processor for processing. By using SHA-512, the sensitive information is protected from unauthorized access or tampering during transmission.

IV. FEATURES

This website contains the following features:

1. Registration Page
2. Login Page
3. Search
4. Shopping Cart
5. Payment

An end user can perform free online registration. User can search a specific electronic product on his/her interest. The user can order the product online the payment method he/she can choose cash on delivery, Online payment. The admin have right to add any product, update its price or delete any product. Users can add multiple address, update address on their profile. After logging the user can search any electronic product, can purchase them, They can order whatever they want. Customer can enjoy the detail of every product. A shopping cart feature is also included in website . Therefore, whenever a customer purchases a product, it is automatically deleted form shopping cart. Additionally, if a product runs out of stock, no customer will be able to purchase it.

V. DEVELOPMENT TOOLS

The entire development process has been divided into two parts: front end development and the backend development. The front end comprises of the visually visible parts such as the home page, login page, registration page, checkout page, admin panel, shopping cart page. The back end contains the database and its interaction with the front-end.

A. FRONTEND DEVELOPMENT

HTML : HTML stands for Hyper Text Markup Language. HTML is the standard markup language for creating Web pages. HTML describes the structure of a Web page. HTML consists of a series of elements. HTML elements tell the browser how to display the content.

CSS : CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language.

JAVASCRIPT : JavaScript is a dynamic programming language that's used for web development, in web applications, for game development, and lots more. It allows you to implement dynamic features on web pages that cannot be done with only HTML and CSS.

BOOTSTRAP : Bootstrap is a free, open source front-end development framework for the creation of websites and web apps. Designed to enable responsive development of mobile-first websites, Bootstrap provides a collection of syntax for template designs.

FONT AWESOME : Font Awesome is a widely-used icon set that gives you scalable vector images that can be customized with CSS.

B. BACKEND DEVELOPMENT

PYTHON : Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together

DJANGO : Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source.

SQLite : SQLite is a software library that provides a relational database management system. The lite in SQLite means lightweight in terms of setup, database administration, and required resources.

SQLite has the following noticeable features: self-contained, serverless, zero-configuration, transactional.SQLite is a very lightweight database engine, with a small library size (typically less than 1MB).

VI. RESULTS

VI.1. Home Page:

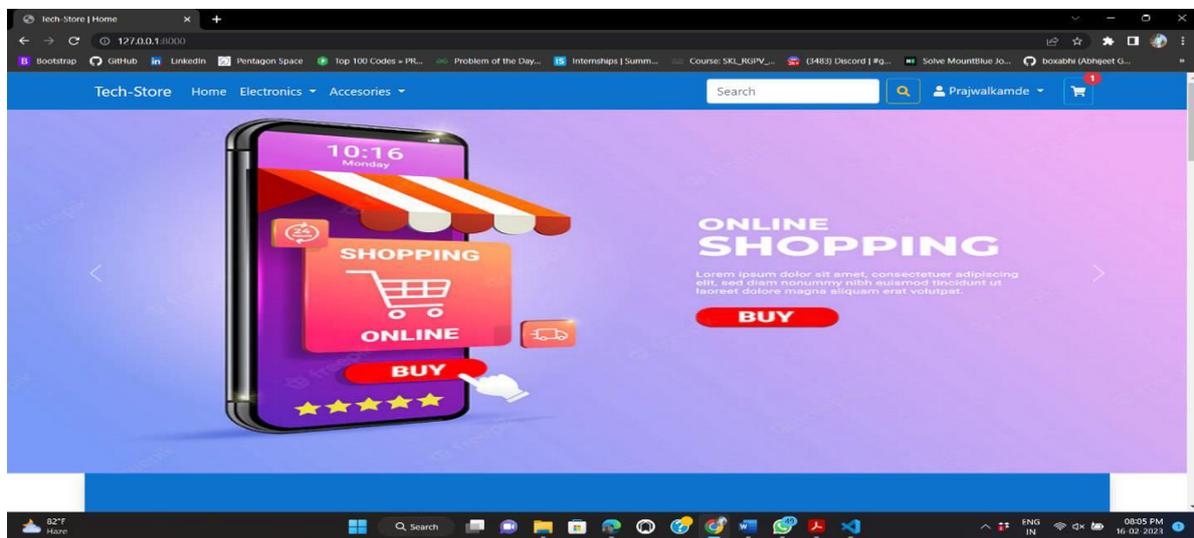


Fig. 04 Home Page



VI.2. Registration Page:

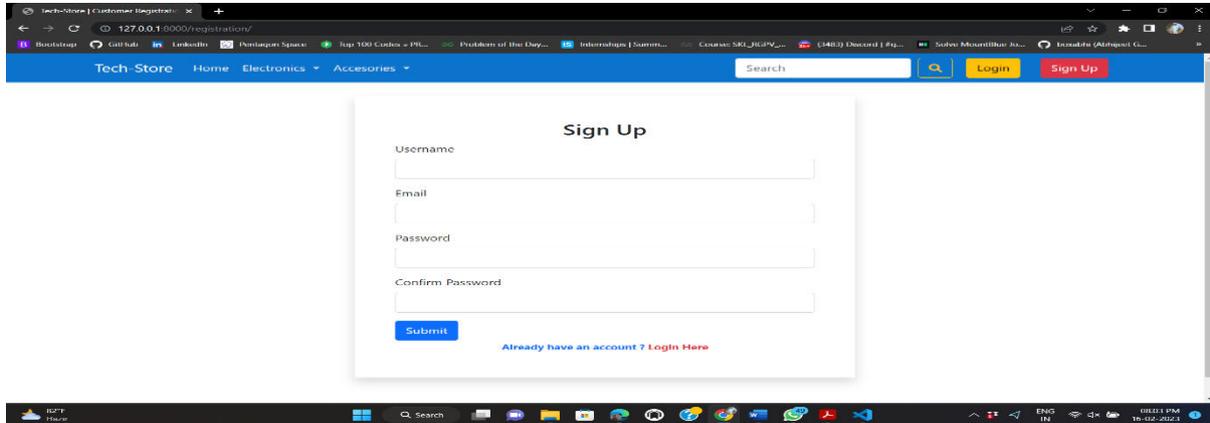


Fig. 05 Registration Page

VI.3. Login Page:

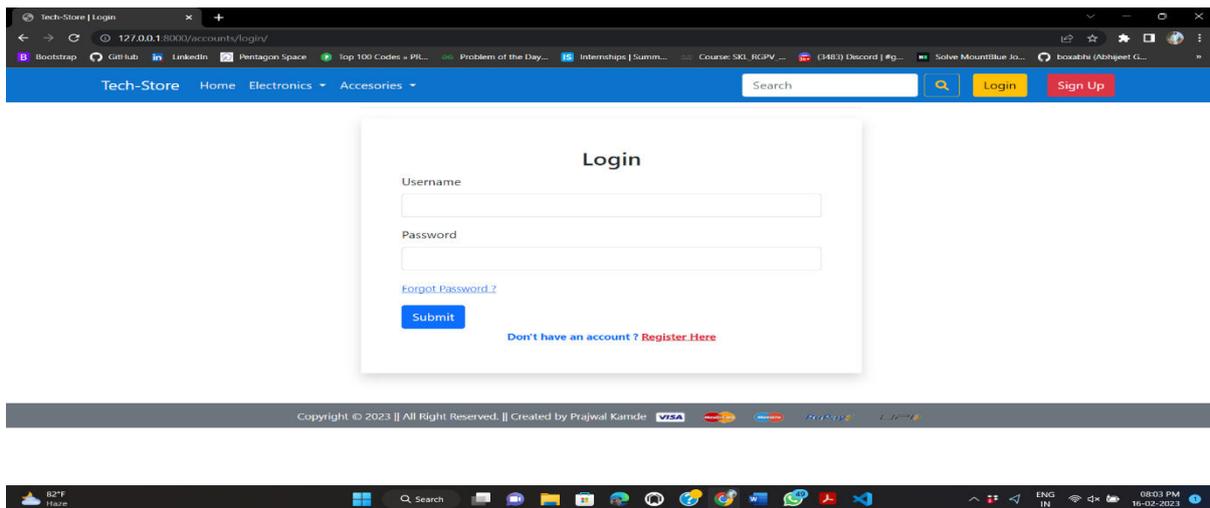


Fig. 06 Login Page

VI.4. Product Listing Page :

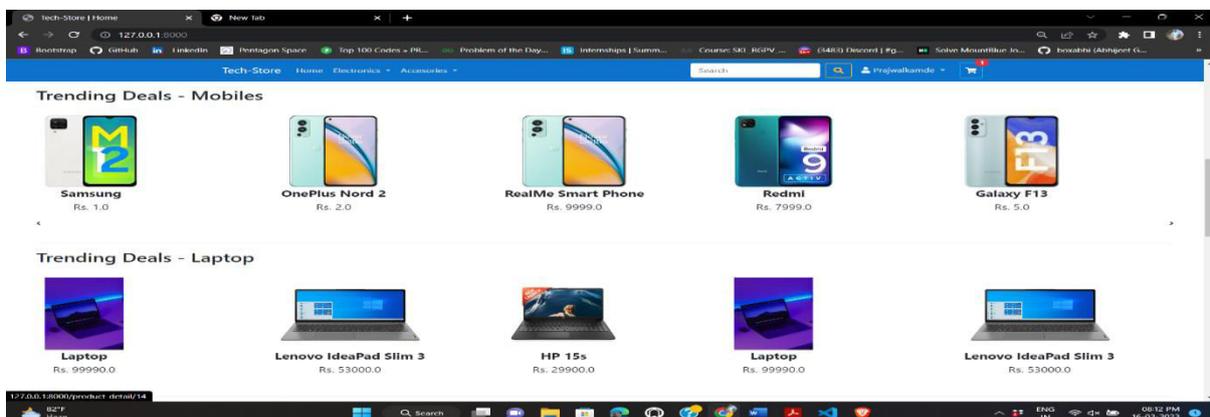
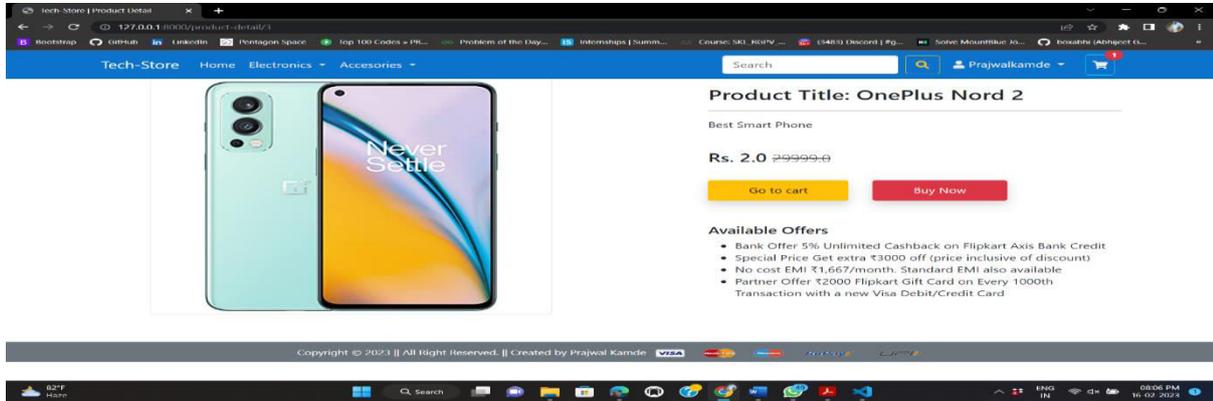


Fig. 07 Product Listing Page



VI.4. Product Details Page :



Product Detail Page

VI.5. Shopping Cart:

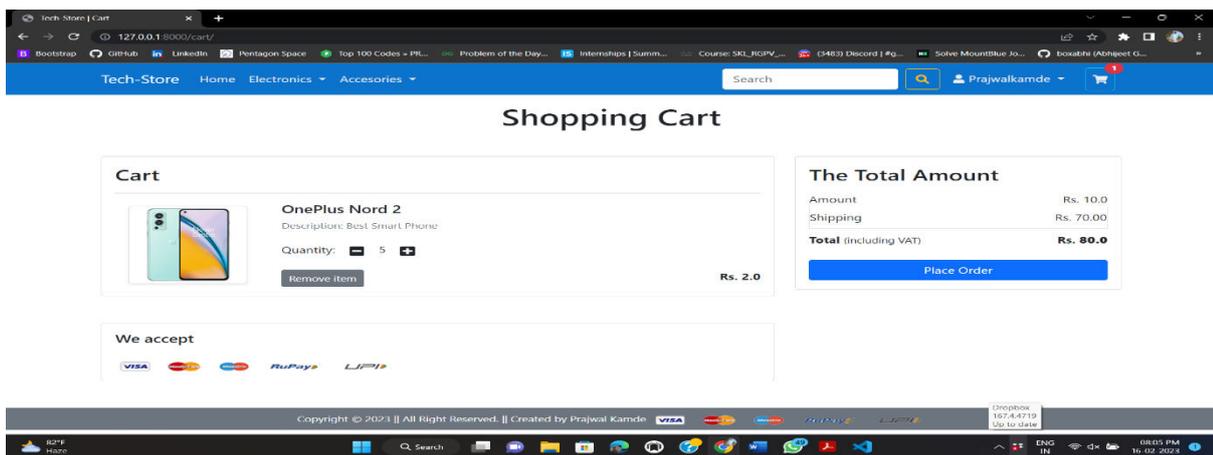
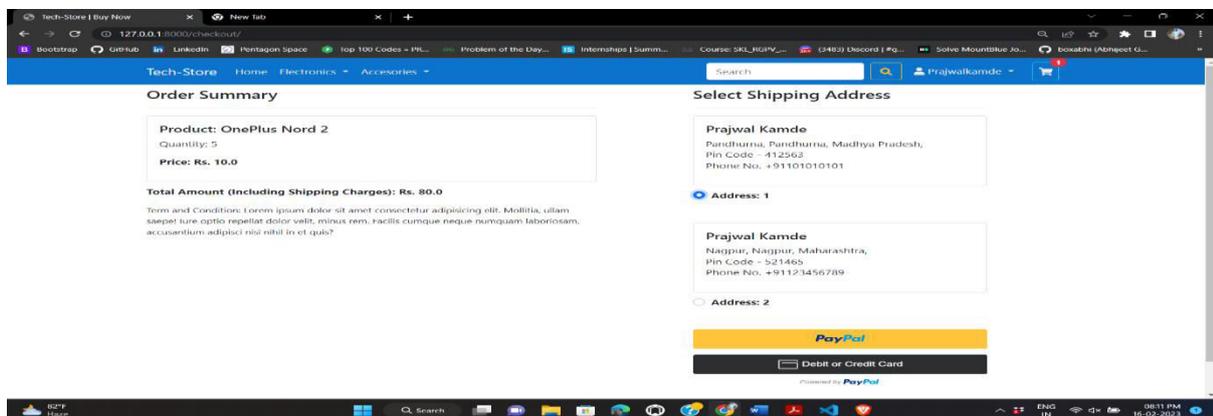


Fig. 09 Shopping Cart Page

VI.6. Checkout Page:



10Checkout Page



VI. CONCLUSION

E-commerce is an ever developing area. With the advancement in technology and communication, e-commerce has also gained popularity among the people of India and worldwide. It has made e-business easy and accessible to people sitting at home. E-commerce has a huge impact on costs, access to goods and services and increased productivity of businesses. It also plays an important role in the economic growth and development of a nation. Though it is a relatively new area belonging to the era of the internet, it has the potential to change and replace the traditional form of business.

VII. ACKNOWLEDGMENT

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