Bangladesh University of Business and Technology

Project Name : NextGen Shopping Store

A project submitted to the Department of Computer Science & Engineering For the partial fulfillment of the degree of Bachelor of Science (BSc) in Computer Science & Engineering

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Declaration

We hereby declare that this project work entitled Design and Implementation of a “NextGen Shopping Store” submitted to the Department of Computer Science and Engineering (BUBT) is record of original work done by us and under the guidance and supervision of Assistant Professor, Mamun Hasan. The web application and design development are authentic to best of our knowledge. This project, neither in whole nor in part, has been previously submitted for any degree.

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Certificate

This is to certify that this Project Report titled "NextGen Shopping Store" is the confide record of the project work done by Most.sonia Islam, Farzana Yesmin Rimi, Lamiya Akter Kakon, Lamia Muntaha, and Humayra Kabir for partial fulfillment of requirements of the degree of B.Sc in Computer Science and Engineering from BUBT.

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Finally, we would like to thank our fellow mates for their endless support to reach our goal.

Abstract

This report presents **“NextGen Shopping Store”**, an e-commerce platform designed to simplify online shopping. Developed using Django, Python, and SQLite, the system includes essential features such as user authentication, product browsing, cart management, and order processing. It supports both administrators and users through distinct functionalities. Hosted locally, the project aims to streamline e-commerce workflows, offering an intuitive and responsive interface for a seamless shopping experience. Future enhancements include cloud hosting, advanced recommendation systems, and support for multiple payment gateways.

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Chapter 1

Introduction

1.1 Introduction

"NextGen Shopping Store" is an e-commerce platform built to cater to the growing demand for efficient online shopping. It leverages the Django framework to create a robust backend and a user-friendly interface. The platform focuses on accessibility, scalability, and ease of use.

1.2 Problem Statement

Despite the rapid growth of e-commerce, many platforms lack user-centric features, leading to frustration. Issues like cumbersome interfaces, limited payment options, and poor scalability hinder user satisfaction. **"NextGen Shopping Store"**aims to address these challenges.

1.3 Motivation

The motivation behind developing **"NextGen Shopping Store"** arises from the increasing reliance on online shopping, which necessitates user-friendly and scalable platforms. Existing e-commerce systems often fail to prioritize user satisfaction, leaving room for significant improvement. **"NextGen Shopping Store"** is driven by the vision of creating a solution that merges convenience, security, and scalability to meet evolving market demands.

1.4 Objectives

The primary objectives of this project include:

- Develop a responsive and user-friendly e-commerce platform.
- Provide efficient product and user management for administrators.
- Enable secure transactions and streamlined order management.

1.5 Aim and Scope

Aim

"NextGen Shopping Store" aims to deliver a comprehensive e-commerce solution that simplifies online shopping for users while providing administrators with robust tools for managing products and orders. By prioritizing usability and scalability, the platform seeks to enhance customer satisfaction and operational efficiency.

Scope

The project's current scope focuses on implementing core functionalities, such as user registration, product browsing, cart and order management, and an admin dashboard for product management. Future expansions include integrating advanced features like payment gateways, cloud hosting, and AI-driven recommendations to meet evolving market needs.

Chapter 2
Research Background

2.1 Key Research Questions

This project investigates several key questions:

- What challenges arise in creating a scalable e-commerce platform?
- How can security and user experience be balanced?
- What innovative features can improve user engagement and retention in e-commerce platforms?

2.2 Gaps in Existing Literature

A review of the existing literature highlights certain gaps:

- Many e-commerce platforms prioritize functionality over user experience, resulting in suboptimal interfaces.
- Limited research exists on integrating AI-driven personalization in smaller-scale e-commerce systems.
- Scalability issues in affordable hosting solutions are not adequately addressed.

2.3 Recent Literature

- The role of AI in enhancing e-commerce experiences, particularly through recommendation systems and customer behavior analysis.
- Advances in cloud-based hosting solutions, which offer cost-effective scalability options for SMEs.
- The increasing importance of mobile-first design in the e-commerce domain to cater to a growing smartphone user base.

Chapter 3

System Specification and Methodology

3.1 System Specifications

"NextGen Shopping Store"was developed using a combination of front-end and back-end technologies:

- **Frontend**: HTML, CSS, and Bootstrap.
- **Backend**: Django (Python).
- **Database**: SQLite.

3.2 Methodology

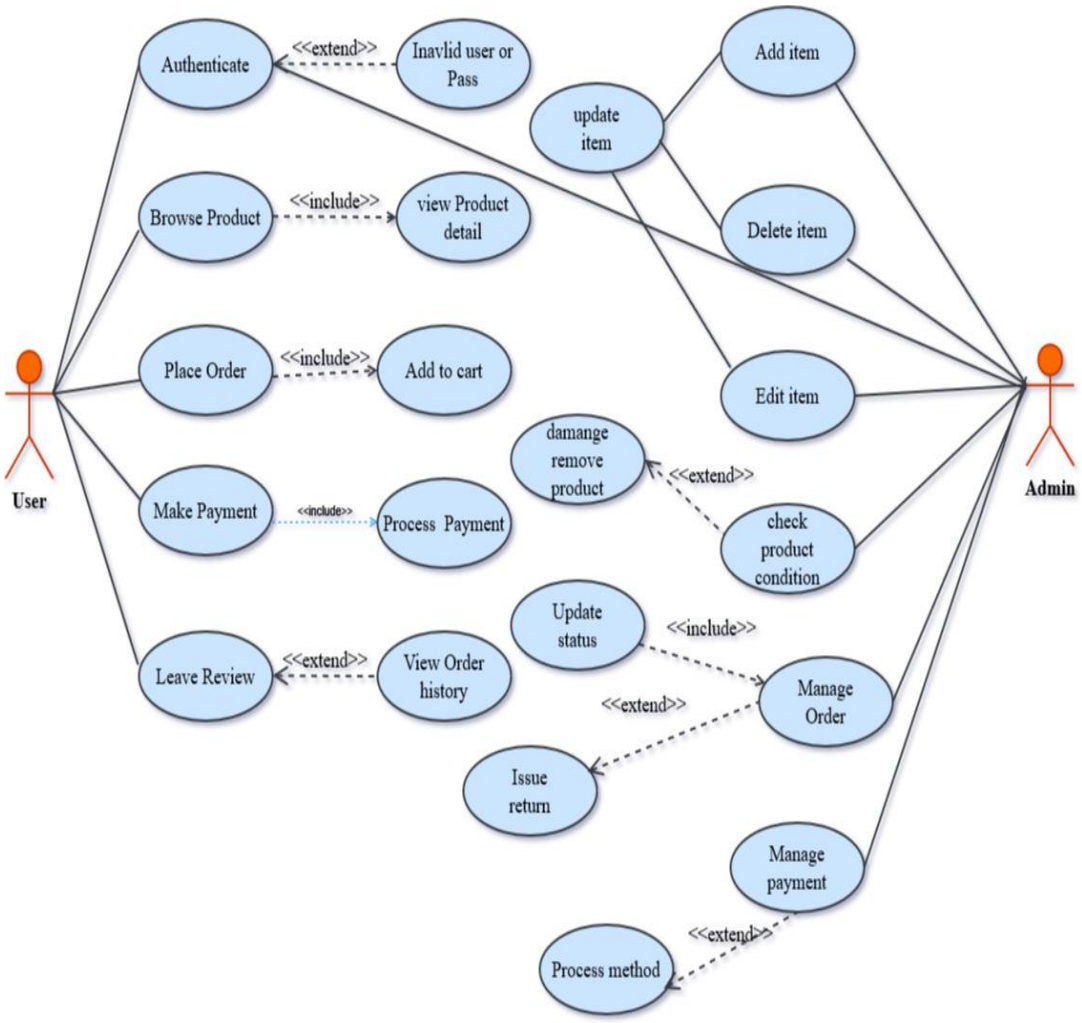
The Waterfall Model guided development, ensuring clear stages for requirement analysis, design, development, testing, and deployment.Understanding System specifications focused on delivering a responsive interface using Bootstrap for mobile-first design and a robust backend via Django. SQLite ensured lightweight database operations suited for initial development phases. The Waterfall methodology allowed systematic tracking, reducing risks associated with iterative changes in this context.

Chapter 4

Design and Implementation

4.1 UML Diagrams

Use Case Diagram



ER Diagram


p_id
C_id
P_method
P_date
Payment
Amount
Pays
A_ID
Password
O_ID
Admin
Control
Control
C_ID
O_date
O_ID
Order Management
Quantity
status
total_price
Ordered In
C_ID
fname
Phone
Customers
Address
Lname
Email
Password
Carts
C_ID
created_at
Shopping Cart
update_at
SC_ID
Adds to
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P-id
description
Product
stock
price
ct_id
categories
organize
Ct_ID
Categories
ct_name
p_id
CI_ID
cartitem
Cart
product_Quality

4.2 Wireframes and Mockups

Wireframes were created for essential pages, including:

- Login and registration pages.
- Admin dashboard for movie management.
- User dashboard for browsing and streaming movies.

4.3 Database Design

The database schema consists of the following tables:

- **Users**: Tracks user details such as credentials and roles.
- **Products**: Stores product details including descriptions, prices, and categories.
- **Orders**: Manages cart and purchase history.
- **Categories**: Organizes products into logical groups

4.4 Description of Components

- **Frontend**: Implements responsive interfaces for user interaction.
- **Backend**: Manages authentication, business logic, and database operations.
- **Database**: Ensures secure storage and retrieval of application data.

Chapter 5

System Testing, Deployment, and Maintenance

5.1 System Testing

The project underwent rigorous testing to ensure its reliability and functionality:

- **Unit Testing**: Verified individual components such as login, cart, and order placement functionalities.
- **Integration Testing**: Ensured smooth interaction between modules, such as user authentication and product catalog.
- **User Acceptance Testing**: Collected feedback from sample users to refine usability and features.

.5.2 Deployment

The system was deployed locally for demonstration purposes. Key steps included:

- Setting up the Django environment with required dependencies.
- Migrating the SQLite database.
- Configuring static files and testing server deployment on a local network.

Future deployments may include hosting on cloud platforms like AWS or Heroku for scalability and wider accessibility

5.3 Maintenance Plan

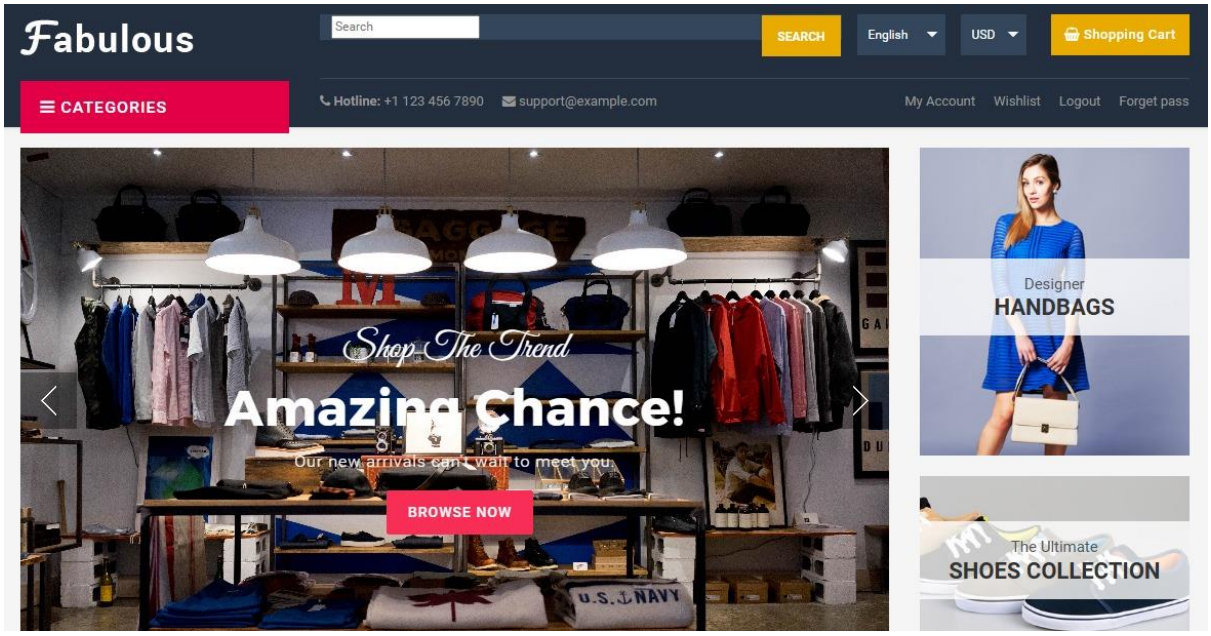
To ensure long-term functionality and scalability, the following maintenance plan has been outlined:

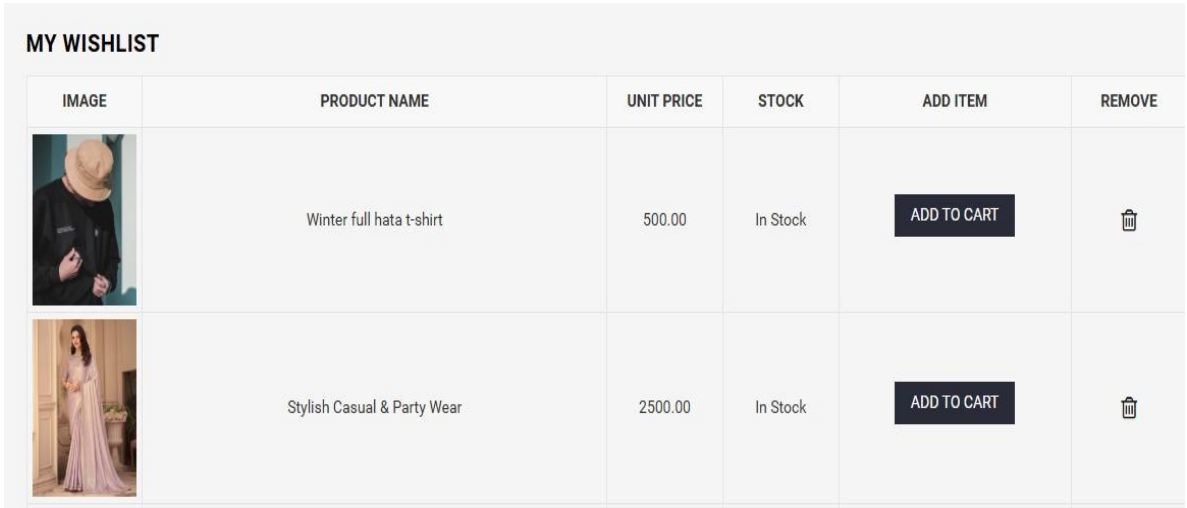
- **Regular Updates**: Incorporate new features and address bugs identified during use.
- **Database Optimization**: Periodic checks to maintain data integrity and performance.
- **Security Enhancements**: Regular updates to secure user data and transactions.
- **User Support**: A dedicated channel for resolving user queries and collecting feedback for continuous improvement.

Chapter 6

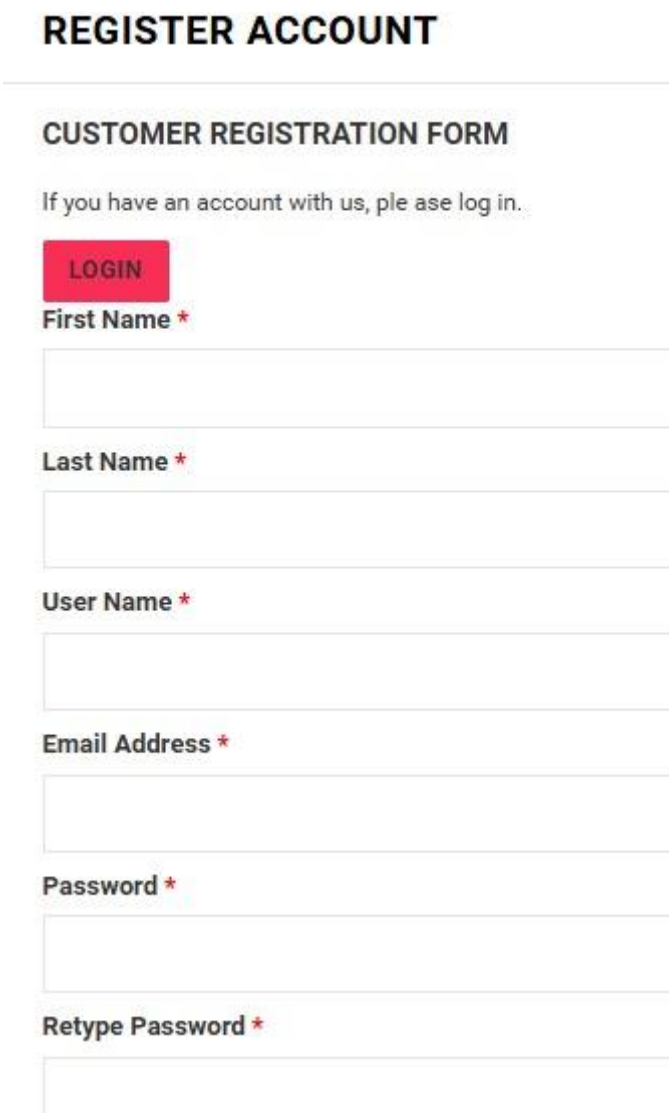
Project Demonstration

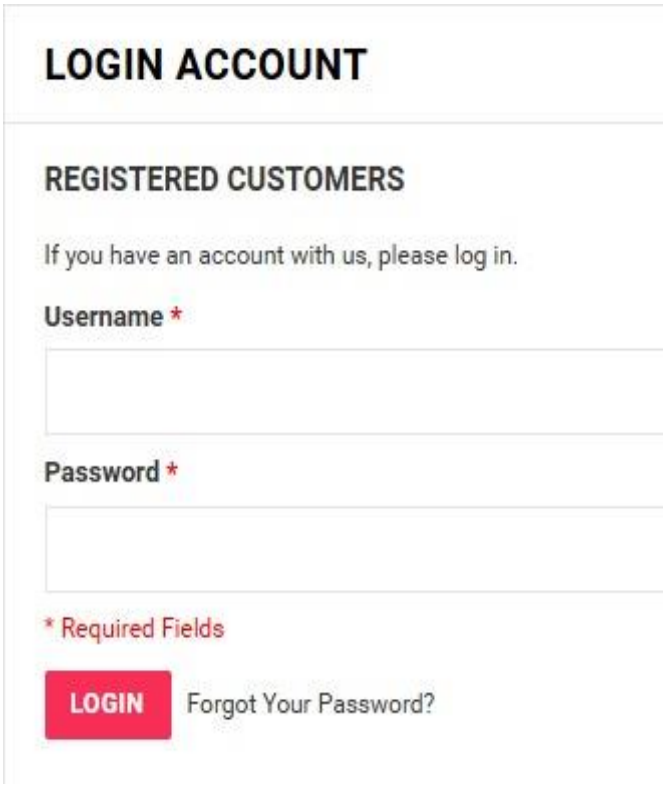
6.1 Home Page



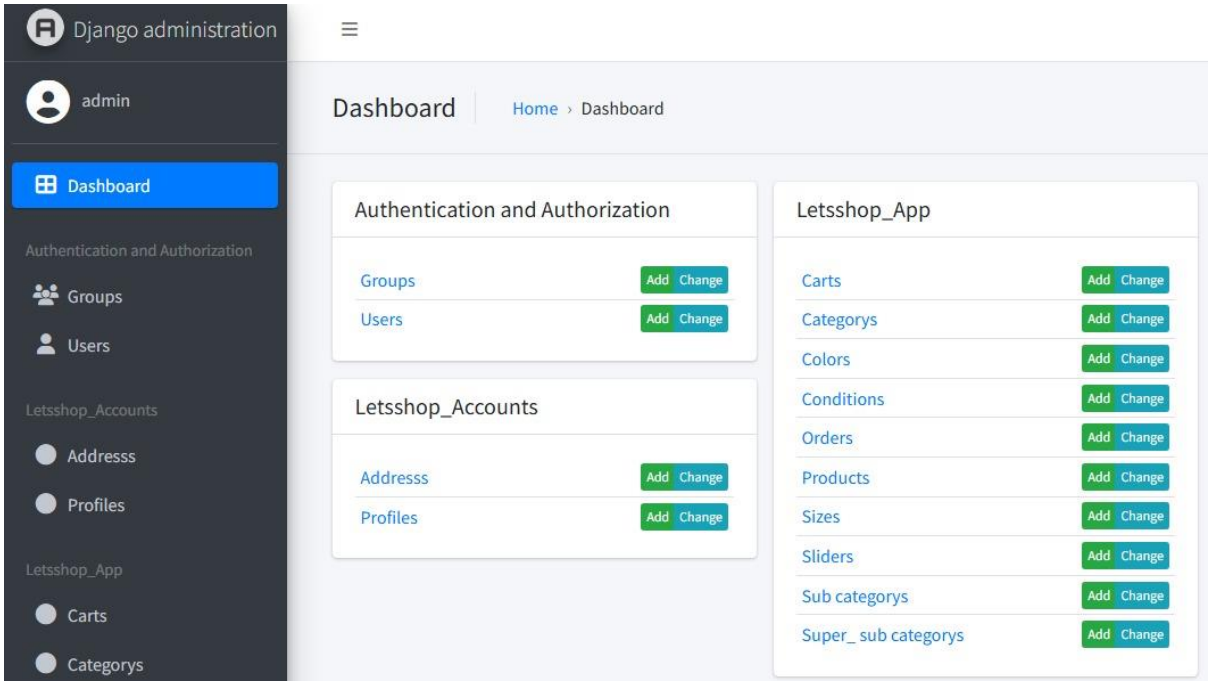


6.2 Resister Page and Login Page





6.3 Dashboard



Chapter 7

Conclusion and Future Work

7.1 Conclusion

"NextGen Shopping Store"successfully demonstrates the core functionalities of an e-commerce platform. Its modular design lays the foundation for future expansions.

7.2 Limitations and Future Work

Limitations

- The platform lacks real-time inventory management.
- Limited payment gateway integration restricts transaction options.
- Scalability issues may arise without transitioning to a cloud-based deployment.

Future Work

- Integration of multiple payment gateways.
- Cloud hosting for scalability.
- AI-based recommendation systems.
- Real-time inventory management and notifications.

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