An Undergraduate Internship/Project on Gaming E-commerce Website

By

Preeum Saha

Student ID: **2031144**

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Supervisor:
Razib Hayat Khan, Ph.D

Associate Professor

Department of Computer Science & Engineering

Independent University, Bangladesh

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Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

I, Preeum Saha , hereby confirm that all work and output presented in this report are my original work and that I have personally performed the tasks entrusted to me for the completion of the said work. This project has been done in the three months of the internship period at Acote Group. I hereby attest that all the information, facts, and contents in this work are correct to the best of my knowledge. All sources of information have duly been acknowledged and referenced.

I present this report for professional recognition to my office and for academic recognition at the academic institution. The work is not a duplication or modification of any work that has been presented at any time. In that regard, I am exclusively responsible for the contents and quality of work and am ready upon request to provide further information or clarification.

_____   _____
Signature   Date

Preeum Saha
_____
Name

Acknowledgement

Letter of Transmittal

Razib Hayat Khan, Ph.D.
Associate Professor
Department of Computer Science and Engineering
School of Engineering and Computer Science
Independent University, Bangladesh

Subject: **Submission of Internship Report on Project for Gaming E-commerce Website.**

Dear Sir,

I am glad to present my Internship Project Report, which I have successfully completed under your guidance and fulfilled all its requirements. It is based on the project that I have done in Acote Group for the Gaming E-commerce Website. In Acote Group, during my internship with Mr. Farid Ahmed, Senior Web Developer, as my mentor, I could engage in different projects that took place within three months. This report discusses the specific project in which I am going to present my paper for the fulfillment of my internship course. This cherished experience helped me not only to identify the corporate culture but also to expand my professional network.

I hope this report will meet your expectation; therefore, I am happy that you go through it and let me do the final close-out of my internship with your precious remarks on it.

Sincerely,
Preeum Saha
ID: 2031144
Department of Computer Science and Engineering
Independent University, Bangladesh

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Abstract

The Nextgen Gamer Nation project is a comprehensive, dynamic e-commerce platform tailored for the gaming community. The platform enables users to browse gaming products, place orders, view live streaming sessions, read blogs, and submit feedback. The primary aim of the project is to offer a seamless online shopping experience that integrates e-commerce with entertainment content, catering specifically to gaming enthusiasts.

The project is developed using a full-stack approach, incorporating PHP for backend functionality, MySQL for database management, and HTML, CSS, and JavaScript for frontend development. A secure user authentication system, product catalog management, and order processing modules form the core of the system. An admin panel allows for efficient management of products, user accounts, and orders.

Nextgen Gamer Nation's architecture is designed for scalability, allowing future integration of features such as AI-based recommendations, multi-currency payment options, and mobile applications. Additionally, the platform ensures a user-friendly interface with responsive design, making it accessible across different devices.

Throughout the development process, the project follows the Software Development Life Cycle (SDLC), with key phases such as planning, requirement analysis, system design, implementation, and testing. The project also addresses security concerns and data privacy by employing secure data handling practices. The final product is a fully functional e-commerce platform with enhanced usability and a strong focus on customer satisfaction.

Keywords— Gaming, Knowledge Management, Design, E-commerce, Shop

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Chapter 1

Introduction

1.1 Overview/Background of the Work

During the internship period, I had the opportunity to work on a web development project titled "The Nextgen Gamer Nation ", which is a gaming-focused e-commerce website. The main idea behind this project was to build a dynamic online platform where gaming enthusiasts could explore, purchase, and engage with a variety of gaming-related products and services. The platform not only offers a digital storefront for video games, gaming consoles, accessories, and merchandise, but also provides features for community interaction, such as blogs, reviews, live esports match updates, and user forums. This project was both a technical and creative endeavor, requiring collaboration in planning, designing, and building both the frontend (what users see and interact with) and the backend (how data is stored and managed). The platform is designed with modern web technologies and a strong focus on user experience, security, and performance.

The internship allowed me to experience the complete website development lifecycle, starting from requirement gathering, user interface (UI) design, and content planning, to coding, database integration, testing, and deployment. I worked with tools and languages such as HTML, CSS, JavaScript for the frontend, and PHP with MySQL for backend development. The idea for The Nextgen Gamer Nation stemmed from the growing popularity of online shopping in the gaming industry and the demand for a platform that not only sells products but also keeps users engaged through relevant content and real-time features. The aim was to create an all-in-one solution that caters to the needs of gamers by providing product access, community involvement, and live event updates all in one place.

Through this project, I gained valuable experience in team collaboration, problem-solving, and applying theoretical knowledge to a practical and professional scenario. It also helped me understand how to balance design aesthetics with technical functionality to deliver a user-friendly and secure platform.

1.2 Objectives

The main objectives of developing The Nextgen Gamer Nation were:

- **Generate Sales** : Sell video games, accessories, and other gaming merchandise.

- **Build a Community** : Create a space for gamers to interact through blogs, reviews, and esports updates.

- **User-Friendly Design** : Ensure the website is responsive and easy to navigate on all devices.

- **Update Content Easily** : Keep the site updated with the latest games and news.

- **Manage Inventory** : Handle product stock efficiently using a database.

- **Enable Secure Payments** : Provide multiple secure payment options.

- **Offer Customer Support** : Help users with feedback, questions, or issues via a contact form.

- **Use Social Media** : Allow users to share content and connect through platforms like Facebook or YouTube.

- **Stand Out** : Include unique features like live esports match updates.

- **Build Customer Loyalty** : Encourage repeat purchases through reward programs and discounts.

- **Optimize Performance** : Keep the website fast and smooth for users.

- **Improve with Feedback** : Use user reviews and suggestions to keep making the site better.

1.3 Scopes

The scope of the project covered the full process of developing a gaming e-commerce website from the initial stage. The scopes of this project are the following:

- Conducted planning and research to understand the needs of the gaming community and identify key features for the website.

- Designed a responsive and visually appealing frontend suitable for desktops, tablets, and mobile devices.

- Developed an interactive user interface including a product catalog, search bar, shopping cart, product filters, blog section, user reviews, and live esports match updates.

- Built a backend system using PHP and MySQL to handle user data, product listings, orders, shopping cart items, and customer feedback.

- Implemented user registration and login systems with separate access for users and admins.

- Created a secure checkout process with multiple payment method options and order confirmation emails.

- Designed an admin panel to manage product listings and monitor or fulfill pending orders.

- Integrated social media platforms for user engagement, sharing, and social login options.

- Added a newsletter subscription feature for delivering updates, promotions, and gaming news to users.

- Embedded live esports match videos and schedules to boost user interaction and website traffic.

- Proposed future enhancements including multi-language and multi-currency support, product recommendation engine, and cross-sell/up-sell features.

Chapter 2

Literature Review

2.1 Connection to My Undergraduate Education

During my undergraduate journey, I engaged in a wide range of academic and practical courses that made a solid foundation for my internship experience. These courses not only enriched my theoretical understanding but also provided hands-on experience that directly supported the development of my project. Though each subject contributed in its own way, several key courses stood out for their direct relevance to the project's planning and implementation.

- **Introduction to Computer Programming (CSE101):** This course introduced me to the world of programming. I learned how to write basic code, solve logical problems, and structure simple software. Working through the programming exercises helped me gain confidence and encouraged me to pursue more advanced topics in software development. It was my first step toward understanding how computers process instructions.

- **Data Structures (CSE 203):** In this subject, I explored different ways of organizing and managing data efficiently. The course covered important topics such as arrays, linked lists, stacks, queues, and trees. These data structures were not only theoretical but were implemented in practical coding exercises. The knowledge I gained allowed me to choose suitable structures in my project to store, search, and update data effectively.

- **Algorithms (CSE 211):** This course focused on problem-solving using efficient techniques. I learned how various algorithms operate and how to evaluate their performance. I studied classic sorting algorithms like merge sort, quick sort, and bubble sort, and understood their role in software optimization. This helped me design parts of my system that dealt with organizing large sets of data, making it faster and more efficient.

- **Object-Oriented Programming (CSE 214):** The course taught me how to build software using an object-based approach. I became familiar with key programming principles such as classes, objects, inheritance, and encapsulation. I also practiced designing systems with modular and reusable components. These skills played a vital role when I structured the code for my project to ensure it was organized and easy to manage.

- **Database Management Systems (CSE 303):** I learned how to design, create, and manage databases using SQL and relational database concepts. The course included topics like database normalization, entity-relationship modeling, and transaction management. I applied these ideas to build the data layer of my project. It helped me understand how to store data securely and retrieve it quickly using optimized queries.

- **Web Application and Development (CSE 309):** This course equipped me with the skills needed to design and develop websites and web-based applications. I used tools and languages such as HTML, CSS, JavaScript, PHP, and MySQL. The practical lessons from this course helped me create an interactive and visually appealing frontend for my project, which connected smoothly with the backend systems.

- **System Analysis and Design (CSE 307):** This subject emphasized the importance of understanding user requirements and translating them into functional system designs. I learned how to conduct surveys, create system models, and use techniques such as flowcharts, DFDs, and use-case diagrams. This structured approach helped me plan the workflow of my project, reduce risks, and ensure that user expectations were clearly met throughout development.

- **Special Topics (CSE 490):** In this course, I explored how users interact with digital systems and how to design interfaces that are intuitive and user-friendly. Key topics included usability principles, user interface design, prototyping, and accessibility. I applied these concepts to improve the user experience of my project, ensuring that the system was not only functional but also easy and enjoyable to use. This course greatly enhanced my understanding of user-centered design.

Altogether, these courses provided the theoretical insight and technical knowledge that guided me through every phase of my internship project—from the initial concept to its final implementation. They not only shaped my technical skills but also helped me develop problem-solving strategies, teamwork, and project planning abilities.

2.2 Related works

The development of the Nextgen Gamer Nation was inspired by existing gaming e-commerce platforms and community-driven websites such as Steam, Amazon (Gaming section), and GameStop. These platforms combine product sales with user engagement through features like reviews, ratings, and gaming news. I have analyzed how these websites manage inventory, structure product listings, and enhance user experience through personalization and responsive design. Additionally, studied how social media and live esports integrations are used to boost engagement, which guided the inclusion of similar interactive features in our project. This research helped us design a platform that blends commercial functionality with community involvement, tailored specifically for gamers.

2.3 Project Overview and Role

As a Web Developer Intern, I contributed to the development of the Nextgen Gamer Nation , an all-in-one gaming platform that combines live game streaming, gaming blogs, and an e-commerce section for in-game items and accessories. I focused on both frontend and backend development, using technologies such as HTML, CSS, JavaScript, PHP, and MySQL. The system was built using agile methodology, allowing the team to adapt dynamically to feedback and evolving requirements. I contributed to designing user interfaces, building backend logic, and integrating APIs for streaming and payments. I also participated in code versioning, bug fixing, and feature testing to ensure a robust and scalable final product.

2.4 Methodology

We followed the Agile Software Development Life Cycle (SDLC), focusing on iterative improvements, stakeholder collaboration, and consistent feedback. The project workflow included:

2.4.1 Planning

- Defined core features such as the Shop, Live, Blog, and Admin Panel.

- Identified project deliverables, timeframes, and risk mitigation strategies.

- Conducted meetings with mentors/supervisors to finalize scope and milestones.

- Outlined user roles (admin, gamer, guest) and their respective access levels.

- Design

- Developed wireframes and mockups for user flows like browsing products, watching streams, and checking out.

- Designed the database schema for user data, product information, orders, and blog content.

- Mapped out system architecture and logic using flowcharts and pseudocode.

- Took feedback from supervisors and iterated design elements for better UX.

2.4.2 Implementation

- Built responsive web pages using HTML, CSS, and JavaScript.

- Developed dynamic content and backend features using PHP and MySQL.

- Ensured the integration of third-party APIs for streaming and secure payments.

- Used clean coding conventions and maintained organized documentation.

- Implemented admin functionalities like adding products, managing orders, and tracking users.

2.4.3 Testing

- Conducted unit, system, and integration testing to check each module.

- Performed cross-browser and mobile responsiveness testing.

- Ran security checks on login, checkout, and data transmission.

- Carried out user acceptance testing with simulated end-users and gathered feedback.

- Fixed bugs and inconsistencies before final deployment.

2.4.4 Evaluation

- Collected user feedback through simulated user tests and form submissions.

- Reviewed analytics like page load speed, stream buffering, and transaction success rate.

- Discussed feedback with the team and implemented minor improvements.

- Evaluated the platform's readiness for future scalability and real-world deployment.

Chapter 3

Project Management & Financing

This chapter outlines the planning, scheduling, budgeting, and overall project management strategies followed during the development of the Nextgen Gamer Nation web application. The goal was to ensure that every component of the project—from research to deployment—was completed efficiently, on time, and within budget, while meeting all stakeholder expectations.

3.1 Work Breakdown Structure

To handle the complexity of building the Nextgen Gamer Nation —a gaming e-commerce platform with multiple integrated modules (Shop, Live Streaming, Blog, Admin Dashboard)—a Work Breakdown Structure (WBS) was created. This helped divide the project into manageable sub-tasks like frontend UI design, backend development, admin panel creation, streaming API integration, and checkout system implementation.

The WBS ensured: • Clear task ownership and team accountability. • Parallel work on components such as the blog and shop modules. • Efficient progress tracking and milestone management.
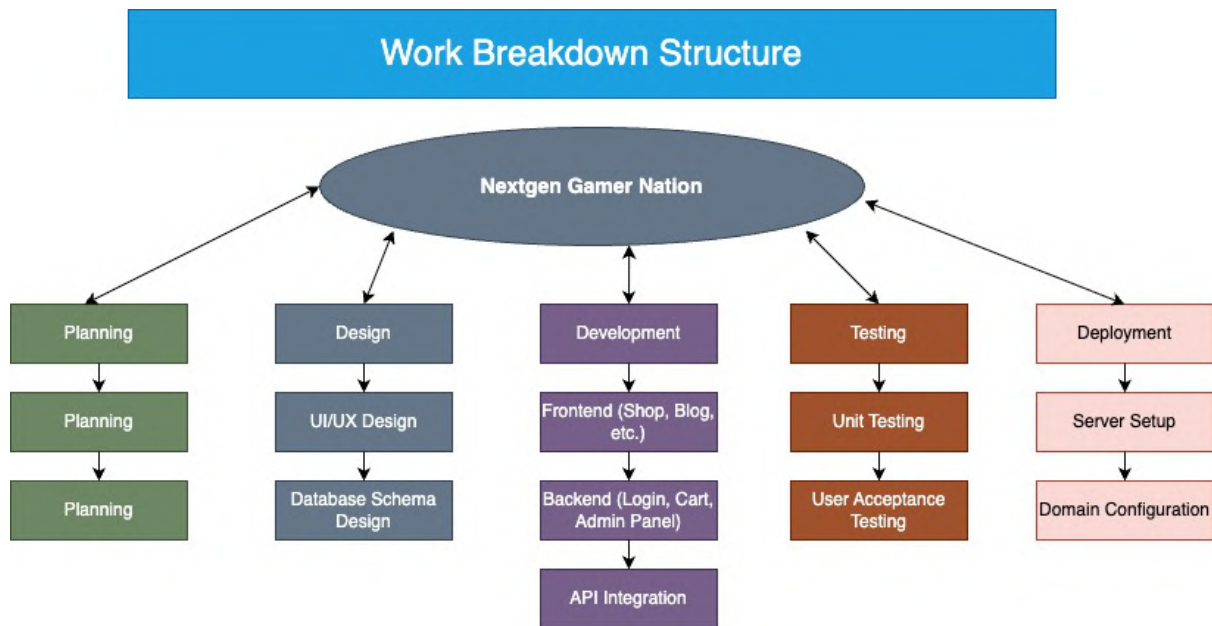
Figure 3.1: Work Breakdown Structure

3.2 Modified Time Distribution for Nextgen Gamer Nation

To ensure balanced progress throughout the development lifecycle of the Nextgen Gamer Nation , the project duration was divided into several logical phases based on workload, task dependencies, and complexity. Rather than allocating time based on static percentages, we focused on milestone-driven segments where each task was tracked by output rather than just time.

Activity	Estimated Duration (Days)	Effort(%)
Requirement & Learning Phase	10	12%
Project Planning & Management	15	18%
UI/UX and Database Design	14	16%
Development & Integration	32	37%
Testing & QA	8	9%
Deployment & Launch	8	8%

Table 3.1: Project Activity Effort Distribution

This revised model reflects more accurate progress tracking and reduced idle times

3.3   Gantt Chart

A Gantt chart was used to visualize the development timeline of the Nextgen Gamer Nation .
It provided a clear view of dependencies, resource allocation, and stage-by-stage progress. Each
bar in the chart represented the planned duration for a specific task and was regularly updated
as work progressed.
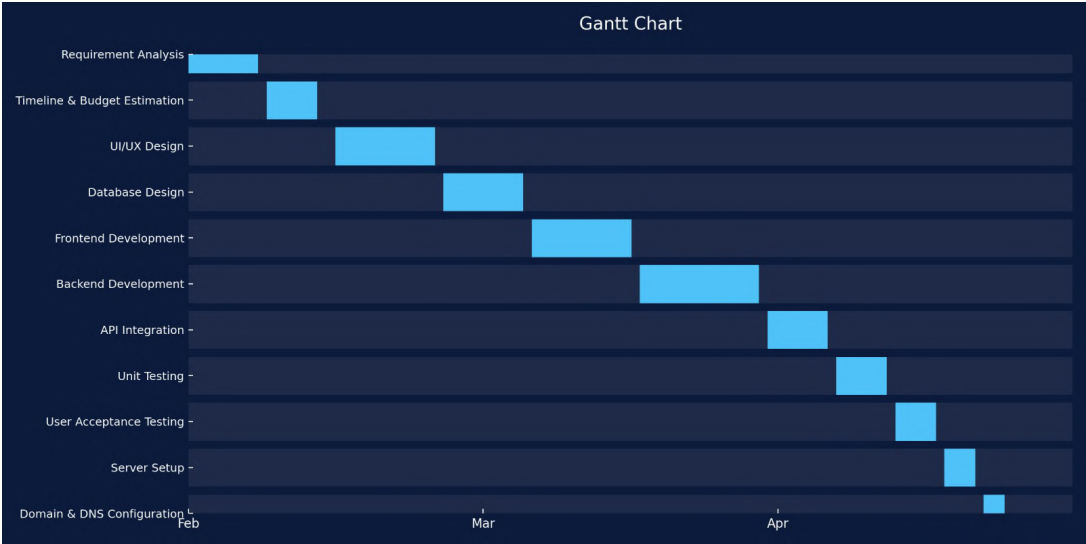
Figure 3.2: Gantt Chart

3.4   Process/Activity wise Resource Allocation

Resource allocation was carried out to ensure that the right skills, tools, and infrastructure were
available at each development phase. Developers were the primary contributors, supported by
hosting platforms, design tools, and testing environments.

Activity	Human Resource	Technical Tools/Support
Requirement & Planning	Project Manager, Developer	Documentation tools, Planning sheets
Design Phase	UI/UX Designer	Figma, Draw.io, MySQL Workbench
Development	Full Stack Developer	VS Code, XAMPP, PHP, MySQL
Testing	QA Engineer	BrowserStack, Manual testing
Deployment	DevOps/Developer	VPS, Domain, cPanel/Terminal

Table 3.2: Human Resources and Tools Used in Each Phase

3.5 Estimated Costing

To estimate the cost of developing and maintaining the Nextgen Gamer Nation , we considered both fixed and variable resources such as hosting, domain, development time, and third-party APIs. Here is a cost breakdown based on projected requirements:

Item	Estimated Cost (BDT)
Domain Name (1 year)	1,200
VPS Hosting (1 year)	3,500
Developer Tools (Free/Open Source)	0
API Subscriptions (Streaming/Payment)	1,500
Miscellaneous & Maintenance	1,000
Total Estimated Cost	**7,200**

Table 3.3: Project Budget Estimation

Chapter 4

Methodology

The development of the Nextgen Gamer Nation project followed a structured approach grounded in the Software Development Life Cycle (SDLC). Each phase of SDLC ensured that the application was built in a systematic, efficient, and reliable manner. The methodology adopted helped the team manage the entire process from planning to deployment.
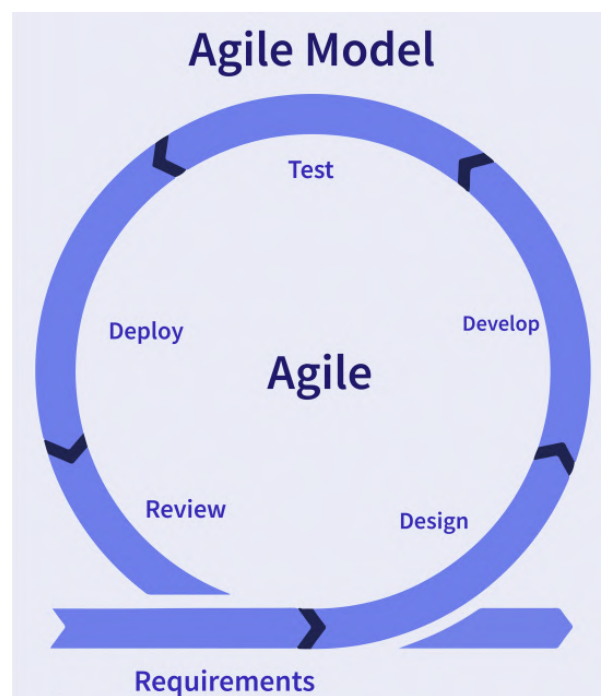
Figure 4.1: Agile Development Cycle

4.0.1 Planning Phase

The planning phase began with setting the project goals and objectives. It involved conducting market research on gaming-focused e-commerce platforms and outlining the key modules the Nextgen Gamer Nation would need. A Gantt chart was prepared to track the timeline of development activities over a three-month period.

4.0.2 Analysis Phase

During the analysis phase, both functional and non-functional requirements were identified. This included user login/logout, product browsing, admin controls, order management, and integration with streaming/blog modules. User roles, expected features, and backend functionalities were clarified.

4.0.3 Design Phase

System design was initiated using low-fidelity sketches, followed by detailed UI planning and database structure modeling. The design phase produced Entity Relationship Diagrams (ERDs), Data Flow Diagrams (DFDs), and screen layout mockups. Technologies and tools were selected during this stage: HTML, CSS, JavaScript for frontend; PHP and MySQL for backend.

4.0.4 Implementation Phase

The implementation phase focused on actual coding and development. Each module—such as user registration, admin panel, cart system, blog interface, and product management—was coded individually and tested locally. PHP was used to connect the interface with MySQL databases through XAMPP.

4.0.5 Testing Phase

After development, the testing phase ensured that all modules functioned as expected. Unit testing, functional testing, and user interface testing were performed. Form validations, database connections, and error-handling mechanisms were verified. Bugs found during testing were documented and fixed.

Chapter 5

Body of the Project

This Section presents a brief review of the project including – the entire process of the project, what was done in this project, how the project was done and finally the result analysis of this project.

5.1   Work Description

The Nextgen Gamer Nation project aimed to build a dynamic, e-commerce web platform focused specifically on gaming products and content. As part of the internship or course project work, this platform was developed by following industry-standard SDLC models, including planning, analysis, design, implementation, and testing. The work involved frontend development, backend logic using PHP, database management with MySQL, and design of user/admin interfaces.

The key responsibilities included UI layout, developing dynamic modules (login, cart, admin dashboard), database integration, error handling, and ensuring a responsive user experience. The tasks were divided over an 80-day period using a structured timeline and Gantt chart, with individual modules assigned accordingly.

5.2 Requirement Analysis

Rich Picture
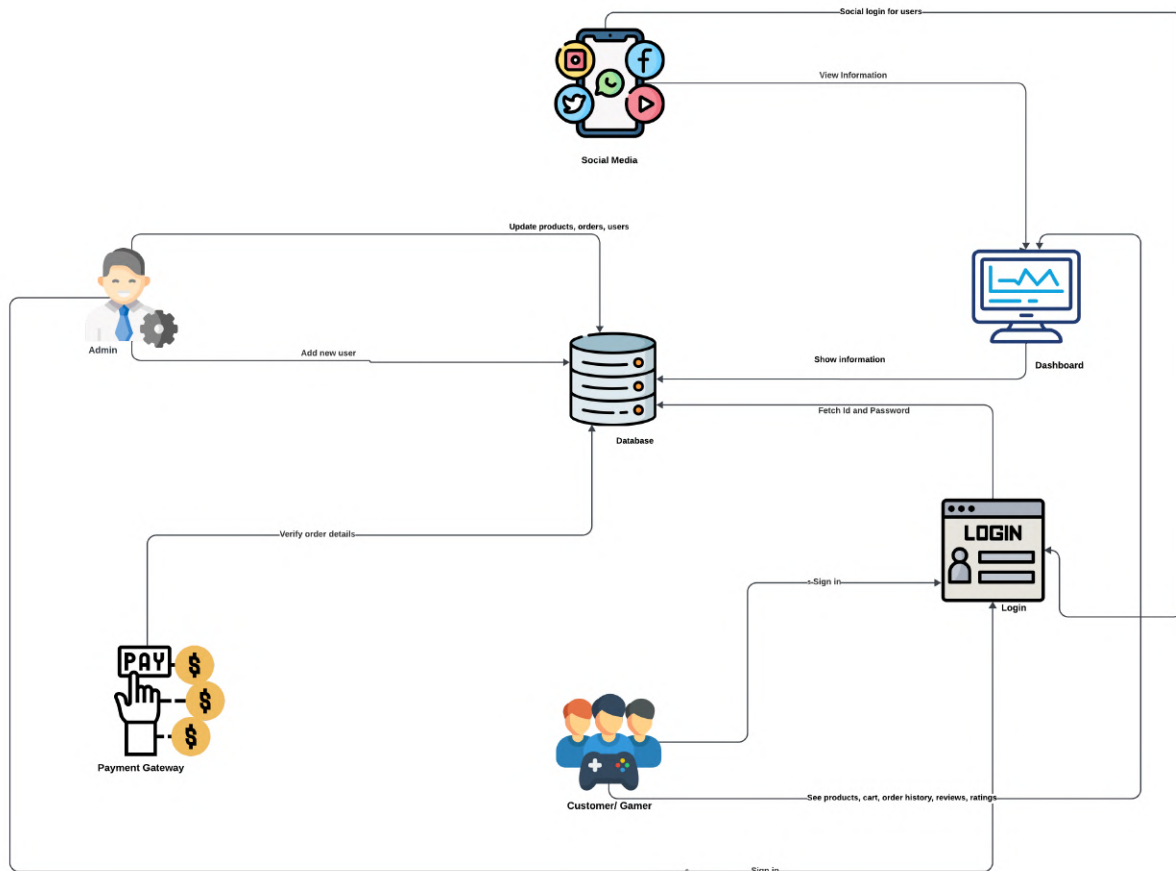
Figure 5.1: Rich Picture

Functional and Non-Functional Requirements

Functional Requirements: These describe what the system should do:

- **User Authentication**: Users must be able to register, log in, and securely access their dashboards.

- **Product Browsing and Search**: Visitors can explore available products by category, popularity, or price.

- **Cart and Checkout System**: Users can add items to a cart and proceed to order.

- **Admin Features**: Admins can add, update, or delete products, manage orders, and view user activities.

- **Live Streaming Integration**: Embedded stream links allow users to watch live gameplay.

- **Blog Interface**: A structured blog space for news, reviews, and gaming tips.

- **Order Management**: Tracks purchase history and order processing steps.

- **Feedback System**: Users can submit feedback through the contact page.

Non-Functional Requirements: These describe how the system should perform:

- **Responsiveness:** Mobile-friendly design using media queries.

- **Security**: Input validation, password encryption, and secure PHP backend handling.

- **Performance**: Optimized database queries and lightweight UI for faster loading.

- **Scalability**: System designed to easily accommodate future integrations and additional modules.

- **Usability**: Simple, intuitive layout with gamer-friendly design elements.

- **Maintainability**: Clean, modular code structure with inline documentation for easy future edits.

5.3 System Analysis

5.3.1 Six Element Analysis

Process	System Roles					
	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Communication And Network
Log in	Admin User enter credentials	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Create New User	Admin can create new users.	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Add/Delete User	Admin can delete any user account.	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
View Orders	Admin can see user orders	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Browse Products	Customers browse product catalog.	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Read Blogs	Customers read blogs	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Watch Live Streams	Customers view embedded stream content	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Submit Feedback	Customer submits feedback via form	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Create new item	Admin adds items to the catalo	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection
Edit Product Details	Admin edits existing product data	N/A	Laptop / Desktop	Web Browser	XAMPP	Net connection

Table 5.1: Six Element Analysis

5.3.2 Feasibility Analysis

Technical Feasibility: The Nextgen Gamer Nation platform was developed using widely available technologies:

- Frontend: HTML5, CSS3, JavaScript

- Backend: PHP

- Database: MySQL

- Tools: VS Code, XAMPP, phpMyAdmin

All tools are open-source or free to use, and the technologies chosen are compatible and scalable. Thus, the project is technically feasible within the given skill set and resources.

Operational Feasibility The system's flow from user registration to admin management is smooth and intuitive. All roles (admin, gamer, shopper) can perform their respective tasks efficiently:

- Easy to use interface

- Proper feedback handling

- Secure and responsive design

- This makes the system operationally feasible for both users and administrators.

Economic Feasibility The platform was built using:

- Free development tools (PHP, MySQL, HTML/CSS)

- Low-cost domain and hosting

- Intern-led development with no labor cost

- The estimated cost remained under 8,000 BDT, making it economically feasible for small businesses or startups.

Schedule Feasibility: Schedule feasibility assesses whether the Nextgen Gamer Nation project can be completed within the proposed time frame. For this project, realistic goals and deadlines were set, considering potential delays and challenges. The development process was divided into key phases: **planning, design, development, testing, and deployment.** Regular progress reviews, backed by tools like Gantt charts, helped the team stay on track. By adjusting timelines when needed and addressing issues proactively, the project was able to meet all deadlines without significant delays. As a result, the Nextgen Gamer Nation project was completed on schedule, with all milestones achieved within the set time frame.

5.3.3 Problem Solution Analysis

The Nextgen Gamer Nation Project faced several key challenges during its development:

- Inefficient User Management: Initially, managing user accounts manually was cumbersome and time-consuming, increasing the chance for errors.

- Complex Product and Order Management: Organizing product inventories, orders, and customer interactions through a simple interface proved to be difficult. As the catalog grew, it became harder to track stock and handle transactions smoothly.

- Limited Content Management: Keeping the website content, such as blog posts, products, and live stream content up-to-date required extensive effort and was prone to manual errors.

- Security and Data Protection : Ensuring that user and admin data was secure against threats like SQL injections and other vulnerabilities was a constant concern.

5.3.4 Solutions Implemented

Automated User Management:

- Developed a streamlined system that allowed admins to easily create, manage, and delete user accounts with minimal manual intervention.

- Implemented secure, hassle-free login and logout functionalities using hashed passwords and session management.

Simplified Product and Order Management:

- Introduced an intuitive admin panel for product inventory, order tracking, and customer management, reducing manual effort and improving operational efficiency.

- Admins could now easily add, edit, or delete products from the catalog and manage orders in real-time.

Integrated Content Management System (CMS):

- Integrated a CMS to enable easy updates for blogs, product descriptions, and promotional content without requiring direct code changes.

- Allowed for faster updates and ensured the website stayed current, providing a dynamic and engaging experience for users.

Enhanced Security Features:

- Integrated input validation and encryption protocols to protect sensitive user and admin data.

- Implemented best practices for securing user credentials and database entries to guard against common security threats.

5.3.5 Effect and Constraints Analysis

5.3.6 Effects

Operational Efficiency

- Positive Effects: Automating key features of the The Nextgen Gamer Nation project, such as product management, order processing, and customer interaction, significantly improves operational efficiency. The automation reduces human error and enhances the overall speed of transactions, product updates, and data handling.

- Negative Effects: Initial integration of the automated systems may disrupt existing workflows. The team may experience some delays during the adoption phase, and training for system usage might temporarily impact productivity.

Cost Management

- Positive Effects: The development of an efficient, scalable e-commerce platform like The Nextgen Gamer Nation helps reduce operational costs over time. By optimizing resources, improving inventory management, and automating tasks, the platform ensures cost savings in the long run.

- Negative Effects: The initial cost of developing the platform, including software, hosting, and tools, is high. Training employees and maintaining the platform will incur ongoing costs, and scaling the system as the platform grows might increase operational expenses.

Customer Satisfaction

- Positive Effects: The user-friendly interface, secure payment gateway, fast load times, and seamless navigation ensure a positive customer experience. Timely product deliveries and efficient order tracking further improve customer satisfaction.

- Negative Effects: During the initial rollout, bugs, glitches, or slow-loading pages might affect the quality of service. Additionally, users may face a learning curve when adapting to the platform's features, which might temporarily reduce service quality and user satisfaction.

Data Management and Analysis

- Positive Effects: The The Nextgen Gamer Nation system provides centralized data management for user profiles, product catalogs, and order history. Improved data analysis tools enable smarter business decisions and better marketing strategies, leading to future growth and enhanced customer experience.

- Negative Effects: Data privacy and security issues pose a challenge. If not properly protected, sensitive customer and payment data could be compromised. Regular audits and strong encryption protocols must be enforced to safeguard this data.

5.3.7 Constraints Analysis

Budget Constraints High upfront costs for software development, cloud hosting, domain registration, and tool subscriptions can strain the budget. Additionally, ongoing costs for system maintenance, updates, and customer support services must be considered in the long run.

Technical Constraints

- System Compatibility: Ensuring the The Nextgen Gamer Nation platform is compatible with existing web hosting services, payment gateways, and third-party APIs is critical. Integrating these with the system architecture may pose challenges.

- Network and Security: The platform's dependence on secure transactions and real-time order updates requires strong encryption, secure payment integration, and reliable internet connectivity for both customers and admins.

Human Resources Constraints

- There is a need for skilled developers, designers, and IT support staff to maintain the platform. Additionally, training staff to handle the backend interface and system management might require significant time and effort.

- Resistance from employees accustomed to manual processes might slow down the adoption of the new platform, and the transition period will require effective change management strategies.

Regulatory Constraints

- The platform must comply with local e-commerce regulations, data privacy laws (such as GDPR if operating in certain regions), and payment security standards (e.g., PCI DSS).

- Adherence to consumer protection laws regarding refunds, product returns, and warranties is essential to ensure compliance with industry standards and avoid legal challenges.

Time Constraints

- Developing, testing, and fully deploying the platform within a tight schedule may be challenging. Time is also needed for staff training, system integration, and debugging during the launch phase to avoid delays.

- Time-sensitive features, such as seasonal campaigns, must be implemented within specific deadlines to align with market opportunities.

Scope Constraints:

- Clear boundaries and objectives need to be defined for the project to avoid scope creep. While the project should accommodate future features such as AI-based recommendations and multi-currency support, it should not overcomplicate the initial version.

- Ensuring all critical features such as product catalog management, user authentication, and secure payment integration are included without overloading the system with unnecessary functionalities is essential for timely delivery.

5.4 System Design

The design included three layers: UI layer (HTML/CSS/JS), Business Logic (PHP), and Data Layer (MySQL). Key entities: User, Product, Cart, Order, Admin, BlogPost. The flow of data is organized using ER diagrams and DFD Level 1 diagrams.

UML Diagrams
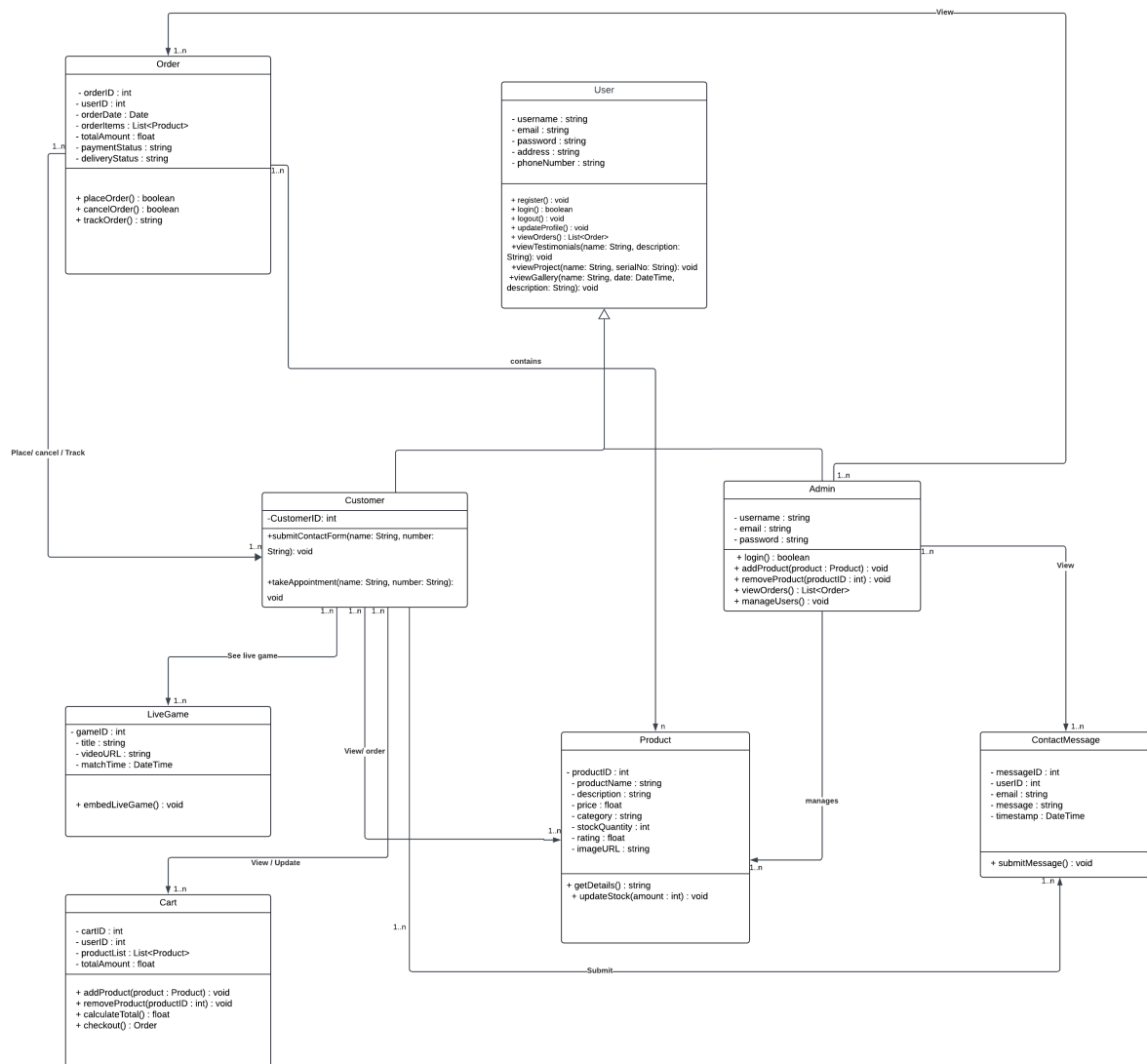
Figure 5.2: UML Diagram

Use case Diagrams
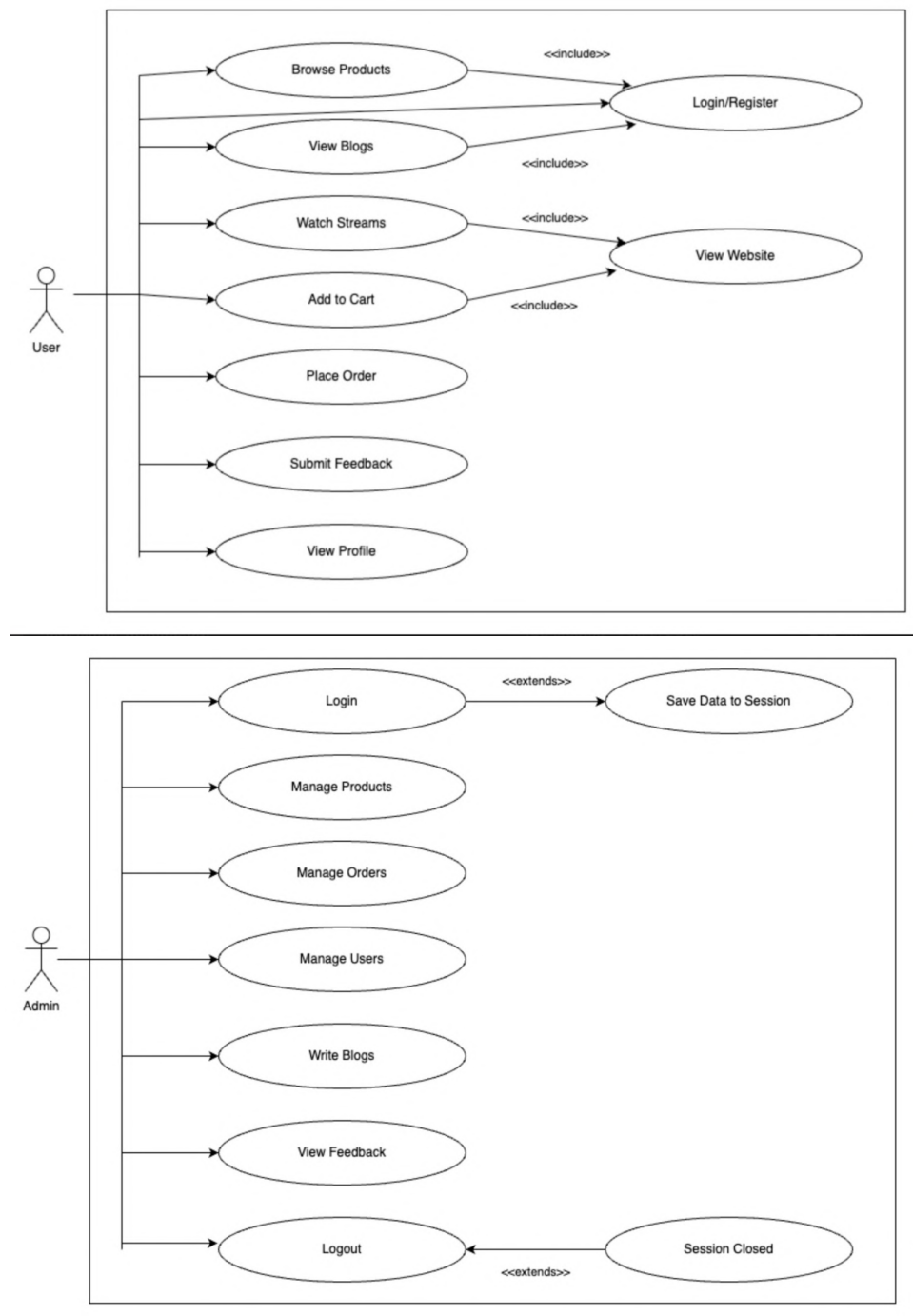
Figure 5.3: Use Case Diagram

5.5 Interface Implementation

The user interface included: - Home, Shop, Blog, Live stream, Cart, Checkout, Login/Register pages. Responsive design with media queries and Google Fonts ensured a gamer-friendly experience. UI focused on simplicity and visuals.

5.6 Admin Interface Implementation

The admin panel provided features such as:

- Add/Edit/Delete product

- Manage orders

- View contact messages

- Write blog posts
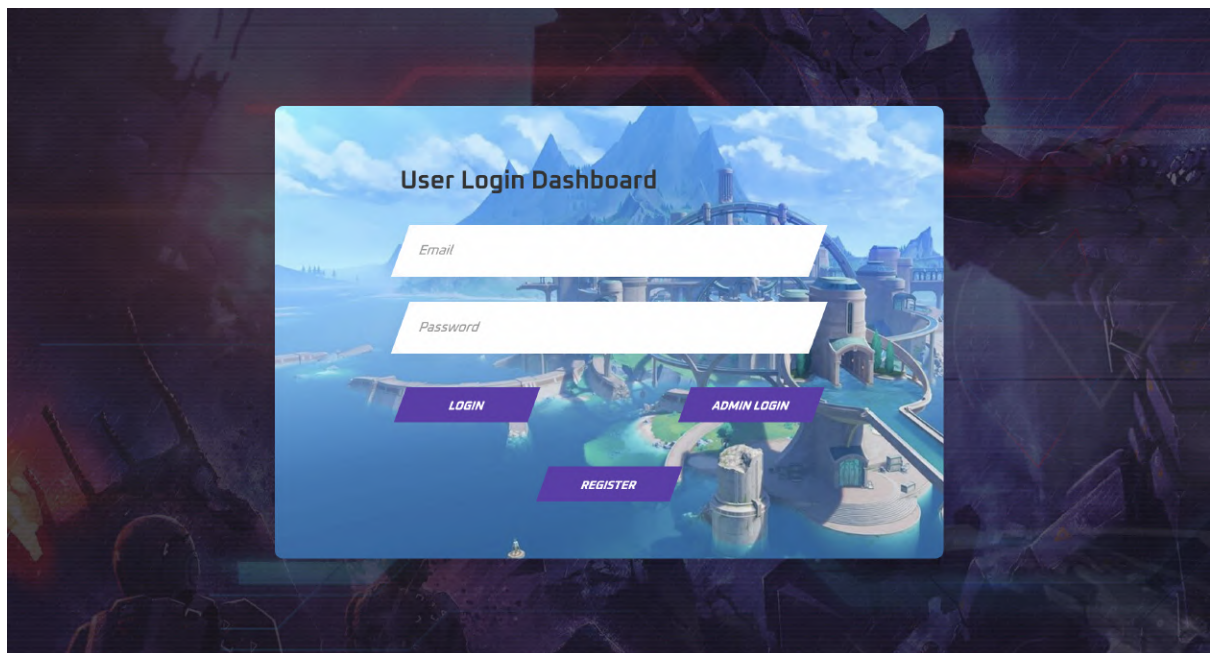
Figure 5.4: Login Page

This is out login page of our website.

Figure 5.5: HomePage

After successful login the users can see the homepage of our project.

Figure 5.6: Trending Game Section

Figure 5.7: Live Gaming Section

Figure 5.8: Relase Game Section

Figure 5.9: Gaming Products

Figure 5.10: News Section
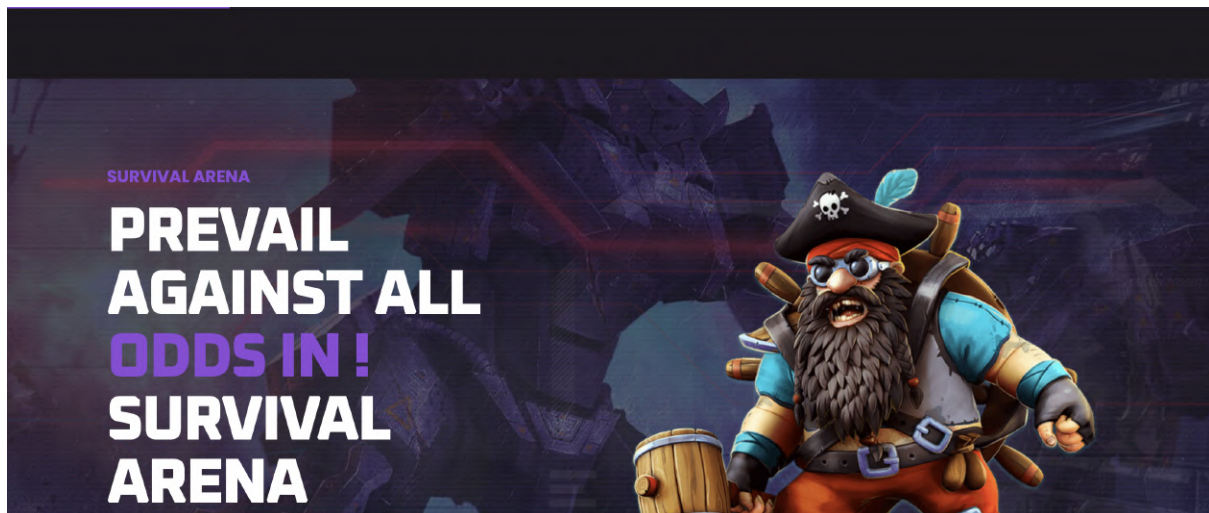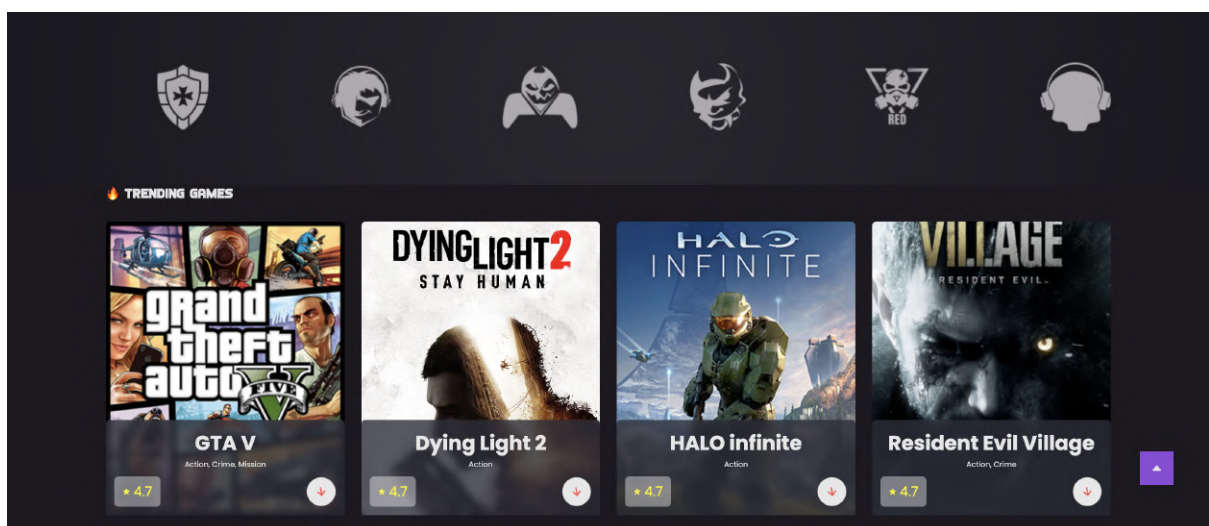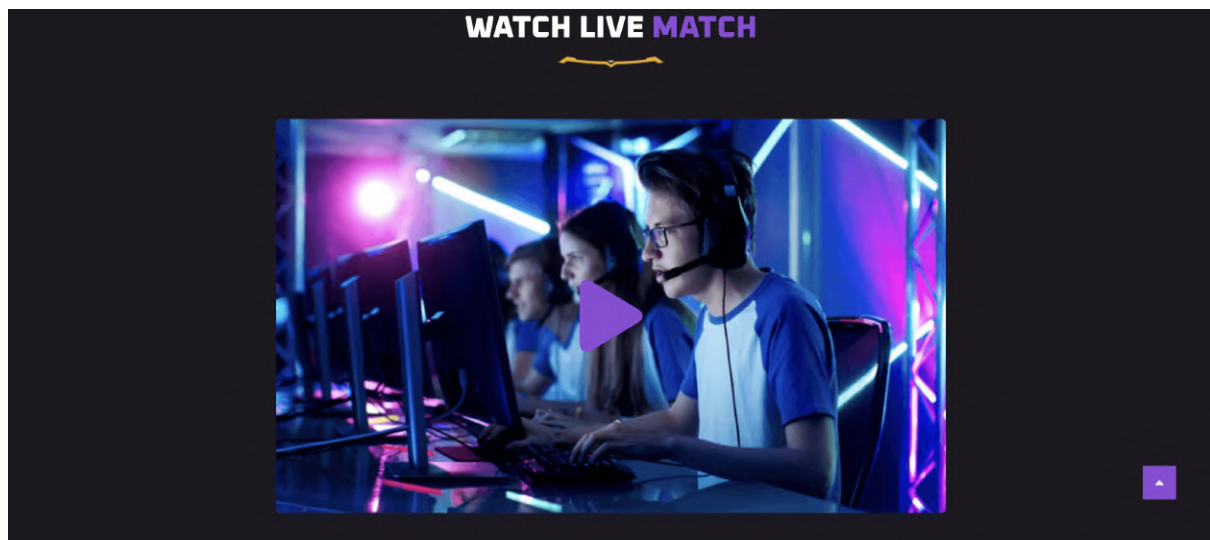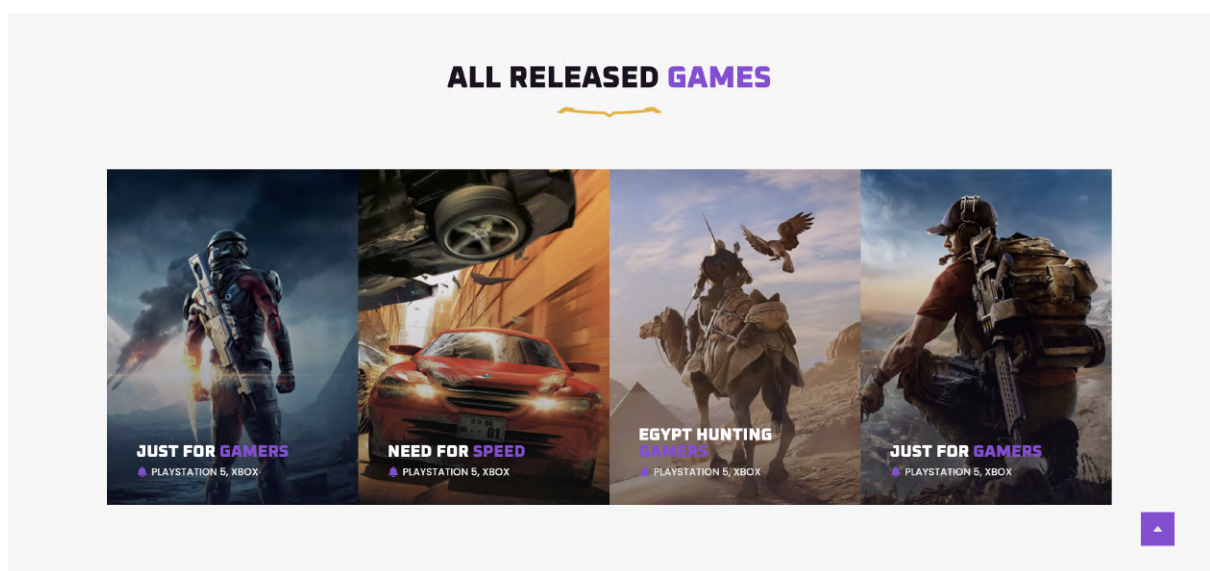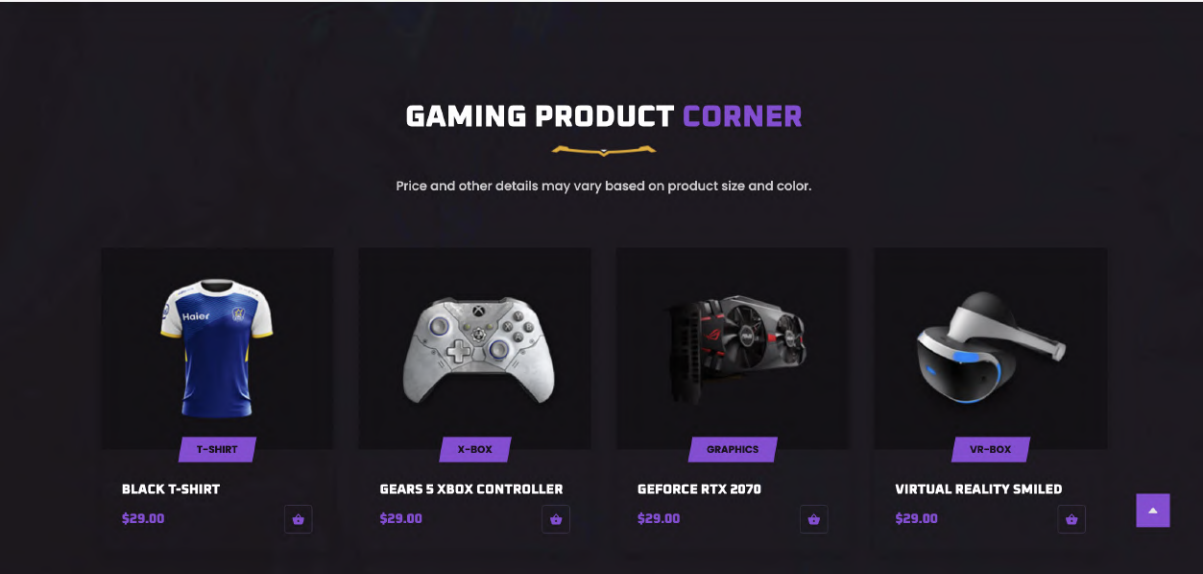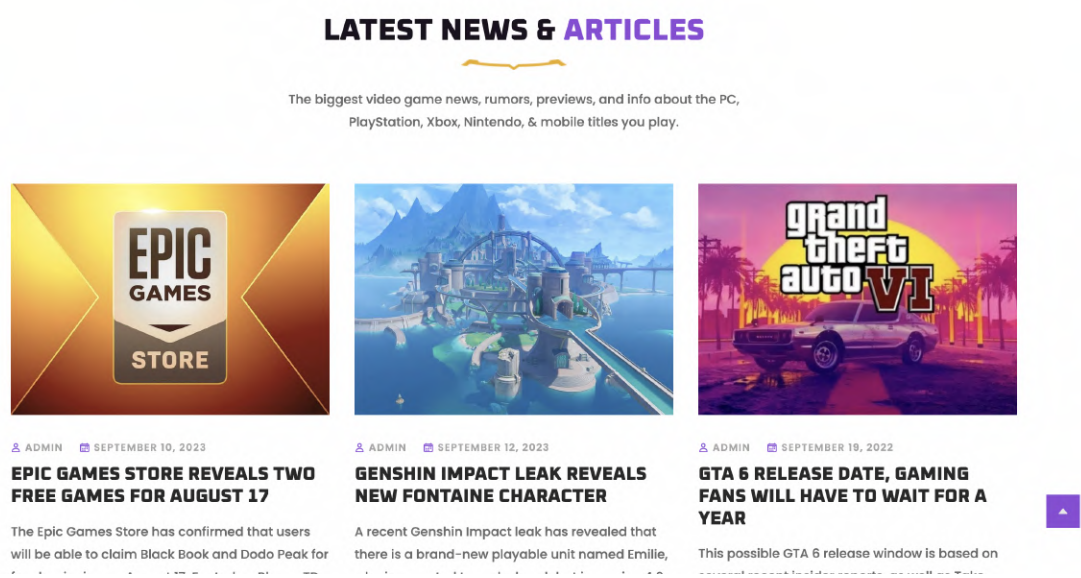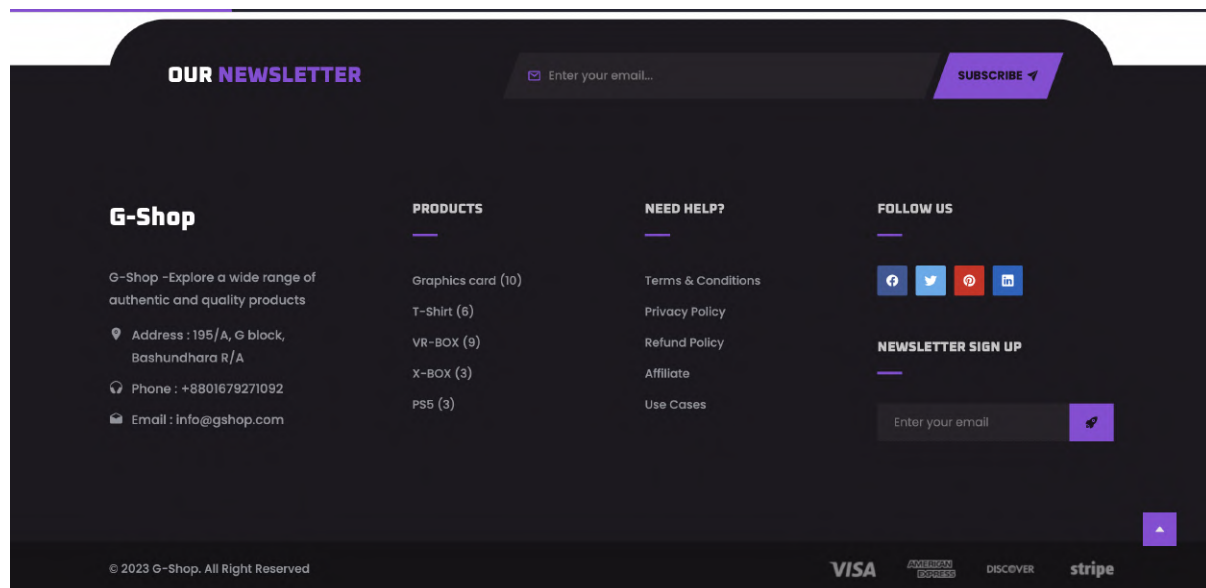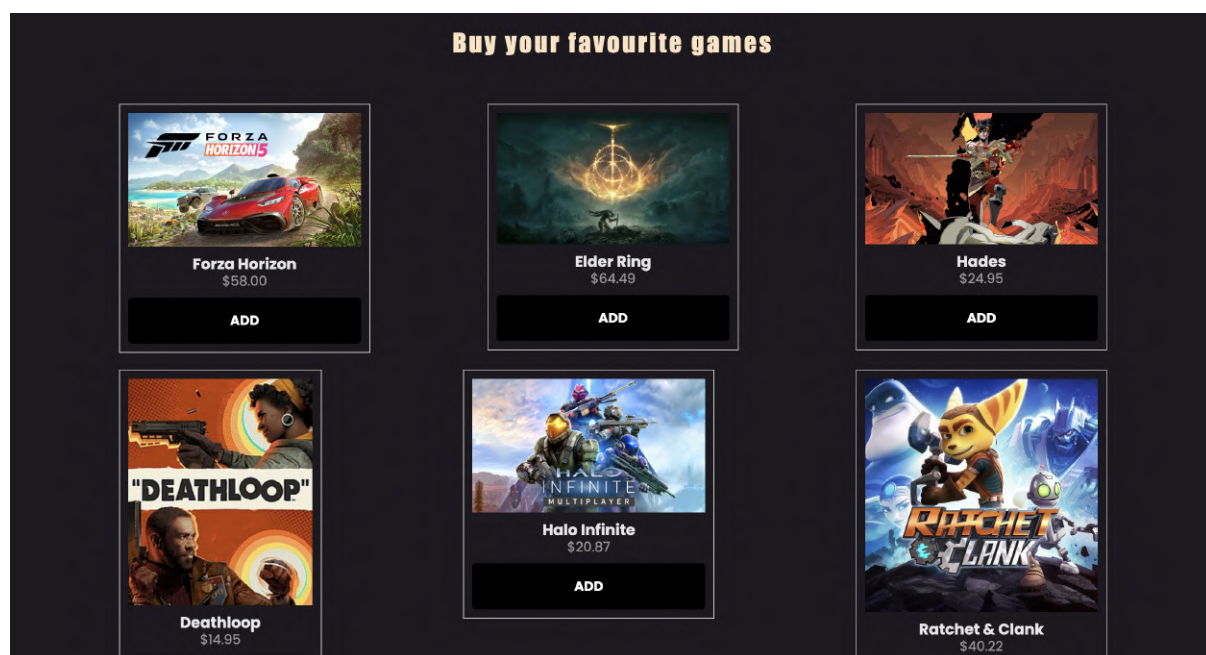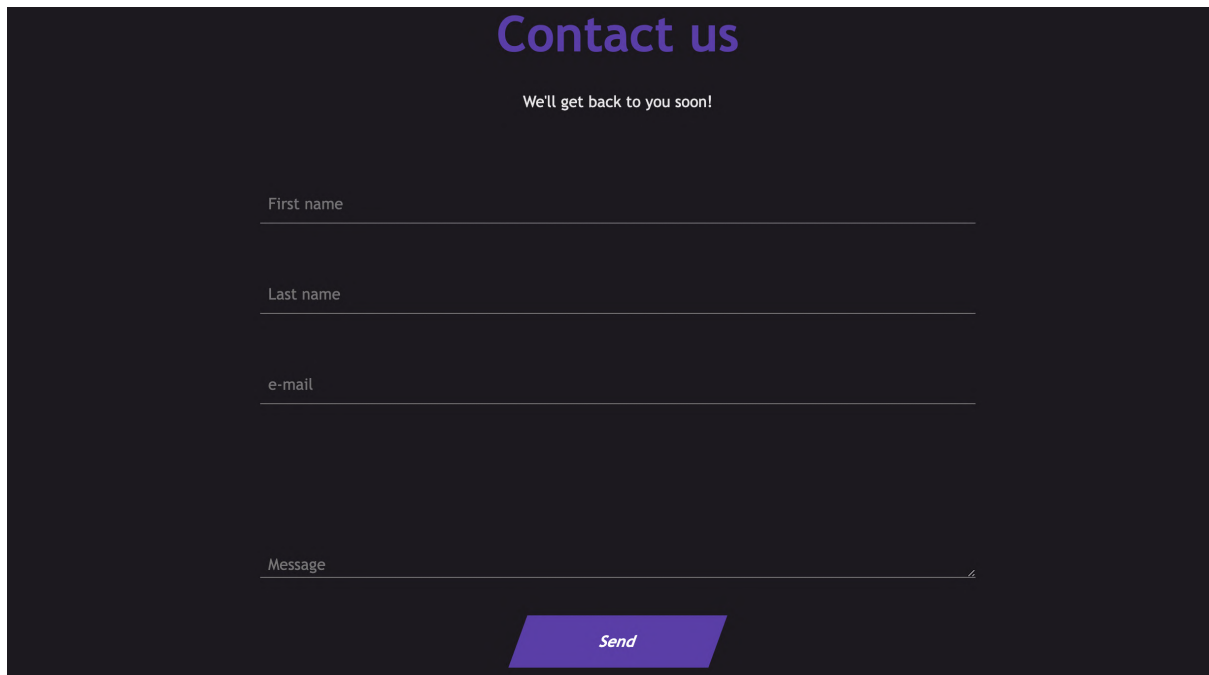
Figure 5.11: News Letter

Figure 5.12: Game Shop Page
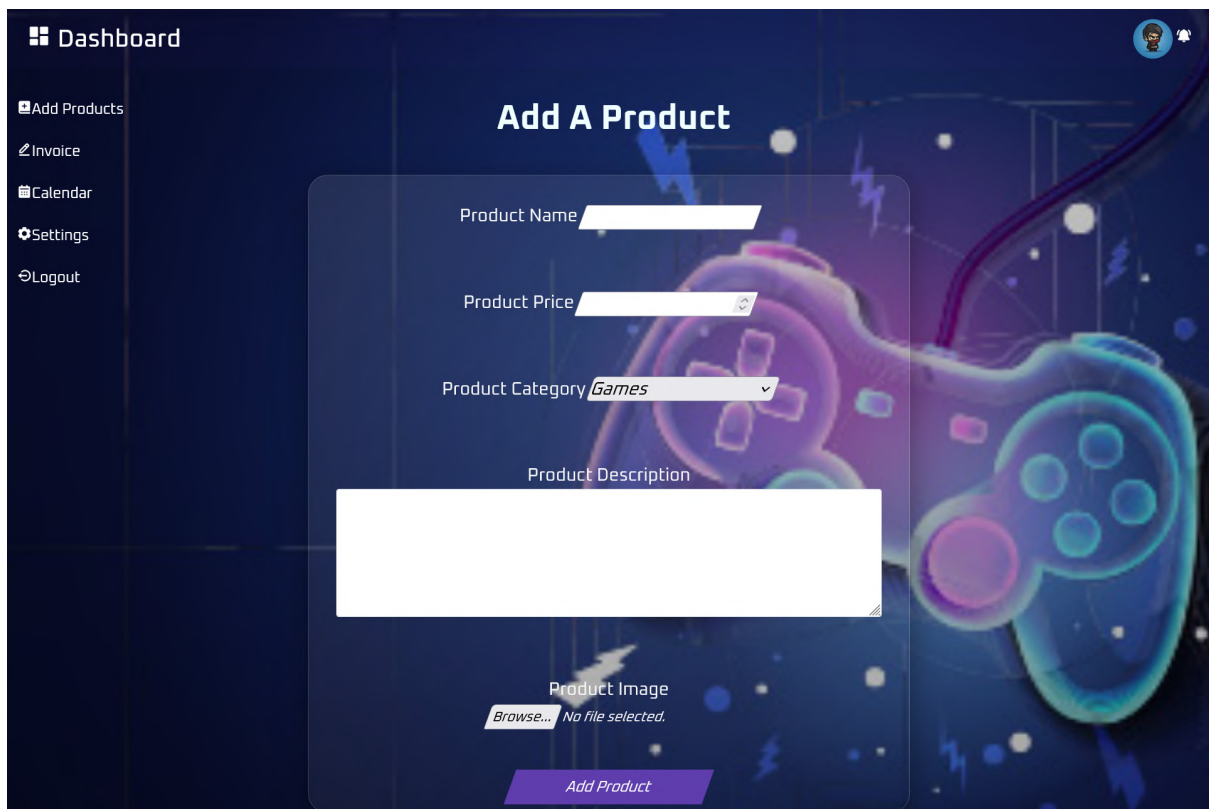
Figure 5.13: Contact Page

Figure 5.14: Admin add product page

5.7 Project Source Code Implementation


```php
1  <?php
2  include 'config.php';
3  ?>
4  <!doctype html>
5  <html lang="en">
6
7  <head>
8      <!-- Required meta tags -->
9      <meta charset="utf-8">
10     <meta name="viewport" content="width=device-width, initial-scale=1">
11
12     <!-- Bootstrap CSS -->
13     <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet"
14         integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC" crossorigin="anonymous">
15     <link rel="stylesheet" href="./login.css">
16     <link rel="shortcut icon" href="./fav.png" type="image/x-icon">
17
18     <title>User Login</title>
19 </head>
20
21 <body>
22     <div class="container-contact100">
23         <div class="wrap-contact100">
24             <form class="contact100-form validate-form" method="post">
25                 <span class="contact100-form-title">
26                     User Login Dashboard
27                 </span>
28
29                 <div class="wrap-input100 validate-input" data-validate="Please enter email">
30                     <input class="input100" type="email" name="email" placeholder="Email" required>
31                     <span class="focus-input100"></span>
32                 </div>
33
34                 <div class="wrap-input100 validate-input" data-validate="Please enter password">
35                     <input class="input100" type="password" name="password" placeholder="Password" required>
36                     <span class="focus-input100"></span>
37                 </div>
38
39                 <div class="btn-div">
40                     <div class="container-contact100-form-btn">
41                         <input class="contact100-form-btn" type="submit" name="login" value="Login">
42                     </div>
43                     <div class="container-contact100-form-btn">
44                         <input class="contact100-form-btn" type="submit" name="adminlogin" value="Admin Login">
45                     </div>
46                 </div>
47                 <div class="container-contact100-form-btn">
48                     <a class="contact100-form-btn" href="regform.php">Register</a>
49                 </div>
50             </form>
51         </div>
52     </div>
53
54     <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"
55         integrity="sha384-MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtIaxVXM" crossorigin="anonymous">
56     </script>
57
58     <?php
59     if (isset($_POST['login'])) {
60         $email = mysqli_real_escape_string($conn, $_POST['email']);
61         $password = mysqli_real_escape_string($conn, $_POST['password']);
62
63         $query = "SELECT * FROM `users` WHERE `email`='$email' AND `password`='$password'";
64         $result = mysqli_query($conn, $query);
65
66         if (mysqli_num_rows($result) == 1) {
67             session_start();
68             $_SESSION['AdminName'] = $email;
69             header("location: http://localhost/Nextgen_Gamer_ Nation/home.php");
70             exit;
71         } else {
72             echo "<script>alert('Invalid Credentials');</script>";
73         }
74     }
75
76     if (isset($_POST['adminlogin'])) {
77         $email = mysqli_real_escape_string($conn, $_POST['email']);
78         $password = mysqli_real_escape_string($conn, $_POST['password']);
79
80         $query = "SELECT * FROM `admin` WHERE `username`='$email' AND `pass`='$password'";
81         $result = mysqli_query($conn, $query);
82
83         if (mysqli_num_rows($result) == 1) {
84             session_start();
85             $_SESSION['AdminName'] = $email;
86             header("location: ./addproduct.php");
87             exit;
88         } else {
89             echo "<script>alert('Invalid Credentials');</script>";
90         }
91     }
92     ?>
93
94 </body>
95
96 </html>
97
```

Figure 5.15: Index Coding Part Section

```html
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Registration </title>
    <link rel="shortcut icon" href="./fav.png" type="image/x-icon">
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet"
        integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC" crossorigin="anonymous">
    <link rel="stylesheet" href="./assets/css/registration.css">
</head>

<body>
    <div class="container-contact100">
        <div class="wrap-contact100">
            <form action="registration.php" class="contact100-form validate-form" method="post">
                <span class="contact100-form-title">
                    Register Yourself !!!
                </span>

                <div class="wrap-input100 validate-input" data-validate="Please enter name">
                    <input class="input100" type="text" name="name" placeholder="Name" required>
                    <span class="focus-input100"></span>
                </div>

                <div class="wrap-input100 validate-input" data-validate="Please enter email">
                    <input class="input100" type="email" name="email" placeholder="Email" required>
                    <span class="focus-input100"></span>
                </div>

                <div class="wrap-input100 validate-input" data-validate="Please enter password">
                    <input class="input100" type="text" name="password" placeholder="Password" required>
                    <span class="focus-input100"></span>
                </div>
                <div class="btn-div">
                    <div class="container-contact100-form-btn">
                        <input class="contact100-form-btn form-control submit" type="submit" value="Register">
                    </div>
                    <div class="container-contact100-form-btn">
                        <button class="contact100-form-btn form-control" onclick="goToLogin()">Back to Login</button>
                    </div>
                </div>
            </form>
        </div>
    </div>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"
        integrity="sha384-MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtIaxVXM" crossorigin="anonymous">
    </script>

    <script>
        function goToLogin() {
            window.location.href = 'index.php';
        }

    </script>
</body>

</html>
```

Figure 5.16: Registration Coding Part Section

```php
1   <?php
2   include 'config.php';
3
4   // Fetch the count of items in the cart table
5   $count_query = mysqli_query($conn, "SELECT COUNT(*) as total_items FROM cart");
6   if ($count_query) {
7     $count_result = mysqli_fetch_assoc($count_query);
8     $total_items = $count_result['total_items'];
9   } else {
10    $total_items = 0; // Default value if there's an error
11  }
12
13  ?>
14
15  <div class="header-bottom skewBg" data-header>
16    <div class="container">
17
18      <a href="#" class="logo">Nextgen Gamer Nation</a>
19
20      <nav class="navbar" data-navbar>
21        <ul class="navbar-list">
22
23          <li class="navbar-item">
24            <a href="./home.php" class="navbar-link skewBg" data-nav-link>Home</a>
25          </li>
26
27          <li class="navbar-item">
28            <a href="#live" class="navbar-link skewBg" data-nav-link>Live</a>
29          </li>
30
31          <li class="navbar-item">
32            <a href="#features" class="navbar-link skewBg" data-nav-link>Features</a>
33          </li>
34
35          <li class="navbar-item">
36            <a href="#blog" class="navbar-link skewBg" data-nav-link>Blog</a>
37          </li>
38
39          <li class="navbar-item">
40            <a href="./shop.php" class="navbar-link skewBg" data-nav-link>Shop</a>
41          </li>
42
43          <li class="navbar-item">
44            <a href="contact.php" class="navbar-link skewBg" data-nav-link>Contact</a>
45          </li>
46          <li class="navbar-item">
47            <a href="./index.php" class="navbar-link skewBg" data-nav-link>Log out</a>
48          </li>
49
50        </ul>
51      </nav>
52      <!-- cart-badge -->
53      <div class="header-actions">
54
55        <form action="./cart.php" method="get">
56          <button class="cart-btn" aria-label="cart">
57            <ion-icon name="cart"></ion-icon>
58            <span class="cart-badge"><?php echo $total_items; ?></span>
59          </button>
60        </form>
61        <!-- <button class="search-btn" aria-label="open search" data-search-toggler>
62              <ion-icon name="search-outline"></ion-icon>
63            </button> -->
64
65        <button class="nav-toggle-btn" aria-label="toggle menu" data-nav-toggler>
66          <ion-icon name="menu-outline" class="menu"></ion-icon>
67          <ion-icon name="close-outline" class="close"></ion-icon>
68        </button>
69
70      </div>
71
72    </div>
73  </div>
```

Figure 5.17: Navigation Section Code

```html
1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5    <meta charset="UTF-8">
6    <meta http-equiv="X-UA-Compatible" content="IE=edge">
7    <meta name="viewport" content="width=device-width, initial-scale=1.0">
8    <title>Nextgen Gamer Nation -Explore a wide range of authentic and quality products
9    </title>
10   <!-- favicon -->
11
12   <link rel="shortcut icon" href="./fav.png" type="image/svg+xml">
13
14   <!-- custom css link-->
15   <link rel="stylesheet" href="./assets/css/style.css">
16
17   <!-- swiper-bundle -->
18   <link
19       href="https://unpkg.com/boxicons@2.1.2/css/boxicons.min.css"
20       rel="stylesheet"/>
21     <link rel="stylesheet" href="./assets/css/swiper-bundle.min.css" />
22     <script src="https://unpkg.com/boxicons@2.1.2/dist/boxicons.js"></script>
23
24   <!--- google font link -->
25   <link rel="preconnect" href="https://fonts.googleapis.com">
26   <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
27   <link
28     href="https://fonts.googleapis.com/css2?family=Oxanium:wght@600;700;800&family=Poppins:wght@400;500;600;700;800;900&display=swap"
29     rel="stylesheet">
30 </head>
31
32 <body id="top">
33
34   <!--HEADER Part-->
35
36   <header class="header">
37
38     <div class="header-top">
39       <div class="container">
40
41
42         <!-- Follow us on -->
43         <div class="social-wrapper">
44
45           <p class="social-title">Follow us on :</p>
46
47           <ul class="social-list">
48
49             <li>
50               <a href="#" class="social-link">
51                 <ion-icon name="logo-facebook"></ion-icon>
52               </a>
53             </li>
54
55             <li>
56               <a href="#" class="social-link">
57                 <ion-icon name="logo-twitter"></ion-icon>
58               </a>
59             </li>
60
61             <li>
62               <a href="#" class="social-link">
63                 <ion-icon name="logo-pinterest"></ion-icon>
64               </a>
65             </li>
66
67             <li>
68               <a href="#" class="social-link">
69                 <ion-icon name="logo-linkedin"></ion-icon>
70               </a>
71             </li>
72
73           </ul>
74
75         </div>
76
77       </div>
78     </div>
79             <!-- NavBar part -->
80 <?php
81     include 'navbar.php';
82 ?>
83
84   </header>
```

Figure 5.18: Home Page Code

```php
<?php
    include 'config.php';
?>

<!doctype html>
<html lang="en">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">

    <!-- Bootstrap CSS -->
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC" crossorigin="anonymous">

    <!--- google font link -->
    <link rel="preconnect" href="https://fonts.googleapis.com">
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
    <link href="https://fonts.googleapis.com/css2?family=Oxanium:wght@600;700;800&family=Poppins:wght@400;500;600;700;800;900&display=swap"
    rel="stylesheet">
    <link rel="shortcut icon" href="./fav.png" type="image/x-icon">
    <title>Add A Product</title>
    <link rel="stylesheet" href="adminSideNav.css">
    <link rel="stylesheet" href="addproduct.css">


    <link href="https://unpkg.com/boxicons@2.1.4/css/boxicons.min.css" rel="stylesheet"/>

  </head>
  <body>

<?php
include 'config.php';

if ($_SERVER['REQUEST_METHOD'] === 'POST') {
    if (isset($_POST['product_name']) && isset($_POST['product_price']) && isset($_POST['product_description']) && isset($_FILES['img']) && $_FILES['img']['error'] === UPLOAD_ERR_OK) {
        $pName = $_POST['product_name'];
        $price = $_POST['product_price'];
        $des = $_POST['product_description'];

        // Handle image upload
        $imgData = file_get_contents($_FILES['img']['tmp_name']);

        // Use prepared statement to insert image binary data into the database
        $statement = $conn->prepare("INSERT INTO products(name, image, price, product_details) VALUES(?, ?, ?, ?)");
        $statement->bind_param("ssds", $pName, $imgData, $price, $des);

        if ($statement->execute()) {
            session_start();
            echo "<script> alert('Product Added'); </script>";
        } else {
            // Handle insertion error
            echo "<script>alert('Product addition failed.');</script>";
        }

        $statement->close();
    } else {
        // Handle missing or incomplete form data
        echo "<script>alert('Please fill in all required fields.');</script>";
    }
}
?>
    <nav class="navbar">
      <h1 class="navbar-title"><a href="index.php"><i class="bx bxs-dashboard"></i></a></i> Dashboard</h1>
      </div>
      <div class="user-profile">
        <img src="assets/images/userP.jpg" alt="User Profile" />
        <i class="bx bxs-bell-ring"></i>
      </div>
    </nav>
    <div class="sidebar">
      <ul class="sidebar-menu">
        <li>
          <a href="addproduct.php"><i class="bx bxs-book-add"></i>Add Products</a>
        </li>
        <li>
        <a href="index.php"><i class="bx bx-log-out-circle"></i>Logout</a>
        </li>
      </ul>
    </div>


    <h2 class="text-center py-5"><b>Add A Product</b></h2>
    <section class="container glass my-2 w-50 text-light p-2">
        <div class="text-center">
        <form action="addProduct.php" method="post" enctype="multipart/form-data">
            <fieldset>
                <label>Product Name</label>
                <input type="text" id="product-name" name="product_name" required>
            </fieldset>
            <fieldset>
                <label>Product Price</label>
                <input type="number" id="product-price" name="product_price" min="0" step="0.01" required>
                </fieldset>
            <fieldset>
                <label>Product Category</label>
                <select id="product-category" name="product_category">
                    <option value="games">Games</option>
                    <option value="electronics">Gaming Accessories</option>
                    <option value="jersey">Jersey</option>

                </select>
            </fieldset>
            <fieldset>
                <label>Product Description</label>
                <textarea id="product-description" class="form-control" name="product_description" rows="8" required></textarea>
            </fieldset>
            <fieldset>
            <label>Product Image</label><br>
                <input type="file" id="img" name="img" accept="image/*">
            </fieldset>
            <input class="button" id="submit" type="submit" value="Add Product">
        </form>
        </div>

    </section>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtIaxVXM" crossorigin="anonymous"></script>

  </body>
</html>
```

Figure 5.19: Add Product Feature Code

```php
<?php
include 'config.php';
session_start();
$statement="select * from orders";
$result=mysqli_query($conn, $statement);
?>
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Orders</title>
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC" crossorigin="anonymous">

    <link rel="stylesheet" href="./assets/css/showOrderStyle.css">
    <link rel="stylesheet" href="./assets/css/navStyle.css">
    <link rel="stylesheet" href="adminSideNav.css">

    <link rel="shortcut icon" href="fav.png" type="image/x-icon">
    <link href="https://unpkg.com/boxicons@2.1.4/css/boxicons.min.css" rel="stylesheet"/>
</head>
<body>

<nav class="navbar">
    <h1 class="navbar-title"><a href="index.php"><i class="bx bxs-dashboard"></i></a> Dashboard</h1>
    </div>
    <div class="user-profile">
      <img src="assets/images/userP.jpg" alt="User Profile" />
      <i class="bx bxs-bell-ring"></i>
    </div>
  </nav>
    <div class="sidebar">
    <ul class="sidebar-menu">
      <li>
        <a href="addproduct.php"><i class="bx bxs-book-add"></i>Add Products</a>
      </li>
      <li>
        <a href="showOrder.php"><i class="bx bx-edit-alt"></i>Invoice</a>
      </li>
      <li>
      <a href="calender.html"><i class="bx bxs-calendar"></i>Calendar</a>
      </li>

      <li>
        <a href="settings.php"><i class="bx bxs-cog"></i>Settings</a>
      </li>
      <li>
      <a href="login.php"><i class="bx bx-log-out-circle"></i>Logout</a>
      </li>
    </ul>
    </div>
    <h3 class="text-center py-5"><b>Recent Orders</b></h3>

<?php

echo "<table>";
echo "<tr>";
    <th>Name</th>
    <th>Number</th>
    <th>Email</th>
    <th>Method</th>
    <th>Address</th>
    <th>Total Price</th>
</tr>";
while ($row = mysqli_fetch_assoc($result)) {
    echo "<tr>";
    echo "<td>" . $row['name'] . "</td>";
    echo "<td>" . $row['number'] . "</td>";
    echo "<td>" . $row['email'] . "</td>";
    echo "<td>" . $row['method'] . "</td>";
    echo "<td>" . $row['address'] . "</td>";
    echo "<td>" . $row['total_price'] . "</td>";
    // echo "<td>" . $row['qty'] . "</td>";
    echo "</tr>";
}
echo "</table>";


mysqli_close($conn);

 ?>


</body>
</html>
```

Figure 5.20: Show Order Feature Code

```html
1   <!DOCTYPE html>
2   <html lang="en">
3       <head>
4           <meta charset="UTF-8">
5           <meta name="viewport" content="width=device-width, initial-scale=1.0">
6           <link href="https://fonts.googleapis.com/css2?family=Overpass+Mono&display=swap" rel="stylesheet">
7
8
9
10          <!-- <script defer src="./static/js/account_dropdown.js"></script>
11          <script defer src="./static/js/burger_menu_dropdown.js"></script> -->
12          <link rel="shortcut icon" href="./fav.png" type="image/x-icon">
13          <title>Contact us</title>
14          <!-- <link rel="stylesheet" href="./assets/css/navstyle.css"> -->
15          <link rel="stylesheet" href="./assets/css/style.css">
16          <link rel="stylesheet" href="./contact.css">
17          <style>
18      .header-bottom {
19      position: relative;
20      top: calc(100% - 1px);
21      left: 0;
22      width: 100%;
23      background-color: var(--raisin-black-2);
24      padding-block: 20px;
25      z-index : 0;
26  }
27          </style>
28      </head>
29
30      <body>
31      <?php
32          include 'navbar.php';
33      ?>
34          <main>
35
36              <div class="title">Contact us</div>
37              <div class="title-info">We'll get back to you soon!</div>
38
39              <form action="" method="" class="form">
40                  <div class="input-group">
41                      <input type="text" name="first_name" id="first-name" placeholder="First name">
42                      <label for="first-name">First name</label>
43                  </div>
44
45                  <div class="input-group">
46                      <input type="text" name="last_name" id="last-name" placeholder="Last Name">
47                      <label for="last-name">Last name</label>
48                  </div>
49
50                  <div class="input-group">
51                      <input type="email" name="e-mail" id="e-mail" placeholder="e-mail">
52                      <label for="e-mail">e-mail</label>
53                  </div>
54
55                  <div class="textarea-group">
56                      <textarea name="message" id="message" rows="5" placeholder="Message"></textarea>
57                      <label for="message">Message</label>
58                  </div>
59
60                  <div class="button-div">
61                      <button type="submit">Send</button>
62                  </div>
63
64              </form>
65                  <?php
66          include 'footer.php';
67      ?>
68          </main>
69          <script type="module" src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.esm.js"></script>
70  <script nomodule src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.js"></script>
71  <script src="swiper-bundle.min.js"></script>
72      </body>
73  </html>
```

Figure 5.21: Contact Form Feature Code

5.8   Testing

Testing is an essential phase in ensuring the functionality, usability, and stability of the Nextgen Gamer Nation platform. The testing phases for the project were:

Input

The system checks input to ensure it is complete and accurate. This involves validating that the entered data, such as product details, user information, and order data, is accurate, complete, and meets the specified requirements.

Output

The system checks the output to ensure it is accurate and meets the expectations. This includes validating that the outputs, such as the order confirmation page or product detail page, match the expected results based on the input and backend data.

Test Results

| ID	History	Steps	Data	Predicted Results	Actual Results	Final Result
1	Validate User Login Data	http://127.0.0.1/ The Nextgen Gamer Nation/login	Email: example@gmail.com Password: 1234	Login success with correct credentials	User successfully logged in	Pass
2	Validate User Registration Data	http://127.0.0.1/ The Nextgen Gamer Nation/register	Email: example@gmail.com Password: admin	User registration successful	User successfully registered	Pass
3	Validate Add Product to Cart	http://127.0.0.1/ The Nextgen Gamer Nation/product/123	ProductID: 123 Quantity: 1	Product added to the cart	Product successfully added to cart	Pass
4	Validate Checkout Process	http://127.0.0.1/ The Nextgen Gamer Nation/checkout	Address: 123 Street, City Payment: Credit Card	Checkout completed, order confirmation	Checkout and order confirmation received	Pass
5	Validate Admin Login Data	http://127.0.0.1/ The Nextgen Gamer Nation/admin	Email: admin@example.com Password: admin123	Admin login successful	Admin logged in successfully	Pass

Chapter 6

Results & Analysis
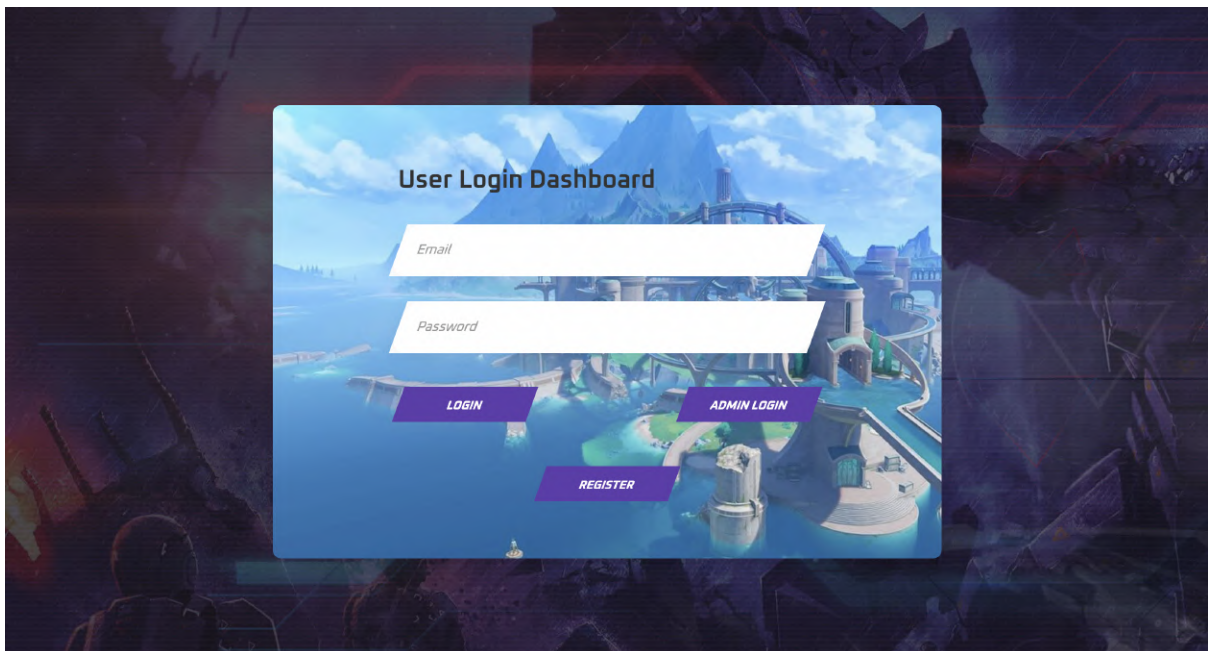
Figure 6.1: Login Page
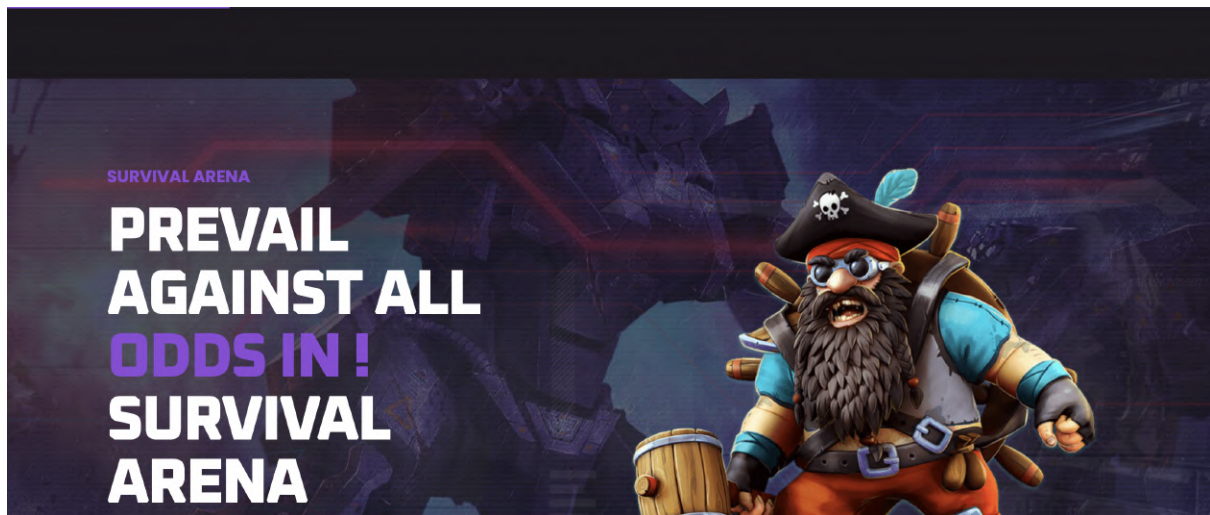
This is our login page of our website.
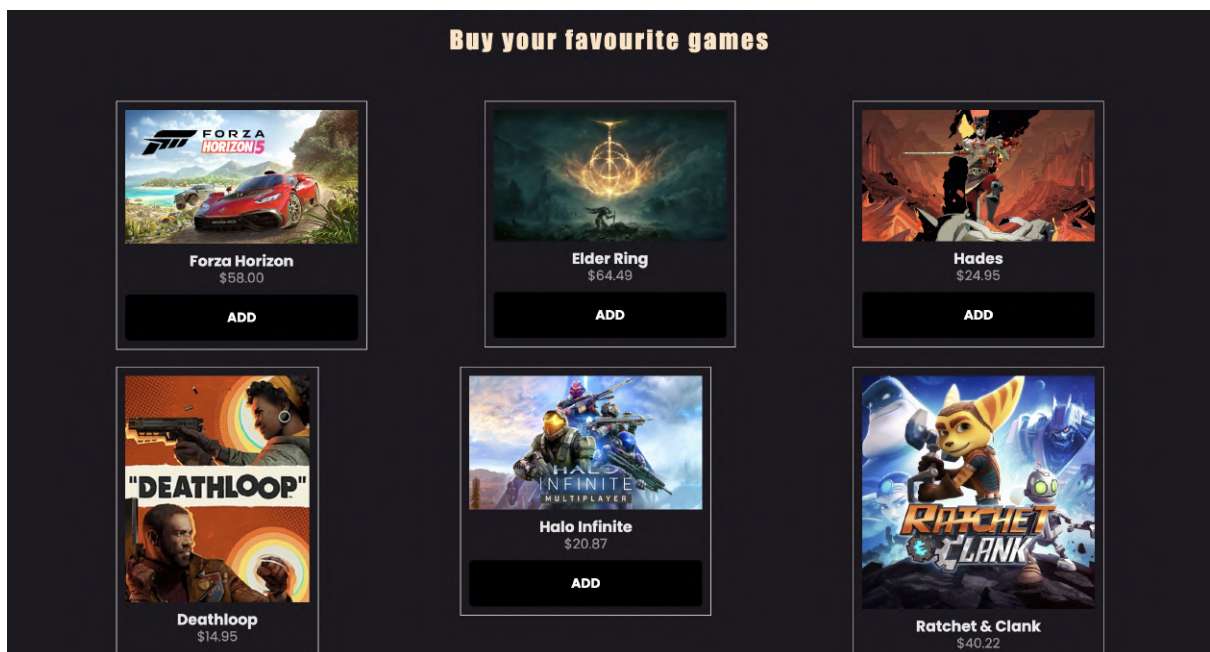
Figure 6.2: HomePage

Figure 6.3: Game Shop Page

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

The Nextgen Gamer Nation project was developed using sustainable tools, open-source technologies, and modular architecture that allow easy future maintenance and enhancement. PHP, MySQL, and front-end frameworks like HTML and CSS are widely used and well-supported, making them long-lasting and adaptable. Additionally, since the platform is designed to serve a niche community—gamers—it offers long-term relevance by continuously updating its inventory, blog, and streaming content.

The modularity of the platform ensures that future developers can easily add new features like AI-based recommendations or real payment gateways without disrupting the existing system.

7.2 Social and Environmental Effects and Analysis

Socially, The Nextgen Gamer Nation offers a positive influence by promoting gaming culture and building an inclusive community where gamers can explore content, shop, and stay updated. It creates an opportunity for small-scale gaming product sellers to reach a digital marketplace, supporting local entrepreneurship.

From an environmental perspective, the digital nature of the platform reduces the need for physical storefronts and printed promotional materials, thus contributing to a lower carbon footprint. Hosting the site on cloud infrastructure also promotes energy efficiency when compared to traditional physical infrastructures.

7.3 Addressing Ethics and Ethical Issues

Throughout the development of the Nextgen Gamer Nation , ethical considerations such as data privacy, content authenticity, and secure user interaction were prioritized. User credentials and sensitive information are handled using basic encryption practices, and all interactions go through verified and validated forms to prevent injection attacks.

No pirated or unlicensed content is hosted or linked through the platform, and all blog materials are original. The system is designed to be inclusive and free from any discriminatory or offensive elements, ensuring ethical compliance in its design and operation.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

During the development of the Nextgen Gamer Nation project, several problems were encountered across various stages of the software development lifecycle:

- **Time Management:** Balancing academic coursework with project deadlines created pressure and required consistent prioritization and rescheduling.

- **Integration Issues:** Integrating frontend components with backend logic (especially PHP-to-MySQL queries) led to functionality bugs.

- **UI Responsiveness:** Ensuring a consistent UI layout across different devices required additional CSS debugging and testing.

- **Database Design:** Structuring relationships between users, products, carts, and orders was challenging and required multiple revisions.

- **Security Considerations:** Implementing basic form validation and preventing SQL injections needed extra attention, especially in the login and registration modules.

- **Lack of Real-time Payment Features:** Due to limited resources, the team could not implement actual payment gateways, which reduced system realism.

8.2 Solution of those Problems

- To overcome the aforementioned challenges, several strategies and solutions were applied throughout the project lifecycle:

- Task Scheduling: A Gantt chart was used to distribute workloads more efficiently and visualize task overlaps to improve planning.

- Modular Testing: Individual components (login, product display, checkout) were tested in isolation before full integration to identify errors early.

- Media Queries and Grid Systems: Responsive frameworks and custom CSS queries were implemented to ensure device-friendly interfaces.

- Normalization Techniques: Database tables were normalized to reduce redundancy and ensure clean relational mapping.

- PHP Validation and Escaping Functions: Use of functions like "html specialchars()" and "mysqlirealescapestring()" improved input handling.

- Mock Payment Confirmation: Instead of integrating real gateways, a mock confirmation system was developed to simulate purchase completion.

Chapter 9

Future Work & Conclusion

9.1 Future Works

Although The Nextgen Gamer Nation platform currently fulfills its core objectives, there are several areas where future enhancements can be introduced to increase its functionality, scalability, and overall user experience:

- Integration of Payment Gateways: Future versions can include real-time payment systems such as SSLCOMMERZ, Stripe, or PayPal to support actual transactions.

- Mobile Application Version: Developing a companion Android or iOS app will improve accessibility and expand the user base.

- AI-Based Product Recommendation System: Implementing an intelligent algorithm to recommend products based on user preferences and activity.

- Multi-language Support: To reach a broader audience, especially local users, integrating Bangla or other language options can be beneficial.

- Admin Analytics Dashboard: Advanced data visualization tools for admin insights such as top-selling products, peak order times, and user behavior tracking.

- User Review and Rating System: Enabling users to provide ratings and reviews for products will build trust and improve product credibility.

9.2 Conclusion

The Nextgen Gamer Nation project has proven to be an excellent practical learning initiative that translated theoretical knowledge into a working application. From planning and design to implementation and testing, each phase contributed to a strong foundation in web development and project management.

This e-commerce platform successfully addresses a niche segment—gamers—and merges shopping with interactive content like blogs and live streams. While the current version meets

all basic functional goals, future iterations will further elevate the platform with intelligent systems, real-time integrations, and a mobile-first approach.

Overall, The Nextgen Gamer Nation was not only an academic success but also a stepping stone toward professional software development readiness.

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An Undergraduate Internship/Project on Gaming E-commerce Website

By

Preeum Saha

Student ID: **2031144**

Spring, 2025

The student modified the internship final report as per the recommendation made by his or her academic supervisor and/or panel members during final viva, and the department can use this version for achieving. The Turnitin Score is 15%.

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Signature of the Supervisor

Razib Hayat Khan, Ph.D.
Associate Professor
Department of Computer Science & Engineering
School of Engineering, Technology & Sciences
Independent University, Bangladesh