



An Undergraduate Internship/Inventory Management System

By

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Science in Computer Science

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Attestation

I, Zarif Wasif Bhuiyan, ID: 1911115 hereby declare, that the report titled “Inventory Management System for “JAISH TRADE INTERNATIONAL” submitted in partial fulfillment of the requirement for the Degree of Computer Science and Engineering is the result of my research work. I am also stating that the work was undertaken as a student in the universities.

I would like to acknowledge the guidance of my supervisor, Dr. Razib Hyat Khan, who was with me all the time at work. I also declare that the work being done is a personal view and that the objects were made from the understanding I got during my internship.

The report also properly cites and credits all sources used for further inquiry about this report, contacting my supervisor in the internship setting, Md. Shaifur Hossain at JAISH TRADE INTERNATIONAL through the email address.

Signature

Date

Zarif Wasif Bhuiyan

Name

Acknowledgement

I want to sincerely thank the Almighty for giving me the chance to finish my internship successfully. My sincere gratitude goes out to my family, friends, and seniors who supported and encouraged me no matter what during my internship and academic career. Their devotion to me and belief in me has always inspired me. In addition, I would like to thank the professionals and authorities in the fields of computer science and software development who so kindly contributed their resources and knowledge via online communities and scholarly publications. Their assistance greatly improved my knowledge and abilities.

My supervisor, Dr. Razib Hyat Khan, an assistant professor of computer science and engineering at Independent University in Bangladesh, has my sincere gratitude. His advice and assistance were really helpful to me as I prepared for my report and during my internship. I owe Independent University, Bangladesh equal gratitude for giving me a thorough education in computer science and engineering that has paved the way for my future success in the workplace.

I would like to express my gratitude to Md. Shaifur Hossain, my industrial supervisor at JAISH TRADE INTERNATIONAL, for all of his help, support, and advice throughout my internship. I was motivated to go above and beyond my own expectations by his inspirational remarks and guidance.

I sincerely appreciate all of the help and advice I had while working on my dissertation and internship. I have no doubt that this experience will be very beneficial to my future computer science aspirations. I sincerely thank everyone who has contributed to my path.

Letter of Transmittal

[06.06.24]

Dr. Razib Hyat Khan

Assistant Professor

Department of Computer Science and Engineering, School of Engineering and Computer Science.

Subject: Submission of Internship Report for Graduation Completion

Dear Sir,

I am writing to submit my Internship Report as part of the Bachelor Program in Computer Science and Engineering. My sincere thanks for your valuable guidance and supervision during my entire internship program at “JAISH TRADE INTERNATIONAL”. I feel pleased to submit the report on Internship. I have chosen to write about my internship experience at the “JAISH TRADE INTERNATIONAL” that is located in Dhanmonddi, Dhaka, where I was fortunate enough to work for three months under the kind guidance of Md. Shaifur Hossain at “JAISH TRADE INTERNATIONAL”.

I hope that this report will give others the opportunity to learn from my experiences as I did. Here, I have tried to conclude the information in detail that has been covered during my work but if you need further information or clarification, please let me know. I am confident that my report satisfies all prerequisites for completing an internship program toward the Bachelor of Computer Science and Engineering partial completion. I would be extremely grateful if you could accept my report and offer your insightful feedback. It would also be greatly appreciated if you could find this report to be useful and instructive. Thank you for your consideration and support that you have provided throughout my internship period. It has been a pleasure to be able to work under your guidance, and I truly appreciate the experience that I have gained.

Yours sincerely,

ZARIF WASIF BHUIYAN

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Evaluation Committee

Supervision Panel

.....
Academic Supervisor	Industry Supervisor

Panel Members

.....
Panel Member 1	Panel Member 2

Office Use

.....
Internship Coordinator	Head of the Department

Abstract

During my internship at JAISH TRADE INTERNATIONAL, we achieved meaningful advancements in designing an innovative inventory management system website leveraging the Python and Django frameworks. The aim of the project was to update our company's inventory procedures with emphasis on boosting productivity and correctness. The system incorporates a vast selection of characteristics, like merchandise categorizing, real-time stock monitoring, purchase management and comprehensive reporting abilities, offering an all-inclusive inventory management solution. Security steps have been rigorously implemented to shield delicate information and ensure the privacy and integrity of our stock records. Throughout the development cycle, I applied my expertise in programming and web growth to envision an user-friendly interface with responsive structure, prioritizing instinctive navigation and accessibility. Through stakeholder feedback and iterative testing, I was able to verify that the final output was aligned with our organization's requirements and standards. In conclusion, this internship offered me an opportunity to acquire essential practical knowledge in software engineering and project management, contributing to the improvement of my specific skills and strategies applied in the technical sector. Our company has redesigned its inventory management systems using state-of-the-art technology and creative methodologies, which has led to enhanced efficiency and reduced our operational costs significantly.

Contents

Attestation	i
Acknowledgement	ii
Letter of Transmittal	iii
Evaluation Committee	iv
Abstract	v
1 Introduction	1
1.1 Overview/Background of the Work	1
1.2 Objectives	1
1.3 Scopes	3
2 Literature Review	5
2.1 Relationship with Undergraduate Studies	5
2.2 Related works	6
3 Project Management & Financing	7
3.1 Work Breakdown Structure	7
3.2 Process/Activity wise Time Distribution	8
3.3 Gantt Chart	9
3.4 Process/Activity wise Resource Allocation	10
3.5 Estimated Costing	10
4 Methodology	12
5 Body of the Project	14
5.1 Work Description	14
5.2 Requirement Analysis	14
5.2.1 Rich Picture	14
5.2.2 Functional Requirements	15

5.2.3	Non-Functional Requirements	17
5.3	System Analysis	18
5.3.1	Six Element Analysis	18
5.3.2	Feasibility Analysis	20
5.3.3	Problem Solution Analysis	22
5.3.4	Effect Analysis	23
5.3.5	Constraints Analysis	24
5.3.6	Mitigation Strategies	25
5.4	System Design	25
5.5	Implementation	26
5.5.1	Prototype Design:	27
5.6	Testing	33
6	Results & Analysis	35
6.1	System Functionality Result	36
6.2	Impact on Business Operations	40
6.3	Analysis of Challenges Faced	40
6.4	Future Recommendations	41
7	Project as Engineering Problem Analysis	42
7.1	Sustainability of the Project/Work	42
7.2	Social and Environmental Effects	42
8	Lesson Learned	44
8.1	Challenges Faced During the Internship	45
8.2	Solutions to Overcome Challenges	45
9	Future Work & Conclusion	46
9.1	Future Works	46
9.2	Conclusion	46
	Bibliography	48

List of Figures

3.1	Work Breakdown Structure Diagram.	8
3.2	ProcessActivity wise Time Distribution Diagram.	9
3.3	Gantt Chart	10
5.1	Rich Picture	15
5.2	ERD Diagram for Inventory Management System	26
5.3	Jaish Trade International Landing Page	27
5.4	Login Page	28
5.5	User Interface	28
5.6	Product Category	29
5.7	Product Record view 1	29
5.8	Product Record view 2	30
5.9	Sales Transaction	30
5.10	Invoices view	31
5.11	Category Report	31
5.12	Product Report	32
5.13	Inventory Report	33

Chapter 1

Introduction

1.1 Overview/Background of the Work

Internships allow students to link textbook work to typical business practices, progressing into a more mature and experienced professional practitioner. I accomplished a three-month internship at Jaish Trade International while enrolled in the “Computer Science and Engineering” program at the Independent University, Bangladesh. As an intern at Jaish Trade International, I managed the project team and managed it to actualize an inventory management system. The task helped realize that a system that manages an inventory and creates a journal for a warehouse or store from the same console completes real-world transactions over theoretical readings. I applied learned innovation analytical expertise in creating a comprehensive, flexible, and functional stocking plan and calculating the purchase and storage methods costs and multiple inventories handled determined my recently acquired analytical capacity. Being hands-on at Jaish Trade International internship made me feel confident that the system actualized would be successful and I would have a successful career.

1.2 Objectives

I started my internship as a Trainee on 1st February, 2024, in Jaish Trade International. The project I worked on developing was the inventory management system project in Laravel. The primary idea was to introduce a fundamentally new notion of online shopping and a variety of other services for the people to use. The project on a whole operates on two main ideas which are, a user-friendly inventory management system platform, and an intuitive admin portal. The platform’s workability was to design the perfect shopping flow where people could create their accounts easily, access the listing product pages, their shopping carts, and successfully check out and payment step with the implementation of an HTTPS protocol over there which plays a part in

maintaining a secure connection between clients and server, a robust payment processor which ensures the people that your payment is totally safe and it cannot be accessed over the internet like hacking and fraud or scamming. The spending record made on the inventory is another important thing to include in the inventory which should maximize the selling productivity by minimizing your out-of-stocks and maximizing your restocked efficiency if it is being done. The user account space where the customers could work on their processes which would make their experience a richer one. The admin portal allows the admins direct sight on all their order distributions and complete order process, and relatively can update the product listings as well. The secondary goals included making sure that responsive design ensures multi-device accessibility, making sure that customers and the service provider can communicate seamlessly, and incorporating an easy registration and verification process for the service provider in addition to using external APIs for processing real-time data. User experience to be solved was to be maintained over time using feedback and usability testing for the satisfaction of the customers and scalability implementation in our project that allow our product to expand in the future with new features. I created the inventory management system for Jaish Trade International during my internship period.[1]

The primary objectives of the project will comprise developing an inventory management platform and having an admin portal. The inventory management platform will be to create a favorable environment for the customers while they are shopping. Most of these features will enable the customers to create accounts and base their product discovery on an available listing, a shopping cart, and secure payment options. Similarly, the project will also target integrating secure payment processing tools that will make the users trust their existence in the platforms. Moreover, we plan to have an inventory with enough capacities to ensure there's stock all the time and procedures that will make the restocking process much easier. In addition, my project will also involve creating a user account, which will allow the clients or the customers to make purchases and have the process shared to make it included in their account settings. Lastly, the user account admin portal will enable the engineers to make requests, orders, and also be able to have the product with its catalog.

All our project's secondary objectives are geared towards ensuring our developed inventory management system is of the highest quality possible. These include permitting access to external APIs for real-time data processing, facilitating smooth communication channels between clients and service providers, providing responsive design to enable multi-device accessibility, and many more. The onboarding process for service providers will be the contact possible since registration and verification have no bottlenecks. The project will also enhance ease of use since the user experience will be the first to be focused on improving constantly through feedback and usability testing. There will also be a high scalability potential for future feature additions. Our platform also protects

consumer and transaction data through being compliant to all data privacy regulations. We also hope to develop a broad digital marketing strategy since the system will generate a large and diverse user base and we want to have a strong presence online. We are best in sustainability and providing ethical solutions for the industry and humanity, hence.

1.3 Scopes

- **Fully Functional Product Management:** Help administrators upload and update and manage their product listings. As such, the agency needs to be able to categorize products, add descriptions, and create and maintain an up-to-date catalog under this aspect.
- **Secure Payment Facilities:** Integrate with reputable payment systems that offer fast and secure payment processing.
- **Inventory Integration:** Although it has been under development and construction for several years, the inventory management and optimization system shall be introduced.
- **User Account Management:** Users will have the ability to amend their data, including order histories, manage their profiles, and establish new accounts. They will also have the ability to reset passwords. Administrators ought to have the tools necessary to handle user accounts.
- **Admin Portal:** Order management portal should be created and further administered to assist managers with such processes as order processing, order tracking, and order reporting.
- **Communication Channels:** Customized communication should be developed for contacting companies with questions, scheduling appointments, or solving issues.
- **Onboarding for Service Providers:** Develop a simple and easy-to-follow process for service providers to sign up and verify their profile. Create features that quickly and efficiently get providers into the system.
- **User Feedback and Iterative Improvement:** Collect user feedback and use it to improve user experience, conduct regular usability testing, and optimize the platform to continue improving the user experience.
- **Scalability and Future Expansion:** Ensure a robust platform that can support future expansion, additional features, and additional service categories.

- **Data Security and Privacy:** I would make sure that strong data security measures are put in place and that data privacy laws are followed in order to secure consumer and transaction data.
- **Digital Marketing Strategy:** To guarantee the online presence of the target demographic, draw more users to my platform, and promote it, I would develop a digital marketing plan.
- **Sustainability and Ethical Practices:** Considering the importance of implementing environmentally friendly and socially responsible practices, I view such measures as a contribution to the development of the e-commerce industry and beneficial for the unethical party.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

The symbiotic relationship between my undergraduate studies at IUB and my internship project at Jaish Trade International is evident in the seamless integration of theoretical knowledge and practical application. The foundation laid by various key courses has been instrumental in the development of the inventory management system built during my internship.

- **CSE213 (Object-Oriented Programming in Java):** CSE213 (Object-Oriented Programming in Java) comprehensively explored object-oriented programming concepts using Java, establishing a solid foundation for developing applications utilizing OOP principles that easily extends to dynamically typed languages like PHP.
- **CSE309 (Web Application):** This is not only where I learnt coding languages, rather it was a course deeply connected to my internship project. This was the course, where I first started my journey of developing a web system.
- **CSE307 (System Analysis and Design):** This course had requirement analysis and diagram drawing techniques. This course is where I make diagrammatic representations so that I can understand client requirements and develop accordingly.
- **CSE303 (Database Management):** In addition, the knowledge gained from CSE303 helped design the database of the project since the database of this project was created using tools such as SQL Server Management Studio. It helped understand the concept of an entity-relationship diagram and database design which was essential to assess the effectiveness and performance of the system.
- **CSE203 and 211 (Data Structures and Algorithms):** CSE203 and 211 provided a powerful springboard to better understand the basics of the principle that made it easier to understand the complex architecture of a new programming model.

This was critical to developing strong algorithms and data structures required for the website of the IMS and the IMS.

2.2 Related works

This project build-up would not have been possible without the background works contributing to the structure, framework, and idea of fashion inventory management systems. The previous research has shown the importance of user-oriented design critical for the online shopping experience, given that users find intuitive and visually appealing interfaces much more enjoyable to navigate: personalized product recommendations increase user interaction with the site. [2] Knowledge on e-commerce tendencies guide towards mobile optimization, and industry-led sustainability trends have made consideration of eco-friendly and socially responsible aspects relevant. Study on the safety of payments provides applicable insights related to secure e-commerce transactions, and fashion forecasting lays the foundation for product optimization and the recognition of popular fashion trends. The cumulative influence of these works ensures that the Fashion World project stays relevant to industry standards and user expectations.[3]

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

The Inventory Management System internship project's Work Breakdown Structure serves as a road map for the full process of managing a project effectively. Project activities, links, and separations are visualized with the use of Work Breakdown Structure (WBS), which facilitates project planning, execution, and control. Above all, Work Breakdown Structure (WBS) encourages work delegation, resource allocation, and tracking; as a result, it encourages methodical project development.

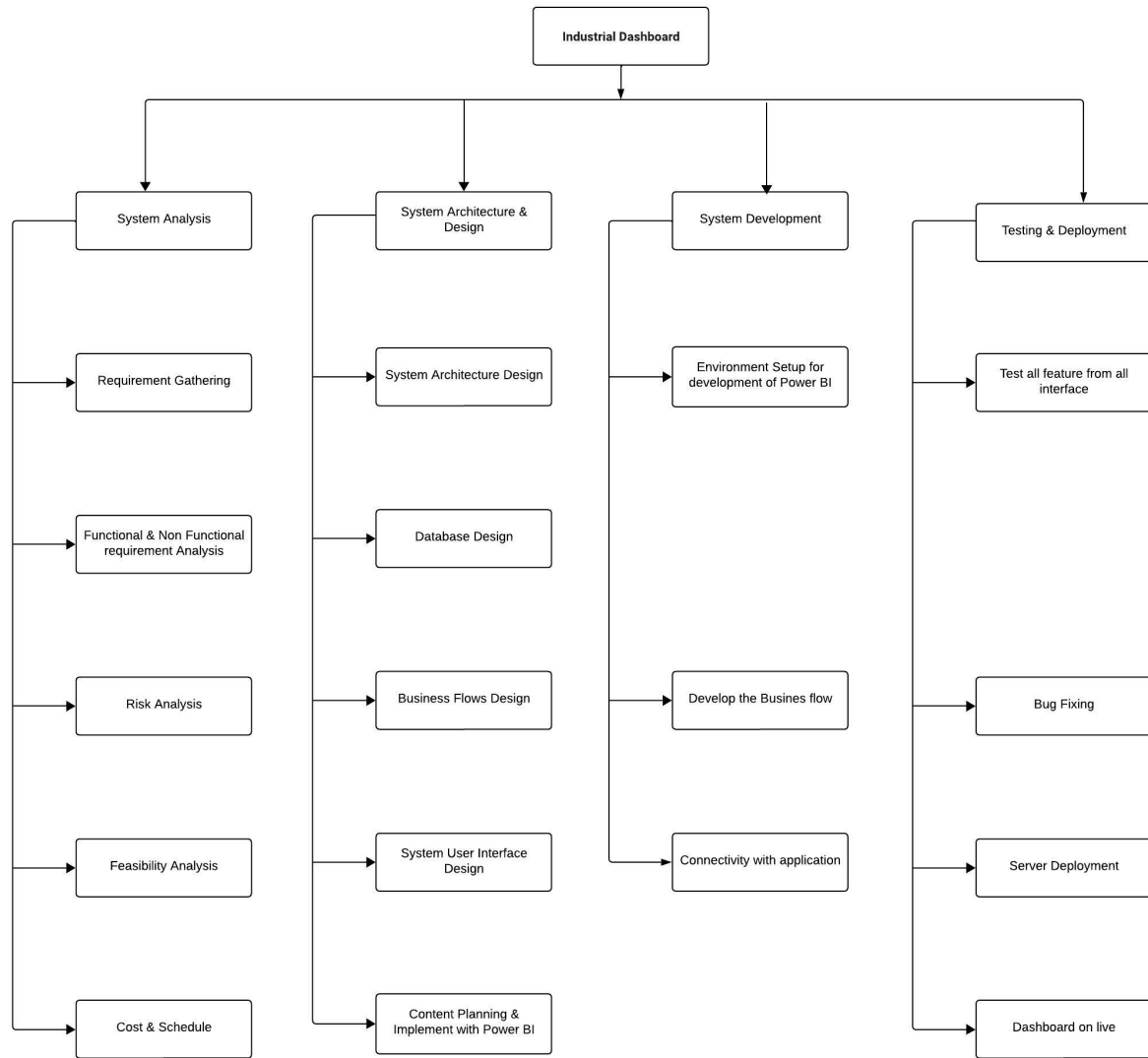


Figure 3.1: Work Breakdown Structure Diagram.

3.2 Process/Activity wise Time Distribution

To determine how long it takes to finish the Inventory management system functionally, the time distribution process and activity-by-activity analysis are crucial. Project scheduling is based on determining the critical route, or the longest path of all tasks purportedly executed correctly. Each action's relationship to the others is discussed, which helps with better project scheduling, aid distribution, timely projection implementation, and milestone fulfillment within the allotted time.

3.3. GANTT CHART

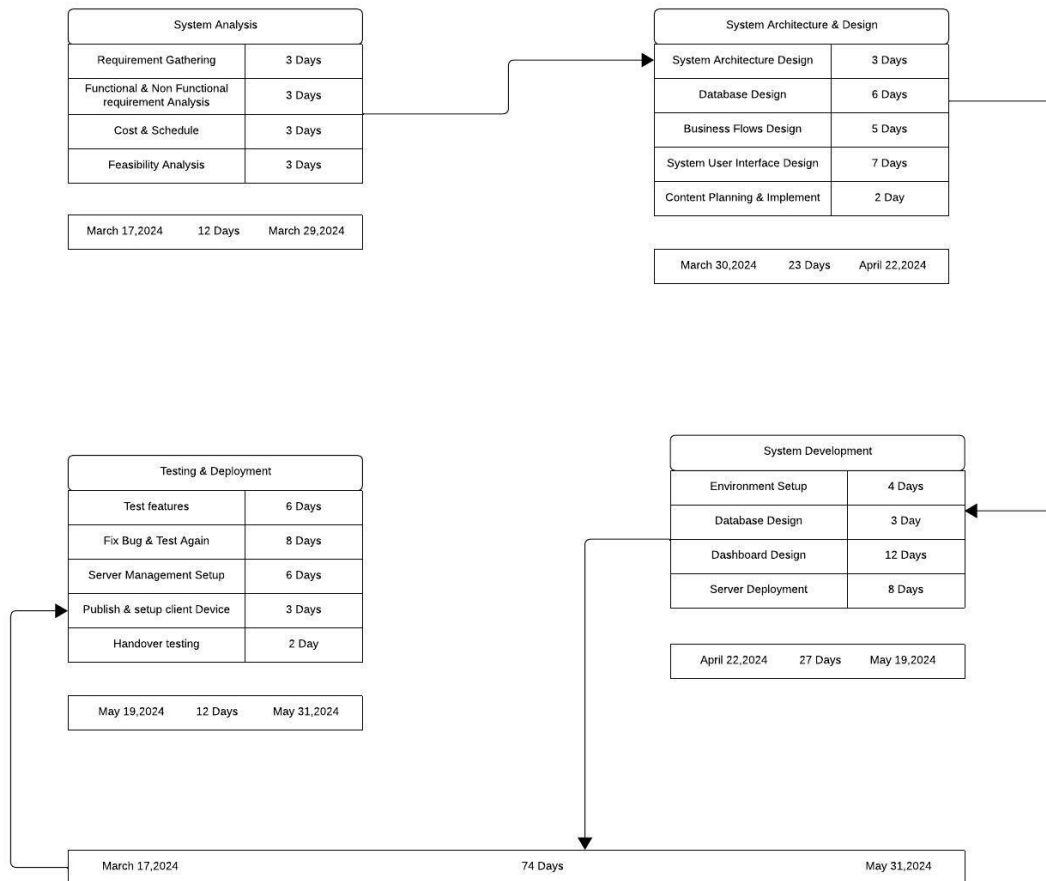


Figure 3.2: ProcessActivity wise Time Distribution Diagram.

3.3 Gantt Chart

Despite the fact that the Gantt Chart was not created in accordance with company policies, using it during the planning stage would have given valuable insights into resource allocation, job linkages, and progress tracking. Developers were chosen as the primary resource for the IMS project. The description of tasks, due dates, and teamwork provided a clear picture of the project's development.

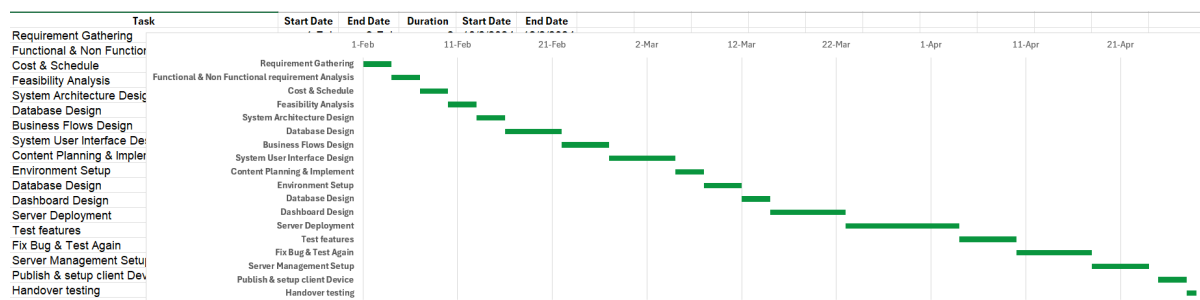


Figure 3.3: Gantt Chart

3.4 Process/Activity wise Resource Allocation

Resource allocation was planned carefully for the different processes in the IMS internship project as follows:

- **Inventory Database Management:** Database administrators were assigned to manage and maintain the inventory database for optimum performance.
- **User Interface (UI) Design:** UI/UX designers were tasked with creating an intuitive and user-friendly interface for the inventory management system.
- **System Integration:** Integrate personnel were assigned to integrate the IMS with various systems in operation.
- **Training and Support:** Resources were assigned to train IMS end-users and cater to support services to ease the transition.

3.5 Estimated Costing

The IMS internship project costs were estimated using a thorough approach that considered the four type costs which were used in the development and maintenance. Costs for the IMS internship project were estimated based on a comprehensive approach that considered each of the four cost types that were involved in the estimate. The following types of costs were considered in the estimate:

- **Development Costs:** Development costs included not only the costs of developing the IMS but also the costs of setting up the database, designing the user interface, paying salaries to the developers, purchasing software licenses, and obtaining tools used in the development.

- **Infrastructure Costs:** Infrastructure costs included renting servers and cloud storages and registering the domain name in order for the IMS to function properly and securely.
- **Training and Support Costs:** Training and support costs included the costs of hiring teachers for training the users, paying salaries to the support staff, and developing the ticketing system.
- **Integration Costs:** Integration costs included the costs of developing the architecture and integration points.

The goal of this estimating procedure was to offer a reasonable evaluation of the costs related to the creation, application, and utilization of the inventory management system. While the project is a demonstration, thorough costing is not possible. However, the method presented above aids in accurately comprehending the financial concerns associated with the IMS internship project.

Chapter 4

Methodology

1. **Requirements Gathering:** The first step is to have in-depth dialogues with stakeholders so as to fully comprehend what they require and what problems they are confronting in inventory management. This might involve e.g., interviews, questionnaires, or workshops getting an intuition about extant inventory processes as well as pain points, and discussing wanted features of the inventory management system in advance.
2. **System Design:** Create the inventory management system's architecture and functionality based on the requirements that have been gathered. Establish a database model that allows for entities with their attributes, as well as relationships between them so that inventory data can be effectively captured and organized. The design of the screens used by users, from considerations such as ease on the eyes to controls that make entrance into a system simple and intuitive.
3. **Development:** Use appropriate technologies and programming languages to create the inventory management system. Add functionality such as stock level and order management inventory tracking, reporting features integration with other systems that may be necessary. Use incremental development cycles to take in feedback and ensure that your product meets stakeholders' expectations.
4. **Testing:** Perform strict testing on the inventory management system to detect and correct any bugs, mistakes or inconsistencies. Execute functional testing to see that all system features and functions operate as they should. Perform load testing to evaluate system scalability, reliability and responsiveness under varying loads.
5. **Deployment:** Get ready to put the inventory management system into production. Prepare servers, databases and other infrastructure that it will require. Check deployment strength to ensure that the system functions smoothly and in a stable manner in production mode.

-
6. **Training and User Adoption:** Train end-users in the efficient use of the inventory management system. Generate user manuals, tutorials and further documentation to help end-users navigate and employ the system. Create acceptability among users by dealing with any problems or difficulties that they might have and by eliciting feedback for constant improvement.
 7. **Implementation:** As soon as possible roll out the inventory management system to end-users, and make sure that support is available to lines at time of initial transition. Monitor system performance and address any issues or worries raised by users. Continuously evaluate whether the system is being used effectively or not and if necessary adjust it.
 8. **Evaluation:** Evaluate the inventory management system using preset measurements and KPIs. Collect feedback from end users about the system's ease of use and effectiveness. also the influence of it on their daily work. In addition measure if the system improves any specific aspects related to inventory management e.g., cost reduction or overall efficiency gain.
 9. **Documentation and Reporting:** Provide a complete record of the production inventory management system together with its Imagination, implementation and test results. Provide regular progress reports to keep all stakeholders informed about project levels, achievements and any deviations from the initial plan.
 10. **Conclusion:** Have a go at conducting a project evaluation which highlights lessons learned. good practice pointers for future development. Hold a celebration with your project team and stakeholders. Store project records and assets (for reference later) after a project is finished as well as any potential updates or additions to inventory management systems.

Chapter 5

Body of the Project

This chapter provides readers with a wealth of information regarding the project's different facets by encompassing all of its details. It contains information on system analysis, requirements analysis, system design, development, and testing, as well as a brief task description.

5.1 Work Description

The overall goal of this project is to enhance the digital presence of JAISH TRADE INTERNATIONAL and develop an inventory management process. Apical is a company that provides systems integration, and it is important for it to showcase its work through the use of various digital solutions. For example, the implementation of digital filtering solutions that will ensure the process of inventory tracking. The first part of the project is the development of a professional website designed to function as “a brochure”. It will provide a description of the company and its work that will include its teams, particularly Siemens-accredited PCS7 and TIA Portal engineers and some notable projects. The second aspect will address the major issue of inventory tracking and the development of an integrated inventory management system designed to track successive orders and projects. It is designed to improve the company's work and help ensure timely completion of projects. Including such digital solutions can improve the work of the company, improve relationships with customers and help JAISH TRADE INTERNATIONAL maintain its leading position in the field of process plants control systems integration.

5.2 Requirement Analysis

5.2.1 Rich Picture

A detailed Rich Picture visualization presents an overview of the system within the industrial solutions company, including the activities and roles of various users. The

administrator is in charge of system management, which includes updating and adding users, monitoring user accounts, and recording messages and projects. Engineers control and manage projects of control systems from their initiation to completion. As part of their job responsibilities, they create, develop, and commission projects. Clients are essential users who can initiate projects, provide feedback, and receive project references. Another component is the database diagram that shows how the project data and inventory are managed. This representation provides comprehensive information for all users involved in the system. It helps to visualize and evaluate the activities and data management of the company's system. Additionally, it can be a useful tool for the discussion on the roles and responsibilities being involved.

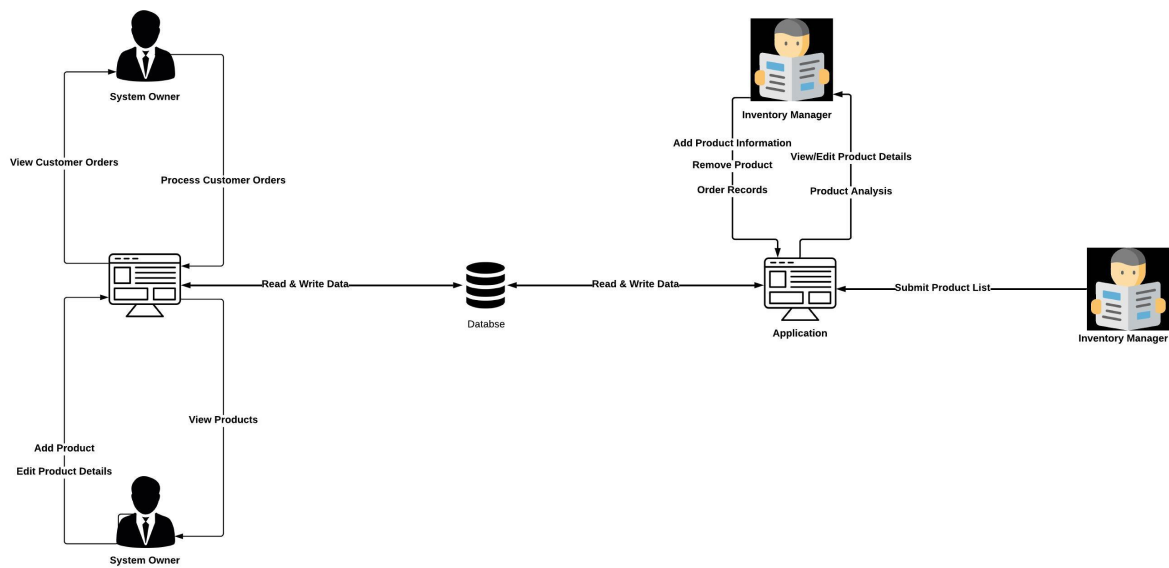


Figure 5.1: Rich Picture

5.2.2 Functional Requirements

Functional Requirements for the JAISH TRADE INTERNATIONAL Website:

1. User Registration and Account Management:

- Users should be able to easily create accounts by providing necessary information.
- Account login and logout functionalities should be straightforward.
- Password recovery and reset options must be readily accessible for user convenience.

2. Service Portfolio Display:

- The website must present a comprehensive portfolio of control system projects and services offered.
- Services should be well-organized into categories for effortless navigation, such as by industry or project type.

3. Project Details:

- Users should have access to all the information about the project, such as description, specification, and client comments.
- All the references and case studies about the projects must be available to demonstrate the competency.

4. Request for Proposal (RFP) Submission:

- Clients should be able to submit the Request for Proposal directly through the website.
- All RFP requirements must be routed through the website to streamline the process within the company.

5. Contact and Inquiry Handling:

- Users should have various channels to reach out for inquiries or support, including email, contact form, or live chat.
- Customer inquiries should be promptly addressed and managed within the website.

6. Client Account Management:

- Registered clients should have access to their projects and be up-to-dated about their details.
- Each client must have the ability to update the contact information or the preferences.

7. Admin Panel:

- An admin panel should be accessible to administrators for handling inquiries, client accounts, and project listings.
- Admins can efficiently review and update project details, manage client accounts, and oversee communication channels.

8. Security and Data Protection:

- The website must implement robust security measures to protect sensitive data, including project details and client information.
- Encryption and secure authentication protocols should be utilized to ensure user privacy and data integrity.

5.2.3 Non-Functional Requirements

Non-Functional Requirements for JAISH TRADE INTERNATIONAL Website and Inventory Management System:

1. Security

- Ensure confidentiality and integrity for sensitive project data and client information by using strong mechanisms for authentication and encryption of data.
- Protect site and data from unauthorized accesses and/or breaches.

2. Performance

- React in an immediate way, with quick and smooth user changes in the platform, and sufficiently adequate response times even in peaks of information and management change.
- The system will have to allow multiple users at the same time, multichannel, multitask, and respond to simultaneous user queries.

3. Usability

- Project will have to possess a natural user interface, which pleases users and provides them instinct with the space navigated, offering no traps in searches for information, and in case of any traps, provide explicit alerts for proceeding, notice or caution.
- Site pages and content, as well as informative and operational messages, will have to be concise and objective to help users with functions and site changes.

4. Reliability:

- The system cannot stay longer than stopped or unavailable.
- Available services must never drop.

5. Scalability

- The system will have to grow according to the exposed growth of daily projects, of the number of users, and projects and product items listed in inventory.
- The change of size and items listed in stock will have no interference or site performance problems while managing.

6. Compatibility

- Site will have to be compatible and accessible to mobiles and other device forms and users' operation systems, and different browsers.
- Project will stick to the main web standards and technologies in their usage.

7. Localization

- The user has to be allowed to set up its preferences as to which language and regionalisms and place concerns, and adapt the site as if visiting his regional manager.
- Must also allow users to change language to another at any moment.

8. Accessibility

- Alternative means to use site features will be available to surf with a keyboard and proviso some application validity to be used with screen readers.
- The system that makes up the project will be accessibility compatible and adhere rigorously to the prevalent guidelines and standards, to ensure that, by disabilities or not, user can visit and use the site.

9. Data Backup and Recovery

- The project will carry out backups automatically night and day of project data and inventories' records.
- Data and applications will have to have a recovery system, backup the system for disaster recovery, with no excuses to have data lost and never recover it.

5.3 System Analysis

5.3.1 Six Element Analysis

1. Process Name: Administrators should have access

System Roles -

- **Human:** Administrators - The platform of the inventory management system must be supervised and managed by administrators, who also use the admin panel to carry out administrative duties.
- **Non- Computing Hardware:** This may include physical documents, such as a sheet of paper containing book details.
- **Computing Hardware:** Server Infrastructure -Client devices used by administrators to access the admin panel are also considered computing hardware
- **Software:** Admin Panel Software - The inventory management system platform can be managed and configured by administrators with the help of the admin panel software, which is an application or interface.
- **Database:** User Access Database - Information about user access control, such as administrator roles and permissions, is kept in the user access database.
- **Networking and Communication:** The admin panel, data sources, and end users can all transfer data with ease thanks to the network infrastructure. The system's various components can communicate securely and effectively thanks to the data communication protocols.

2. Process Name: System Owner View order/process order

System Roles -

- **Human:** Inventory Manager - The system owner who is responsible for viewing and processing orders
- **Non- Computing Hardware:** Physical items such as order forms, packaging materials, and shipping labels that are used in the process of order fulfillment.
- **Computing Hardware:** Server Infrastructure - The servers and other computing hardware that host the inventory management system's software, databases, and networking components.
- **Software:** Manager Panel Software- The inventory management software that provides the system owner with the necessary tools to view and process orders. This software interacts with the database to retrieve and update information about the orders.
- **Database:** User Access Database - A database that stores information about the orders, including customer details, product details, quantities, and shipping information. The inventory management software interacts with the database to retrieve and update information about the orders.

- **Networking and Communication:** Network architecture: The admin panel, data sources, and end users can all transport data with ease thanks to the network architecture. The system's various components can communicate securely and effectively thanks to the data communication protocols.

3. Process Name: Inventory Manager Adding/Removing product from inventory

System Roles -

- **Human:** Inventory Manager - The inventory manager who is responsible for adding or removing products from the inventory.
- **Non- Computing Hardware:** Physical items such as products, packaging materials, and barcode scanners that are used by the inventory manager to manage the inventory.
- **Computing Hardware:** Server Infrastructure - The servers and other computing hardware that host the inventory management system's software, databases, and networking components.
- **Software:** Manager Panel Software- The inventory management software that provides the inventory manager with the necessary tools to manage the inventory. This software interacts with the database to store and retrieve information about the inventory.
- **Database:** User Access Database - A database that stores information about the inventory, including product details, quantities, and locations. The inventory management software interacts with the database to retrieve and update information about the inventory.
- **Networking and Communication:** Network Infrastructure - The admin panel, data sources, and end users can all transfer data with ease thanks to the network infrastructure. The system's various components can communicate securely and effectively thanks to the data communication protocols.

5.3.2 Feasibility Analysis

- **Technical Feasibility:** The inventory control system and website for JAISH TRADE INTERNATIONAL have highly positive technical feasibility analyses. The system is designed with contemporary web development tools tailored to the needs of the company, indicating that it is well prepared to achieve its goals. Powerful programming languages and frameworks have been used to implement the product,

so that it is scalable and flexible to the specific needs of control system projects. A variety of secure APIs and encryption methods have been applied to protect sensitive project information and client data. The system is also highly flexible, since its architecture is designed to support upgrades that will be introduced in the future, ensuring its long-term sustainability. Finally, the biggest factor of the technical feasibility will probably be the continuous updates and maintenance, because only regular work will allow the product to stay relevant.

- **Economic Feasibility:** The economic feasibility evaluation of the given JAISH TRADE INTERNATIONAL project indicates that it may be financially viable. The revenue projections and the estimated cost for development, maintenance, and operation are well-aligned, indicating that there is an acceptable return on investments. The project benefits from several sources of income, namely, consultancy fee, subscription, or annual service charges, and contract for projects. Phased expenditure and revenue generation during growths phase need to be adopted for maintaining the feasibility of this project. However, ongoing financial monitoring and being able to adapt to changes in the market are essential for establishing long-term economic feasibility.
- **Operational Feasibility:** The JAISH TRADE INTERNATIONAL project has an excellent operational feasibility since it is compatible with the current company procedures under which there are a lot of human resources that will effectively run the operations. The project will be under a well-balanced team of administrators and engineers who will be able to operate the platform with utmost efficiency. Moreover, through ensuring project management and systems integration best practices, the platform will guarantee operational efficiency. The operational architecture includes user acceptance testing and feedback mechanisms to ensure that the platform receives any usability concerns and addresses them promptly. Maintaining an operational feasibility includes a user-specific approach to ensure customers, whether big or small, are all cheerfully embraced.
- **Social and Market Feasibility:** Social and market feasibility analysis shows promising signs for the JAISH TRADE INTERNATIONAL project. The rising opportunities for state-of-the-art control system solutions illustrate growing trends among industries and the choice of customers and are consistent with the project's goals. Research indicates that there are several worlds for development, primarily in industries looking for more sophisticated process control solutions. Strategic marketing campaigns and professional engagement methods will be used to attract users and expand the market. However, in the long run, social and market feasibility must be maintained through continual monitoring of changing industries,

customers, and competition. Long-term success will depend on ongoing market research.

5.3.3 Problem Solution Analysis

Conducting problem-solving analysis is integral to effective project management and planning, as it facilitates the identification of obstacles and the formulation of viable solutions. The problem solution analysis for the Apical Industrial and Technology Project is structured as follows:

Problem Identification:

- **User Interface and Experience:** It's possible that the user interface in many applications is not clear and easy to use. The user experience is frequently negatively impacted by the present inventory management system.
- **Inventory Management System:** The current system may also be inefficient in its purpose since the inability to track inventory levels and manage warehouse stock could have serious implications.

Solution Development:

- **User Interface Redesign:** A detailed study of the existing user interface and all of its pain points. With the in-depth understanding of the current issues, the redesign of the website can target simplicity, ease of use, and no clutter near vital pieces of information.
- **User Experience Optimization:** By using the principles of user-centered design, it is expected to create an interface that users will find seamless and pleasant to use both while browsing the website and on the inventory management system. Also, through a series of user tests and observations, the functionality and look of the interface can be improved.
- **Inventory Management System Enhancement:** With the integration of the vendor and supplier management through the system, it is possible to alert them about the depleting inventory and the need for more products. Also, cutting-edge features such as real-time tracking, alerting vendors of low stock, predictive analytics for demand satisfaction, and automatic calculations of expected products to stay in stock can be used.

Implementation and Monitoring:

- The implementation plan involves rolling out the redesigned user interface and upgraded inventory management system in incremental stages to minimize operational disruptions.
- Comprehensive testing and quality assurance protocols will be conducted to validate that the new features and functionalities align with the intended objectives and performance benchmarks.
- Post-implementation, continuous monitoring of user feedback and system performance will be undertaken to promptly address any issues and identify areas for enhancement.

Contingency Planning:

- Developing contingency plans to address any potential problems during implementation, such as technical problems with the system or user resistance. Developing backup procedures and support resources to allow continued operation in the face of any problems.
- Regular review and updating of the contingency plans to take account of changing circumstances and minimize risks to the ultimate outcome of the project.

5.3.4 Effect Analysis

Effect Analysis for JAISH TRADE INTERNATIONAL Inventory Management System Website:

- **Market Expansion:** The implementation of the JAISH TRADE INTERNATIONAL inventory management system website will increase the market size of the control system solution. The website serves as a platform for Apical to showcase their expertise and services to clients from different industries and locations. The creation of this platform will increase the opportunities for projects and growth opportunities.
- **Revenue Generation:** If the website and inventory management system of Apical is successful, the system has the potential to generate significant revenue to the company. The website can earn income through project contracts, consultation fees, and subscriptions for professional services. The website and inventory system will have a big impact on the company's income.

- **Enhanced Client Engagement:** Apical anticipates that the website and the inventory system they are creating will increase customer engagement. The company has created a system that allows the customer to view their project, send inquiries, and monitor their purchases. The advanced system will increase client satisfaction and company-customer relations.
- **Streamlined Inventory Management:** The inventory management system will have tremendous benefits for the company's overall performance. The system will use real-time tracking of inventory, alerts, and prognostic analytics to optimize the level of inventory. The inventory system will enable the company to reduce the cost of delivery and delivery time.

5.3.5 Constraints Analysis

Constraints Analysis for JAISH TRADE INTERNATIONAL Inventory Management System Website:

- **Budget Constraints:** There are budget constraints that limit the financial resources that can be used in developing the website and inventory management system. There is a need to implement an effective budget allocation plan that works well in implementing and coming up with an effective technical system that can be used in developing and running the website and inventory management system.
- **Technical Complexity:** The development and implementation of the website and inventory management system is technically challenging in aspects such as server management, security and integration, which may require installations and support from a variety of technical and qualified personnel. This will require the presence of a fully functional technical system or support.
- **Market Competition:** There is heavy competition for the market with control systems developing personalized inventory management systems and new entrants coming into play. It is important to intensify the marketing and use innovative practices in marketing the system and showcase the differentiation of Apical limited from other forms providing the same solutions.
- **Regulatory Compliance:** There is a need to keep up with industry standards and laws, especially in the healthcare industry as well as those surrounding consumer data security. A breach of these laws may lead to legal penalties that can seriously damage the reputation or close down the firm.
- **Resource Availability:** The effectiveness and efficiency in implementing the project may also be affected by the availability of the employees placed into the

program, the availability of the suppliers and their trust as well as effective and efficient logistical organization, which will be essential in the completion of the project.

5.3.6 Mitigation Strategies

- **Financial Planning:** Create a thorough financial strategy and budget, ranking costs according to the needs and objectives of the project and taking into account possible funding sources.
- **Technical Expertise:** Make an investment in working with seasoned technical experts or engaging them to supervise system deployment and website development.
- **Competitive Advantage:** Focus on showcasing Apical's specialized services and expertise through the website and inventory management system. Implement innovative marketing strategies to differentiate Apical from competitors and enhance brand visibility.
- **Regulatory Compliance:** Keep up with industry regulations and take aggressive steps to ensure compliance. Hire legal and regulatory specialists to guarantee compliance with pertinent guidelines and reduce legal hazards.
- **Resource Management:** To optimize project success, strategically develop relationships, implement efficient supply chain processes, and optimize inventory levels to effectively manage resources.

5.4 System Design

UML Diagrams

The Unified Modeling Language is the basis for generating UML diagrams that represent different system components in a graphical way. They apply standardized notation to describe and contain different software program components like classes, actors, roles, actions, and objects. These diagrams are particularly vital for understanding, modifying, controlling, and documenting system information. They help visualize the ways of software systems' performance, structure, and interrelations for developers, designers, and stakeholders. Thus, they simplify an analysis of complicated software systems and their communication.

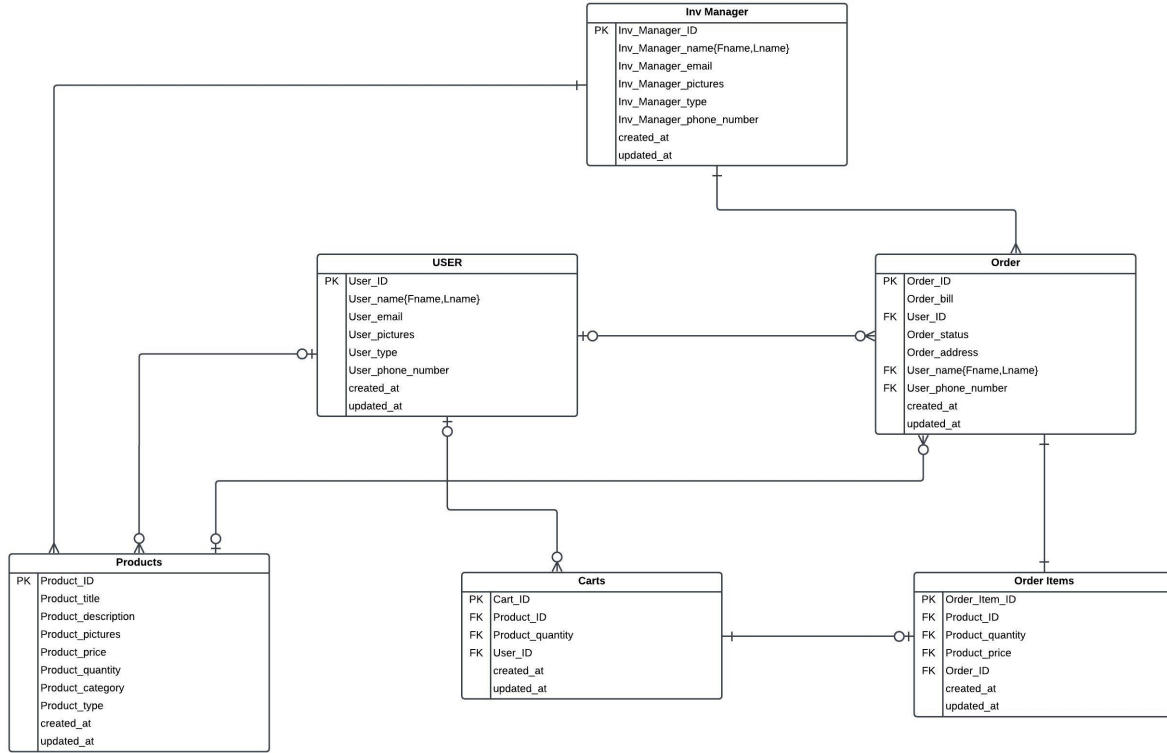


Figure 5.2: ERD Diagram for Inventory Management System

5.5 Implementation

It is our pleasure to finally unveil the outcomes of our unwavering efforts; the advanced Inventory Management System and a fully operational website developed through every stage of the Apical Industrial Solutions & Technology project. This milestone could only be realized thanks to the meticulous planning and execution and the aspiration to develop a dynamic platform to satisfy the client's needs in industrial solutions. Specifically, Inventory Management System is integrated with our methodology, intricately synchronized to optimize control and tracking of project-level components and resources. IVM has various features, such as the live monitoring of inventory, automated databases for alert notifications in cases of low inventories, predictive analysis. Thus, it facilitates a faster execution of the project and helps in making data-driven decisions on resource allocation. The IVM system is seamlessly integrated with the soft systems for planning and project execution to improve the projects' operations capacity. The website also offers a user interface whose design is brilliantly appealing from a professional angle and informative. The UI is designed for clients to interact and navigate the websites to get project details, make inquiries, and track the stage of projects they submitted. The website's UI is customized to work on other devices such as smartphones, tablets, and desktops, allowing clients to log in from any location and access our services. Moreover, we ensure our clients

are secure by further fortifying the website and Inventory Management System. We keep our client's information confidential by conducting regular testing to ensure sensitive information cannot be accessed or tampered with. Thus, we ensure that authentication information and data are encrypted for clients to have confidence in our systems. It is only the beginning of the post-implementation phase, and we are dedicated to ensuring the website and Inventory Management System are successful. We plan to further market and promote the system to reach more clients aware of our services. The data systems are scalable to further broaden the site, and our responsive approach to adopting new technologies ensures we remain proactive in the industry developments. Apical Industrial Solutions & Technology project website and Inventory Management System are set for great success, and this is a promise of a great journey. It is the dedication to deliver innovative and superior products and services for our valued clients in industrial solutions, and we fully commit to witnessing its progress.

5.5.1 Prototype Design:

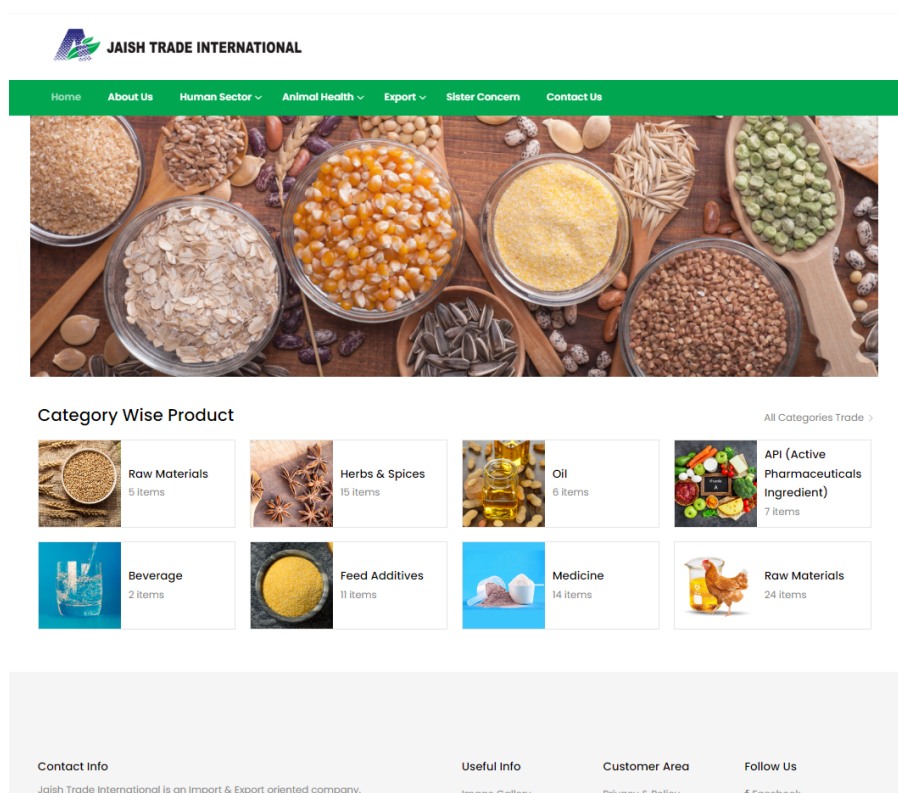


Figure 5.3: Jaish Trade International Landing Page

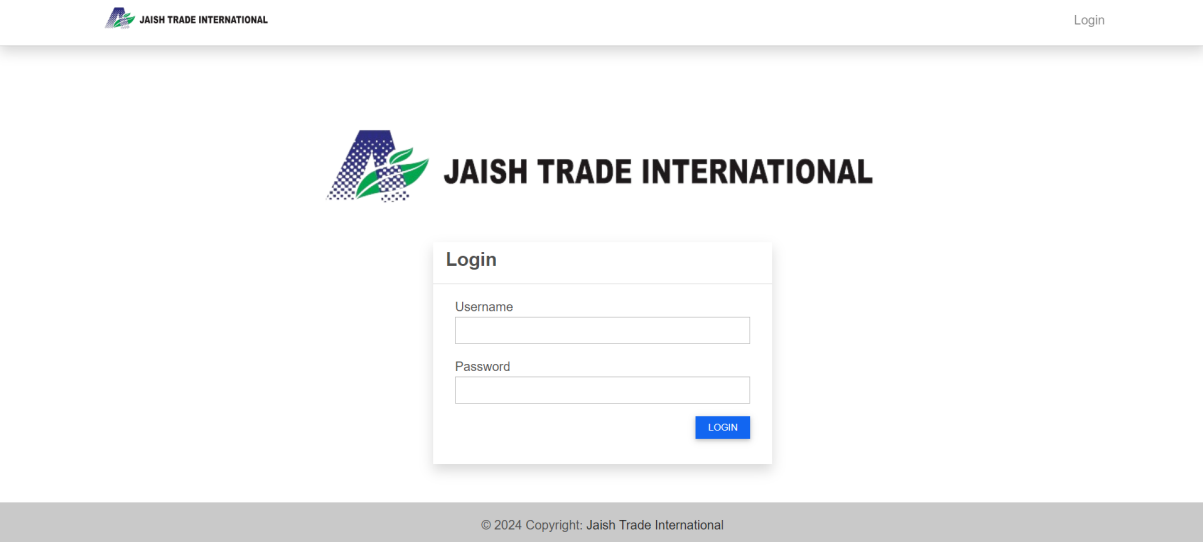


Figure 5.4: Login Page

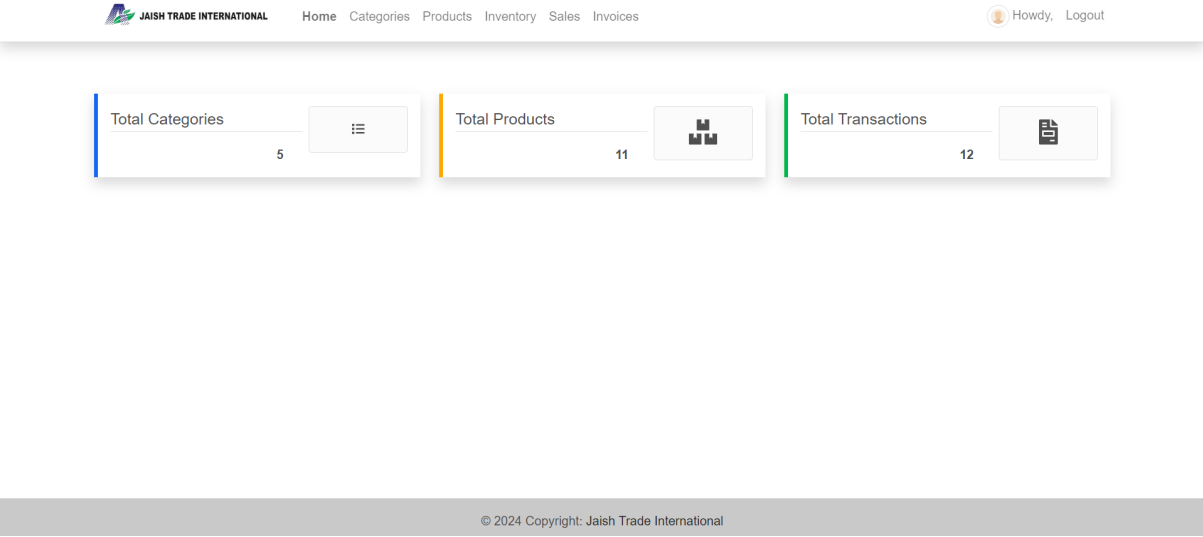


Figure 5.5: User Interface

5.5. IMPLEMENTATION

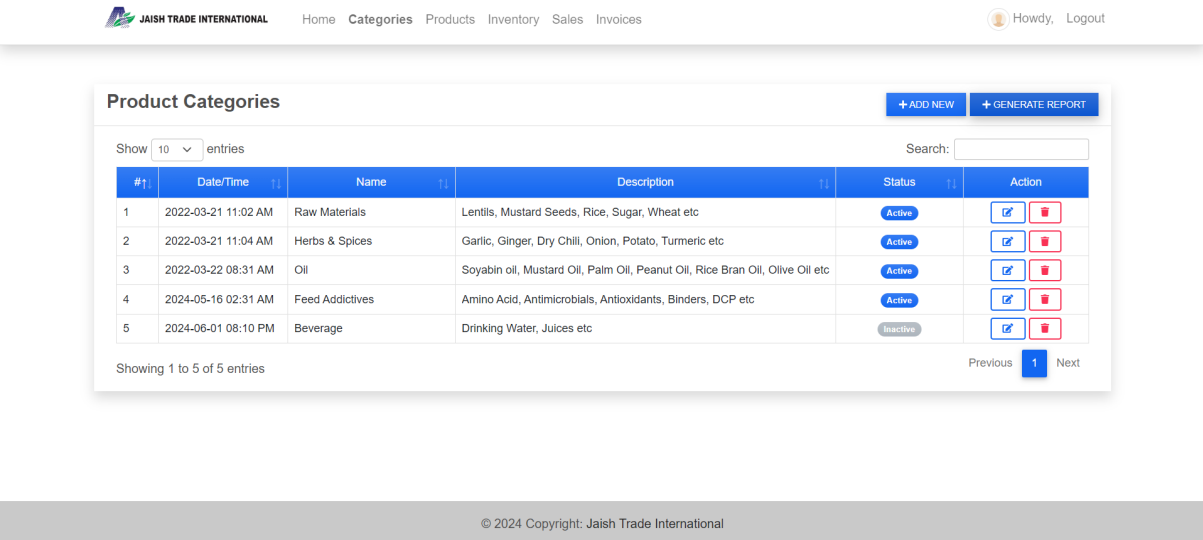


Figure 5.6: Product Category

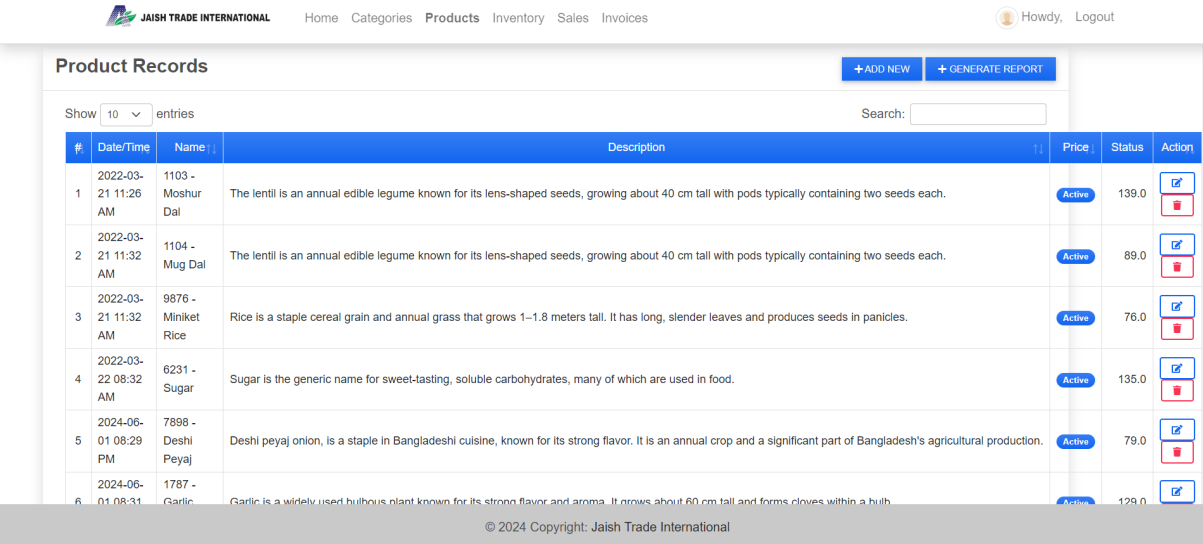














Figure 5.7: Product Record view 1

5.5. IMPLEMENTATION


5	2024-06-01 08:29 PM	7898 - Deshi Peyaj	Deshi peyaj onion, is a staple in Bangladeshi cuisine, known for its strong flavor. It is an annual crop and a significant part of Bangladesh's agricultural production.	Active	79.0	 
6	2024-06-01 08:31 PM	1787 - Garlic (Imported)	Garlic is a widely used bulbous plant known for its strong flavor and aroma. It grows about 60 cm tall and forms cloves within a bulb.	Active	129.0	 
7	2024-06-01 08:32 PM	7657 - Potato	The potato is a starchy tuber and a staple food crop. It grows on a herbaceous plant about 60 cm tall.	Active	59.0	 
8	2024-06-01 08:34 PM	2323 - Soyabin Oil	Soybean oil is a widely used vegetable oil extracted from soybean seeds. It is known for its mild flavor and high smoke point.	Active	164.0	 
9	2024-06-01 08:36 PM	7658 - Mustard Oil	Mustard oil is a pungent vegetable oil derived from mustard seeds. It is commonly used in cooking, especially in South Asian cuisine.	Active	340.0	 
10	2024-06-01 08:37 PM	6213 - Pyridoxine	Pyridoxine, is a form of vitamin B, found commonly in food and used as a dietary supplement.	Active	2,750.0	 

Showing 1 to 10 of 11 entries


Previous12Next

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Figure 5.8: Product Record view 2

JAISH TRADE INTERNATIONAL

HomeCategoriesProductsInventorySalesInvoices

Howdy, Logout

Sales Transaction

Customer Name

Items

Product

Please Select Product here

+ ADD TO LIST

QTY	Product	Price	Total
Total			0.00

SAVE

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Figure 5.9: Sales Transaction

5.5. IMPLEMENTATION

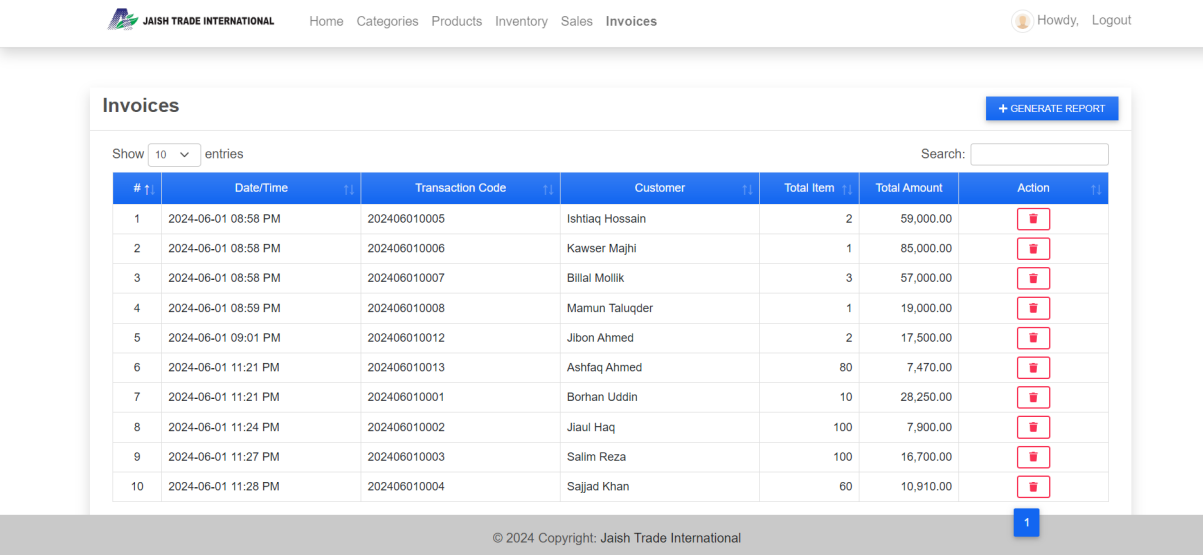


Figure 5.10: Invoices view

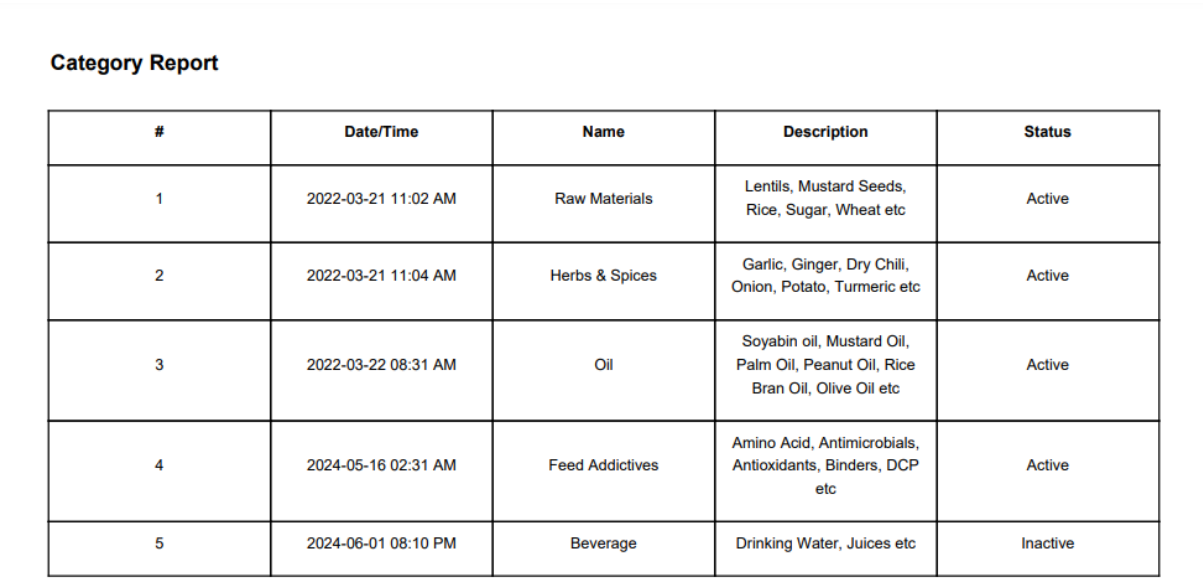


Figure 5.11: Category Report

Product Report

#	Date/Time	Name	Description	Price	Status	Action
1	2022-03-21 11:26 AM	Moshur Dal	The lentil is an annual edible legume known for its lens-shaped seeds, growing about 40 cm tall with pods typically containing two seeds each.	139.0	Active	
2	2022-03-21 11:32 AM	Mug Dal	The lentil is an annual edible legume known for its lens-shaped seeds, growing about 40 cm tall with pods typically containing two seeds each.	89.0	Active	
3	2022-03-21 11:32 AM	Miniket Rice	Rice is a staple cereal grain and annual grass that grows 1–1.8 meters tall. It has long, slender leaves and produces seeds in panicles.	76.0	Active	
4	2022-03-22 08:32 AM	Sugar	Sugar is the generic name for sweet-tasting, soluble carbohydrates, many of which are used in food.	135.0	Active	
5	2024-06-01 08:29 PM	Deshi Peyaj	Deshi peyaj onion, is a staple in Bangladeshi cuisine, known for its strong flavor. It is an annual crop and a significant part of Bangladesh's agricultural production.	79.0	Active	
6	2024-06-01 08:31 PM	Garlic (Imported)	Garlic is a widely used bulbous plant known for its strong flavor and aroma. It grows about 60 cm tall and forms cloves within a bulb.	129.0	Active	

Figure 5.12: Product Report

Inventory Report

#	Product	Available Stock
1	Moshur Dal	183
2	Mug Dal	174
3	Miniket Rice	1324
4	Sugar	206
5	Deshi Peyaj	382
6	Garlic (Imported)	151
7	Potato	421
8	Soyabin Oil	166
9	Mustard Oil	148
10	Pyridoxine	60
11	B12	67

Figure 5.13: Inventory Report

5.6 Testing

Input

One of the during testing procedures to ensure that the system withstands different occasions is a comprehensive analysis of the data and input parameters. JAISH TRADE INTERNATIONAL Inventory Management System Website project has been tested for the time it takes the system to respond to varying inputs; project specs, inventory change, customer inquiries, user registrations is a good example of the inputs. Rigorous input validation measures are enforced, particularly in Inventory Management System; the level of privacy and correctness of data the system processes is ascertained.

Output

Output validation when testing the JAISH TRADE INTERNATIONAL Inventory Management System, the website to a greater extent, the User Interface and the Inventory Management System is vital. It includes developing tests to check the system's response when the users interact with various features in the systems such as project requests, inventory adjustments, and order fulfillment among others. Moreover, it also includes

selecting tests to verify that the system is properly displaying the information of various ongoing projects,, the inventory levels, and also the clients' feedback respectively. In particular, it considers tests to confirm that the UI placement is correctly done and that the IVM is programmed to ensure the inventory balances update real-time.

Designing Test Cases

For the JAISH TRADE INTERNATIONAL Inventory Management System project, a set of test cases was created in order to achieve complete testing coverage. These test cases are aimed at various user interactions such as browsing project portfolios, submitting inquiries, updating inventory levels, and processing orders. Each test case aims to assess particular system functionality and interactions such as UI navigation or IVM operations. Edge cases and error scenarios are of significant importance, as they are used in validation system's robustness and reliability.

Test Results

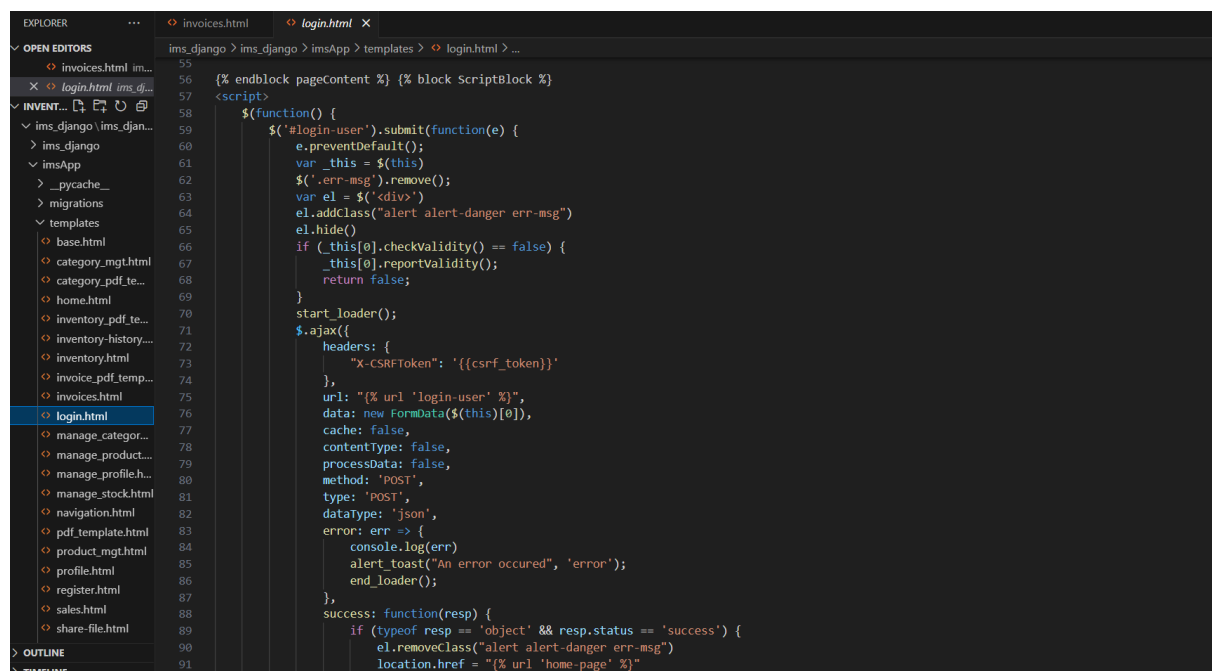
The JAISH TRADE INTERNATIONAL Inventory Management System project's test findings are methodically documented and verified in accordance with established standards. At this point, differences and anomalies between predicted and discovered outcomes are found in the UI and IVM. All errors, defects, and inconsistencies found during testing are carefully recorded and categorized according to how they affect the usability and functionality of the system. As soon as possible, the development team fixes these problems and tries again with the impacted components until the required quality requirements are met. The test results from the Apical Industrial Solutions Technology project's testing phase are methodically documented and evaluated in compliance with preset criteria. This stage involves comparing predicted and actual results to identify any differences in the UI and IVM as well as any aberrant behavior. Every mistake, issue, and discrepancy that arises during testing is recorded, and their effects on the usability and operation of the system are categorized. The development team rapidly retests the impact components of the SI and IVM until they satisfy the required quality standards. The Apical Industrial Solutions & Technology project's testing phase is an essential quality assurance measure that supports the website's user interface and the Inventory Management System's reliability, functionality, and usefulness. We ensure that the website and IVM provide optimal functionality and usability by closely monitoring input parameters, confirming output results and responding, building thorough test cases, and thoroughly analyzing test outcomes.

Chapter 6

Results & Analysis

We will go over and talk about the project's outcomes in this section. The creation and application of the Trading world system served as the foundation for the outcomes attained. We will now examine the results, providing a detailed analysis.

- The request is routed to the database via the routes for both the inventory manager and the administrator.



```
55 {% endblock pagecontent %} {% block ScriptBlock %}
56 <script>
57 $(function() {
58     $('#login-user').submit(function(e) {
59         e.preventDefault();
60         var _this = $(this)
61         $('.err-msg').remove();
62         var el = $('<div>');
63         el.addClass("alert alert-danger err-msg")
64         el.hide()
65         if (_this[0].checkValidity() == false) {
66             _this[0].reportValidity();
67             return false;
68         }
69         start_loader();
70         $.ajax({
71             headers: {
72                 "X-CSRFToken": '{{csrf_token}}'
73             },
74             url: "{% url 'login-user' %}",
75             data: new FormData(_this[0]),
76             cache: false,
77             contentType: false,
78             processData: false,
79             method: 'POST',
80             type: 'POST',
81             dataType: 'json',
82             error: err => {
83                 console.log(err)
84                 alert_toast("An error occurred", 'error');
85                 end_loader();
86             },
87             success: function(resp) {
88                 if (typeof resp == 'object' && resp.status == 'success') {
89                     el.removeClass("alert alert-danger err-msg")
90                     location.href = "{% url 'home-page' %}"
91                 }
92             }
93         });
94     });
95 }
```

- Here is some screenshots from my Inventory Management Project

```

<script>
function calc() {
    var gtotal = 0
    $('#product-tbl tbody tr').each(function() {
        var price = $(this).find('.input-price').val()
        var quantity = $(this).find('.input-quantity').val()
        price = price > 0 ? price : 0
        quantity = quantity > 0 ? quantity : 0
        console.log(price, quantity)
        var total = parseFloat(price) * parseFloat(quantity)
        $(this).find('.product-total').text(parseFloat(total).toLocaleString('en-US'))
        gtotal += parseFloat(total)
    })
    $('#total').text(parseFloat(gtotal).toLocaleString('en-US'))
    $('#name-total').val(gtotal)
}

$(function() {
    $('#pid').select2({
        placeholder: 'Please Select Product here',
        width: "100%"
    })

    $('#add_to_list').click(function() {
        pid = $('#pid').val()
        if (pid == '' || pid == null) {
            return false;
        }
        start_loader()
        $.ajax({
            url: '% url "get-product" %/' + pid,
            method: "GET",
            datatype: 'json',
            error: err => {
                alert('An error occured while fetching product data')
                end_loader()
            },
            success: function(resp) {

```

```

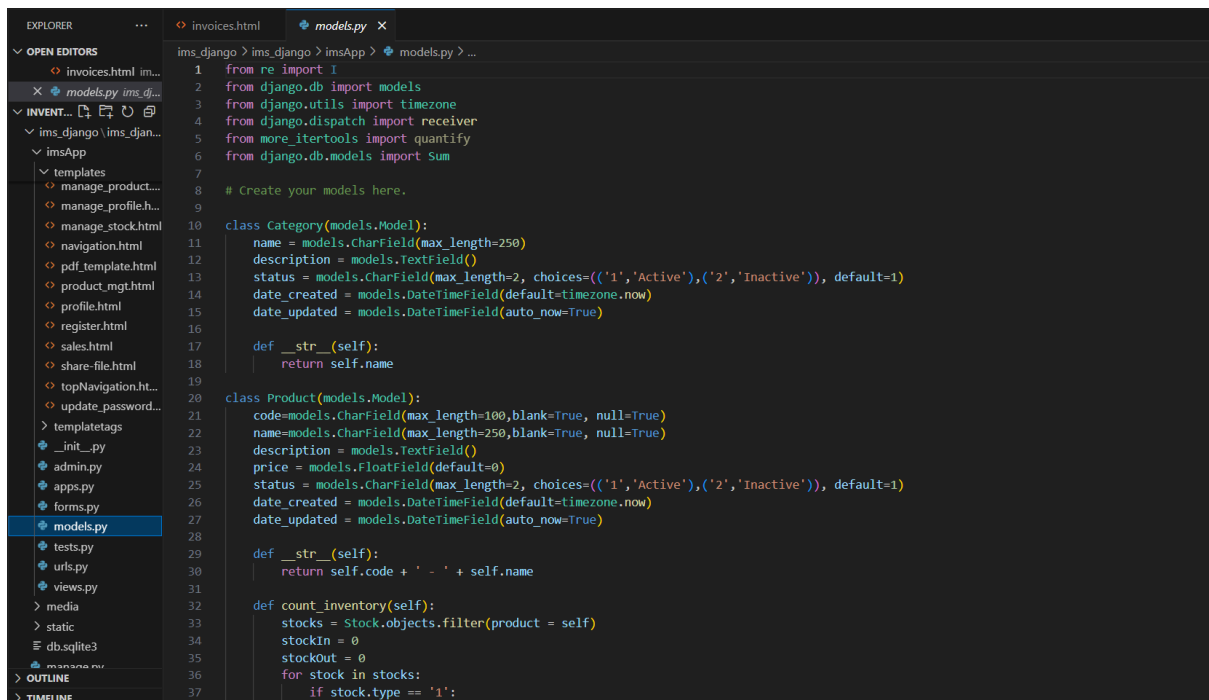
<script>
$(function() {
    $('#category-form').submit(function(e) {
        e.preventDefault();
        var _this = $(this)
        $('#err-msg').remove();
        var el = $('<div>')
        el.addClass("alert alert-danger err-msg")
        el.hide()
        if (_this[0].checkValidity() == false) {
            _this[0].reportValidity();
            return false;
        }
        start_loader();
        $.ajax({
            url: "% url 'save-category' %",
            data: new FormData($(this)[0]),
            cache: false,
            contentType: false,
            processData: false,
            method: 'POST',
            type: 'POST',
            datatype: 'json',
            error: err => {
                console.log(err)
                alert("An error occured ", 'error');
                end_loader();
            },
            success: function(resp) {
                if (typeof resp == 'object' && resp.status == 'success') {
                    el.removeClass("alert alert-danger err-msg ")
                    location.reload()
                } else if (resp.status == 'failed' && !resp.msg) {
                    el.html(resp.msg)
                } else {
                    el.text("An error occured ", 'error');
                    end_loader();
                }
            }
        })
    })

```

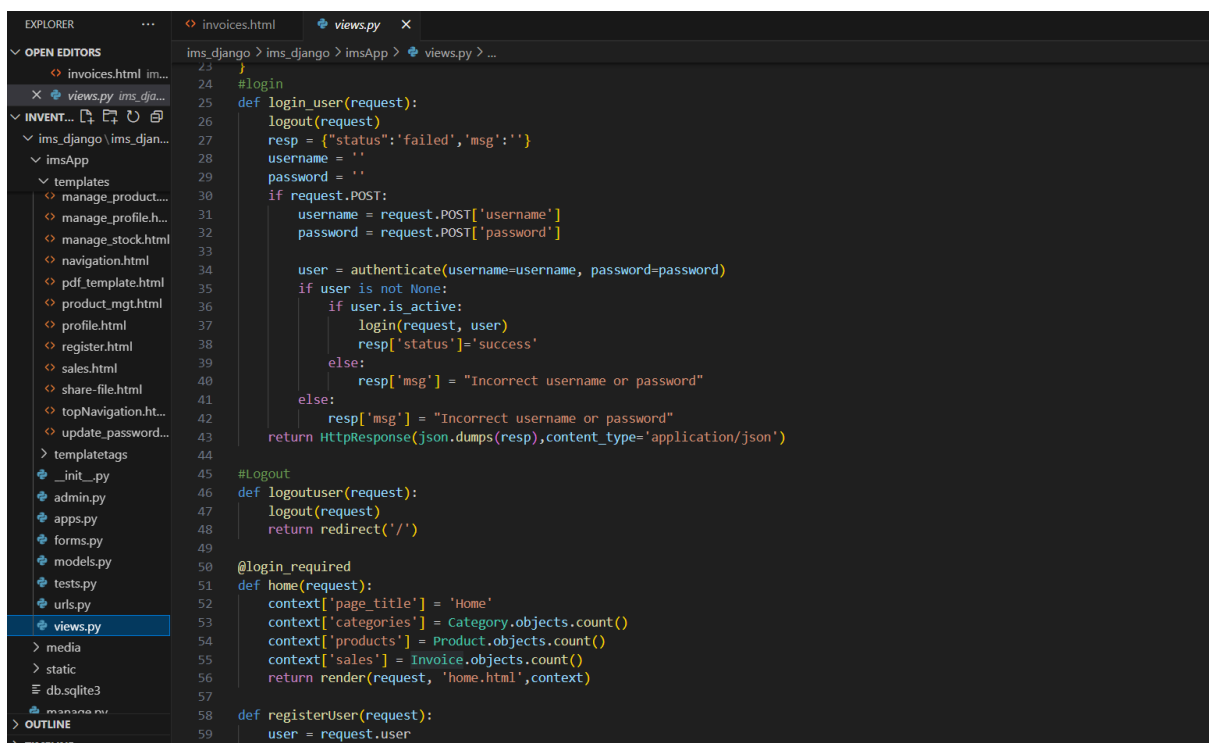
6.1 System Functionality Result

- This Inventory Management System for JAISH TRADE INTERNATIONAL was conceptually designed and developed. It is a robust Wil Technology platform which provides efficient inventory control.

6.1. SYSTEM FUNCTIONALITY RESULT

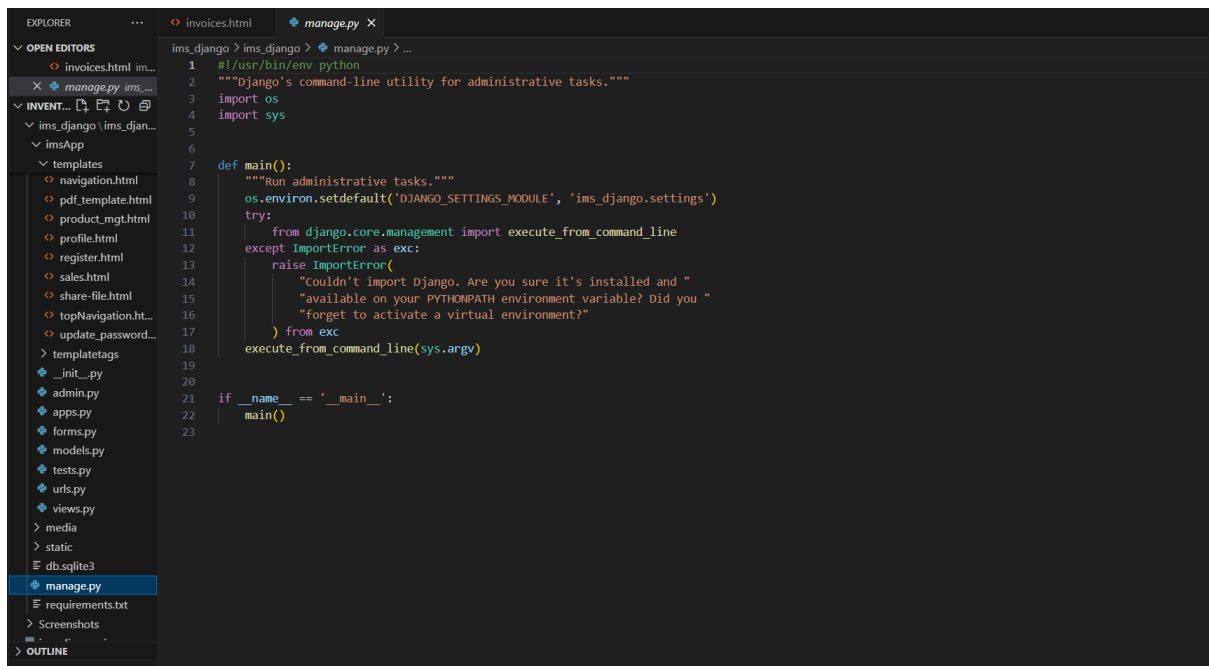


```
1 from re import I
2 from django.db import models
3 from django.utils import timezone
4 from django.dispatch import receiver
5 from more_itertools import quantify
6 from django.db.models import Sum
7
8 # Create your models here.
9
10 class Category(models.Model):
11     name = models.CharField(max_length=250)
12     description = models.TextField()
13     status = models.CharField(max_length=2, choices= (('1','Active'),('2','Inactive')), default=1)
14     date_created = models.DateTimeField(default=timezone.now)
15     date_updated = models.DateTimeField(auto_now=True)
16
17     def __str__(self):
18         return self.name
19
20 class Product(models.Model):
21     code=models.CharField(max_length=100,blank=True, null=True)
22     name=models.CharField(max_length=250,blank=True, null=True)
23     description = models.TextField()
24     price = models.FloatField(default=0)
25     status = models.CharField(max_length=2, choices= (('1','Active'),('2','Inactive')), default=1)
26     date_created = models.DateTimeField(default=timezone.now)
27     date_updated = models.DateTimeField(auto_now=True)
28
29     def __str__(self):
30         return self.code + ' - ' + self.name
31
32     def count_inventory(self):
33         stocks = Stock.objects.filter(product = self)
34         stockIn = 0
35         stockOut = 0
36         for stock in stocks:
37             if stock.type == '1':
```



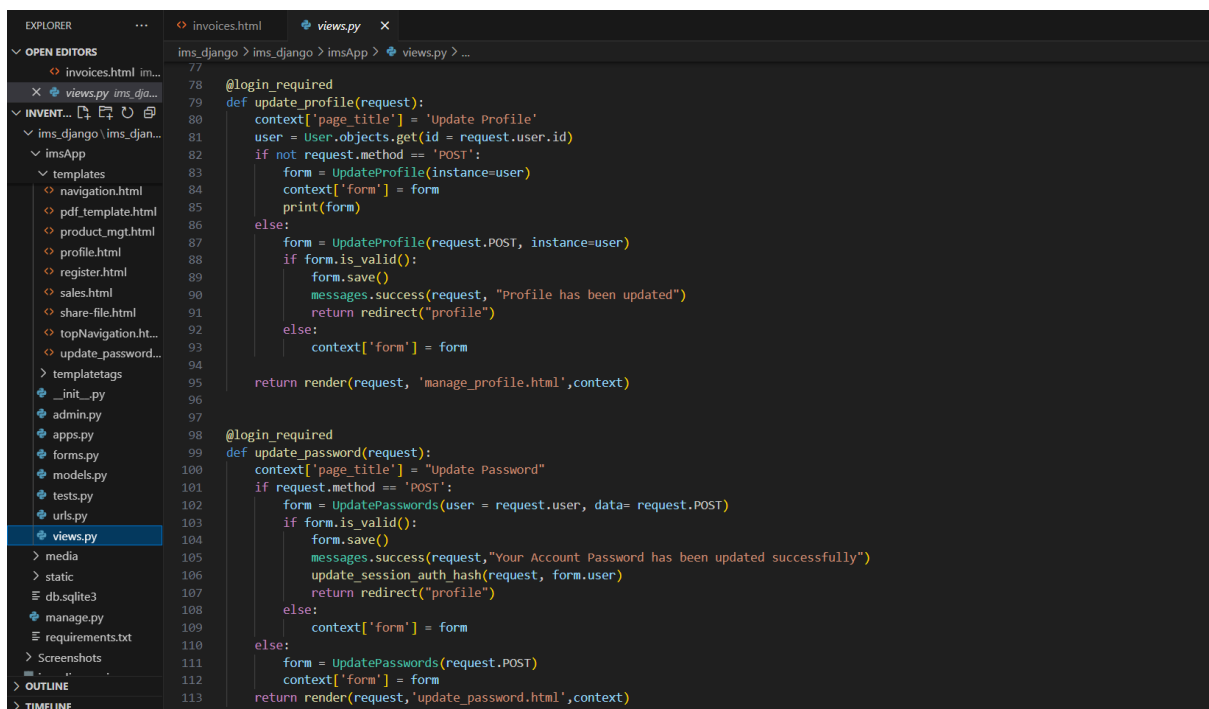
```
23
24 #login
25 def login_user(request):
26     logout(request)
27     resp = {"status":'failed','msg':''}
28     username = ''
29     password = ''
30     if request.POST:
31         username = request.POST['username']
32         password = request.POST['password']
33
34         user = authenticate(username=username, password=password)
35         if user is not None:
36             if user.is_active:
37                 login(request, user)
38                 resp['status']='success'
39             else:
40                 resp['msg'] = "Incorrect username or password"
41         else:
42             resp['msg'] = "Incorrect username or password"
43     return HttpResponse(json.dumps(resp),content_type='application/json')
44
45 #Logout
46 def logoutuser(request):
47     logout(request)
48     return redirect('/')
49
50 @login_required
51 def home(request):
52     context['page_title'] = 'Home'
53     context['categories'] = Category.objects.count()
54     context['products'] = Product.objects.count()
55     context['sales'] = Invoice.objects.count()
56     return render(request, 'home.html',context)
57
58 def registerUser(request):
59     user = request.user
```

6.1. SYSTEM FUNCTIONALITY RESULT



The screenshot shows the Visual Studio Code editor with the Explorer sidebar on the left and the Code editor on the right. The Explorer sidebar shows the project structure for 'ims_django', including 'templates', 'static', 'db.sqlite3', and 'manage.py'. The Code editor displays the content of 'manage.py', which is a Django management utility script. The script starts with a shebang line, followed by imports for 'os' and 'sys'. It defines a 'main()' function that sets the default Django settings module to 'ims_django.settings' and attempts to import 'execute_from_command_line' from 'django.core.management'. If an 'ImportError' occurs, it raises a custom error message. Finally, it calls 'execute_from_command_line(sys.argv)' and includes a standard Python guard for the main function.

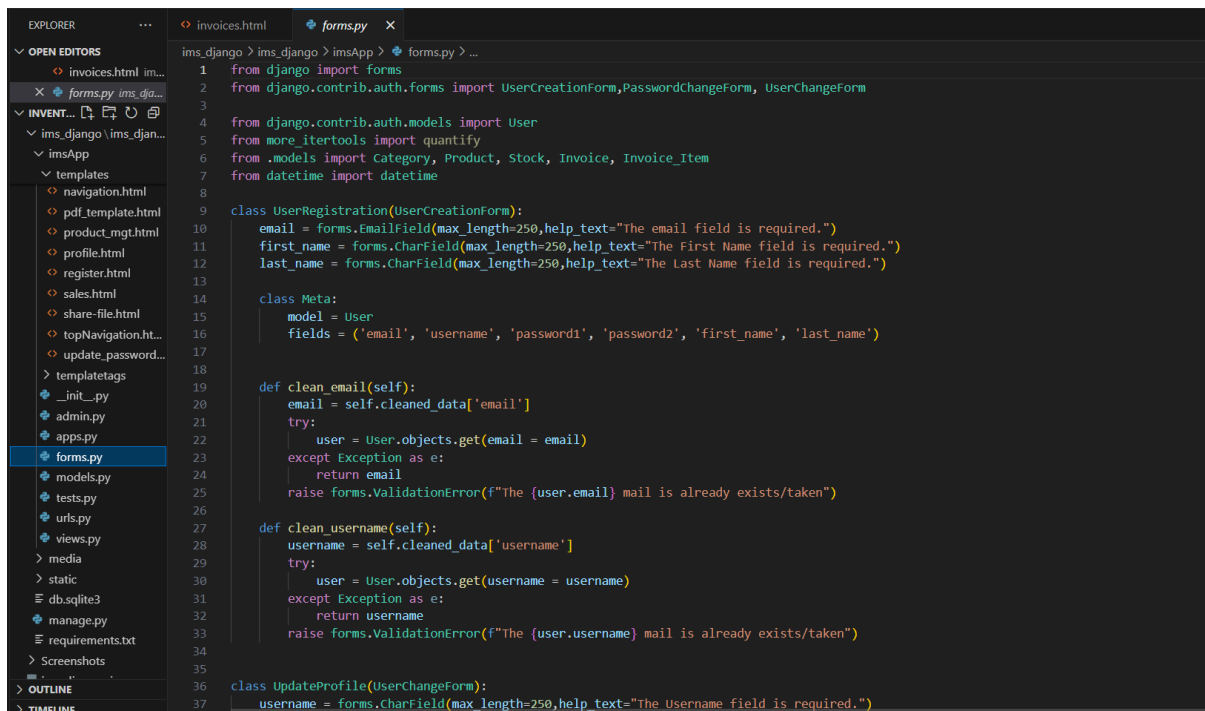
```
1 #!/usr/bin/env python
2 """Django's command-line utility for administrative tasks."""
3 import os
4 import sys
5
6
7 def main():
8     """Run administrative tasks."""
9     os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'ims_django.settings')
10    try:
11        from django.core.management import execute_from_command_line
12    except ImportError as exc:
13        raise ImportError(
14            "Couldn't import Django. Are you sure it's installed and "
15            "available on your PYTHONPATH environment variable? Did you "
16            "forget to activate a virtual environment?"
17        ) from exc
18    execute_from_command_line(sys.argv)
19
20
21 if __name__ == '__main__':
22     main()
23
```



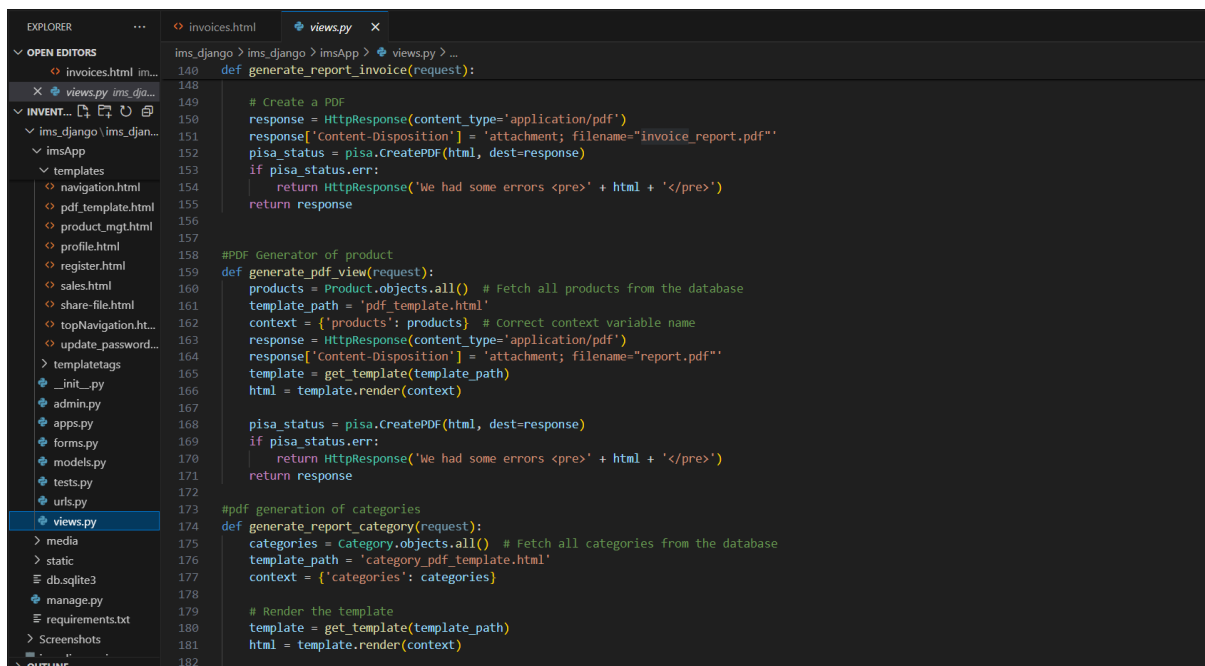
The screenshot shows the Visual Studio Code editor with the Explorer sidebar on the left and the Code editor on the right. The Explorer sidebar shows the project structure for 'ims_django', including 'templates', 'static', 'db.sqlite3', and 'manage.py'. The Code editor displays the content of 'views.py', which contains two Django view functions: 'update_profile' and 'update_password'. Both views are decorated with '@login_required'. The 'update_profile' view checks if the request method is 'POST', creates an 'UpdateProfile' form instance, and either saves it or redirects to the 'profile' page. The 'update_password' view checks if the request method is 'POST', creates an 'UpdatePasswords' form instance, and either saves it, updates the session auth hash, and redirects to the 'profile' page, or simply sets the form in the context.

```
77
78 @login_required
79 def update_profile(request):
80     context['page_title'] = 'Update Profile'
81     user = User.objects.get(id = request.user.id)
82     if not request.method == 'POST':
83         form = UpdateProfile(instance=user)
84         context['form'] = form
85         print(form)
86     else:
87         form = UpdateProfile(request.POST, instance=user)
88         if form.is_valid():
89             form.save()
90             messages.success(request, "Profile has been updated")
91             return redirect("profile")
92         else:
93             context['form'] = form
94     return render(request, 'manage_profile.html', context)
95
96
97 @login_required
98 def update_password(request):
99     context['page_title'] = "Update Password"
100    if request.method == 'POST':
101        form = UpdatePasswords(user = request.user, data= request.POST)
102        if form.is_valid():
103            form.save()
104            messages.success(request, "Your Account Password has been updated successfully")
105            update_session_auth_hash(request, form.user)
106            return redirect("profile")
107        else:
108            context['form'] = form
109    else:
110        form = UpdatePasswords(request.POST)
111        context['form'] = form
112    return render(request, 'update_password.html', context)
113
```

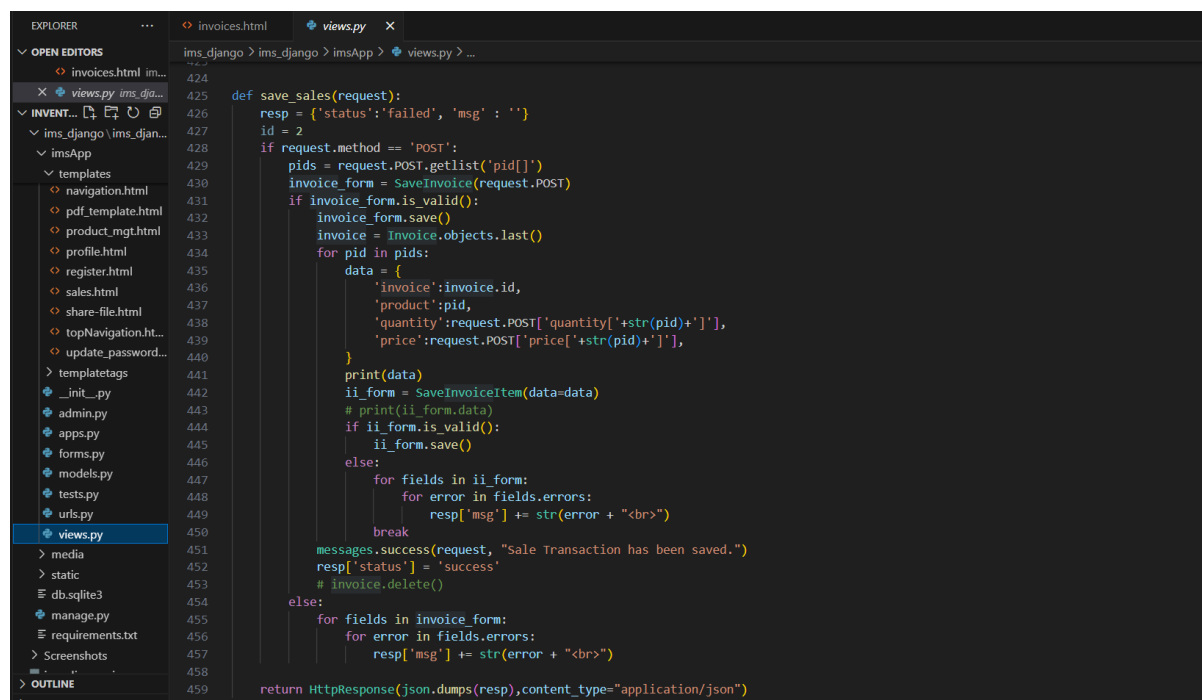
6.1. SYSTEM FUNCTIONALITY RESULT



```
1 from django import forms
2 from django.contrib.auth.forms import UserCreationForm, PasswordChangeForm, UserChangeForm
3
4 from django.contrib.auth.models import User
5 from more_itertools import quantify
6 from .models import Category, Product, Stock, Invoice, Invoice_Item
7 from datetime import datetime
8
9 class UserRegistration(UserCreationForm):
10     email = forms.EmailField(max_length=250, help_text="The email field is required.")
11     first_name = forms.CharField(max_length=250, help_text="The First Name field is required.")
12     last_name = forms.CharField(max_length=250, help_text="The Last Name field is required.")
13
14     class Meta:
15         model = User
16         fields = ('email', 'username', 'password1', 'password2', 'first_name', 'last_name')
17
18     def clean_email(self):
19         email = self.cleaned_data['email']
20         try:
21             user = User.objects.get(email=email)
22         except Exception as e:
23             return email
24         raise forms.ValidationError(f"The {user.email} mail is already exists/taken")
25
26     def clean_username(self):
27         username = self.cleaned_data['username']
28         try:
29             user = User.objects.get(username=username)
30         except Exception as e:
31             return username
32         raise forms.ValidationError(f"The {user.username} mail is already exists/taken")
33
34 class UpdateProfile(UserChangeForm):
35     username = forms.CharField(max_length=250, help_text="The Username field is required.")
```



```
140 def generate_report_invoice(request):
141     # Create a PDF
142     response = HttpResponse(content_type='application/pdf')
143     response['Content-Disposition'] = 'attachment; filename="invoice_report.pdf"'
144     pisa_status = pisa.CreatePDF(html, dest=response)
145     if pisa_status.err:
146         return HttpResponse('We had some errors <pre>' + html + '</pre>')
147     return response
148
149 #PDF Generator of product
150 def generate_pdf_view(request):
151     products = Product.objects.all() # Fetch all products from the database
152     template_path = 'pdf_template.html'
153     context = {'products': products} # Correct context variable name
154     response = HttpResponse(content_type='application/pdf')
155     response['Content-Disposition'] = 'attachment; filename="report.pdf"'
156     template = get_template(template_path)
157     html = template.render(context)
158     pisa_status = pisa.CreatePDF(html, dest=response)
159     if pisa_status.err:
160         return HttpResponse('We had some errors <pre>' + html + '</pre>')
161     return response
162
163 #pdf generation of categories
164 def generate_report_category(request):
165     categories = Category.objects.all() # Fetch all categories from the database
166     template_path = 'category_pdf_template.html'
167     context = {'categories': categories}
168
169     # Render the template
170     template = get_template(template_path)
171     html = template.render(context)
```

```
def save_sales(request):
    resp = {'status': 'failed', 'msg': ''}
    id = 2
    if request.method == 'POST':
        pids = request.POST.getlist('pid[]')
        invoice_form = SaveInvoice(request.POST)
        if invoice_form.is_valid():
            invoice_form.save()
            invoice = Invoice.objects.last()
            for pid in pids:
                data = {
                    'invoice': invoice.id,
                    'product': pid,
                    'quantity': request.POST['quantity'+str(pid)+''],
                    'price': request.POST['price'+str(pid)+''],
                }
                print(data)
                ii_form = SaveInvoiceItem(data=data)
                # print(ii_form.data)
                if ii_form.is_valid():
                    ii_form.save()
                else:
                    for fields in ii_form:
                        for error in fields.errors:
                            resp['msg'] += str(error + "<br>")
                    break
            messages.success(request, "Sale Transaction has been saved.")
            resp['status'] = 'success'
            # invoice.delete()
        else:
            for fields in invoice_form:
                for error in fields.errors:
                    resp['msg'] += str(error + "<br>")
    return JsonResponse(json.dumps(resp), content_type="application/json")
```

- In addition to merely managing crucial inventory functions, the system also ensures catalog organization, order processing, and record, so production runs smoothly.
- By automating and reducing manual intervention, the system increased efficiency while lowering operating costs, all of which improved how well it worked.

6.2 Impact on Business Operations

- At JAISH TRADE INTERNATIONAL, the implementation of the Inventory Management System changed the way business was done.
- Streamlining manual processes allowed more time and cost savings, freeing up resources for measured growth.
- The system's improvements and user-friendly features encouraged high levels of client engagement, satisfaction, and trust, all of which contributed to increased customer retention and long-term business viability.

6.3 Analysis of Challenges Faced

- Many obstacles were faced and successfully overcome during the project, guaranteeing that JAISH TRADE INTERNATIONAL's Inventory Management System could be implemented in a timely manner to benefit the business and customers.

- Agile development techniques have been applied to create a more customer-specific approach by seamlessly integrating user feedback and adapting to changing requirements.
- The primary considerations have been data security and system reliability so as to meet urgent needs and establishing a secure, dependable inventory management environment.

6.4 Future Recommendations

- According to this result and analysis, the Inventory Management System contains many prospects for future development and expansion in JAISH TRADE INTERNATIONAL.
- Possibly for future versions of the system you might think about incorporating extra features such as advanced reporting and analysis tools as well as customer loyalty programs or seamless integration with all types of the extensive inventory management solutions.
- Continuous monitoring of user feedback and market trends will be an absolute necessity if the success of JAISH TRADE INTERNATIONAL's Inventory Management System is to continue in the ever shifting landscape for inventory management.

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

1. Our primary aim is to cultivate a thriving user community for Jaish Trade International. This entails nurturing engagement among existing users and motivating them to become advocates for the platform, magnifying its organic growth in our customer base.
2. The goal of the initiative is to create a network effect whereby pleased customers turn into brand ambassadors, expanding the platform's influence and reach across the industrial solutions industry.
3. We prioritize sustainable growth and long-term viability, ensuring that the project continually evolves to address the evolving needs of our users.

7.2 Social and Environmental Effects

1. Proper financial management is essential to the project's long-term sustainability. This calls for meticulous tracking of progress costs as well as fees for database storage, software licenses, and continuing maintenance.
2. Our long-term goal is to sustain profitability and monetary stability by upholding a balanced approach between earnings technology and spending. The project benefits the community in a lot of ways.
3. The venture's social effect lies in its contribution to improving effectiveness and productiveness inside industrial processes, inevitably leading to favorable financial

outcomes for companies, staff, and neighborhoods. It optimizes assets and minimizes waste, selling sustainability.

4. From an environmental standpoint, we make each attempt to reduce squander and optimize useful resource utilization, thereby selling sustainable practices inside the industrial sector. Careful tracking confirms progress against targets for carbon impact and materials reuse.

Chapter 8

Lesson Learned

As my internship at Jaish Trade International wraps up, I reflect on the priceless experiences and lessons gained throughout my unpredictable but rewarding journey as a Programmer. Joining the enthusiastic team at Jaish Trade International provided me with a rare opportunity to delve deep into the fascinating realm of software progression and enhance my expertise in a rapidly evolving environment. Our ambitious project, "Inventory Management System", constructed using Django and Python, aimed to streamline the complex inventory operations for the company with varying degrees of success, marking my initiation into the intricate world of web development. The following are the most important lessons I learned from my crazy internship experience:

1. **Skill Enhancement:** During my internship at Jaish Trade International, I was primarily concerned in developing new skills that would be applicable to my desired career path and strengthening my current skill set. I invested considerable time mastering Django and Python, ensuring that my repertoire aligned with the project's demands and my professional goals. This dedication to continuous learning allowed me to evolve tremendously as a programmer during my stint.
2. **Professional Communication:** Adapting to the professional environment at Jaish Trade International came with challenges, particularly in regards to interaction. However, I quickly understood the value of cultivating effective communication. Whether contributing to team discussions, providing updates on work, or interfacing with supervisors and clients, I recognized the significance of maintaining a proper demeanor. This experience underscored efficient, concise communication's vital role in the workplace.
3. **Networking:** Internships offer invaluable chances to build a professional network, and my time at Jaish Trade International was no different. I formed bonds with colleagues and industry experts, fostering relationships that may benefit future

career endeavors. Engaging in networking activities during my internship expanded my support system and opened doors to potential career opportunities.

4. **Goal Setting:** Establishing clear objectives was crucial to navigating my internship experience productively. I initiated discussions with my supervisors to align our expectations and proactively set personal aims focused on enhancing my programming abilities and grasp of inventory management systems. This structured approach enabled me to stay focused and motivated throughout the internship period.
5. **Time Management:** Efficient time management emerged as a key challenge for me as a novice developer. However, I quickly learned that staying organized and prioritizing tasks were crucial for meeting deadlines effectively. Through creating detailed task lists and allocating specific timeframes strategically for each, I ensured the timely completion of project milestones and maintained a high level of productivity.

Approaching my internship eagerly, with a willingness to learn and a desire to continuously improve, revealed itself as profoundly beneficial. Embracing every opportunity to acquire new abilities, taking on additional responsibilities enthusiastically, and demonstrating genuine curiosity contributed tremendously to my growth and development as a programmer during my time at Jaish Trade International. Asking questions freely and learning from both successes and failures allowed me to develop at an accelerated pace.

8.1 Challenges Faced During the Internship

Adapting to the unfamiliar surroundings at Jaish Trade International presented several obstacles, as I strived to acclimate myself to novel workflows and dynamics amongst longer-tenured personnel. Fortunately, the company's judicious leadership structure and guidance from university alumni aided smooth cooperation across divisions, allowing us to collectively progress towards shared goals in a cohesive manner.

8.2 Solutions to Overcome Challenges

As an inexperienced programmer embarking on my inaugural professional placement, maintaining pace with veteran colleagues seemed an arduous task. However, through diligence and perseverance, I gradually obtained the aptitude to manage intricate undertakings, ensure client satisfaction, and routinely update administration regarding advances to our complex inventory management system project.

Chapter 9

Future Work & Conclusion

9.1 Future Works

- **Enhanced Category Interface:** Jaish Trade International is dedicated to refining its sprawling category interface by introducing more categories and comprehensive yet digestible descriptions for each. This enhancement aims to offer customers a panoramic overview of all available services and options in brief but informative snapshots.
- **Subcategory Enhancements:** The labyrinthine subcategory interface will undergo seismic improvements, rolling out novel features such as a dedicated microsite for steeply discounted products with real-time availability alerts. This adaptive instrument empowers discerning consumers to make informed split-second decisions and maximize access to exclusive offers.
- **Stimulating New Features:** The pioneering development team at Jaish Trade International is committed to elevating the overall user experience by unveiling innovative and immersive features in forthcoming updates. These additions are designed to furnish users with enhanced functionality, convenience, and interactivity.

To maintain its position at the forefront of the industry, Jaish Trade International will continue to enhance and broaden its platform's multifunctional prowess. Priorities incorporate streamlining usability, expanding categories and services through curation, and delivering a sleek yet versatile digital marketplace for all industrial and technological needs.

9.2 Conclusion

My internship experience at Jaish Trade International was transformative in many ways. I was tasked with developing a comprehensive system to manage their extensive in-

ventory of industrial and technological resources. This monumental undertaking afforded me invaluable real-world practice applying state-of-the-art frameworks and technologies at an advanced level. I submerged myself completely in the development process, soaking up hands-on experience and insights into the nitty-gritty complexities of managing vast technology and industrial operations. Throughout, I sharpened my problem-solving acumen, adapting best practices deftly to craft robust solutions tailored precisely to the business's needs. I am deeply grateful for the opportunity to work with Jaish Trade International and to reap such rich lessons from my internship experience. With continuous upgrading and improving, I have full confidence that the software I contributed to developing will prove indispensably useful for technology and industrial enterprises worldwide. This internship afforded me a panoramic understanding of technological and industrial domains, equipping me with both the knowledge and skills crucial for future success pursuing my career aspirations. I eagerly anticipate the next stage of my journey, where I will capitalize on the expertise acquired to help design cutting-edge solutions advancing technology and industry.

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An Undergraduate Internship/Inventory Management System

By

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Student ID: 1911115

Spring, 2024

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.

Signature of the Supervisor

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