Department of Software Engineering

Course Code: SE - 431

Course Name: Final Year Project/Thesis/Internship

Internship on

Web development

At Akaar IT Ltd.

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Approval

This Internship titled on "**Web Development**", submitted by **Md. Habibur Rahman (ID: 193-35-512)** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

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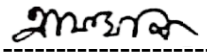

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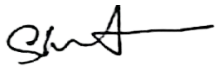

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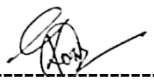

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Declaration

I'm Md. Habibur Rahman, a Daffodil International University student with ID 193-35-512. I thus certify that, under the supervision of Mr. Md. Maruf Hassan, Department of Software Engineering, I successfully finished my internship as a Junior Web Developer at Akaar IT Ltd. I confirm that the Akaar IT Junior Web Developer has undergone training to fulfill a portion of the Practicum requirement for the Bachelor's degree in Software Engineering. Furthermore, I assert that this report has not been previously prepared or submitted for any other purpose, incentive, or presentation by anyone other than myself. I also affirm that none of the information sourced from various websites and other sources in this research has been plagiarized.

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Acknowledgment

First and foremost, I express my sincere gratitude to the Almighty God for His guidance and support throughout the successful completion of my final year internship. I extend my heartfelt appreciation to Mr. Md. Maruf Hassan, an Associate Professor in the Department of Software Engineering at Daffodil International University in Dhaka, for his unwavering advice and invaluable assistance. His profound understanding, inspiration, and guidance have provided a solid foundation for this internship and report writing-process.

I would also like to express my gratitude to all those who have directly or indirectly supported and inspired me during my internship. I am grateful to Akaar IT Limited for granting me the opportunity to intern in their Software Development department. I am indebted to the generous individuals who have provided me with the necessary data, information, procedures, and management processes, as well as valuable insights on various subjects for this report. I am also thankful to the faculty and staff of the Department of Software Engineering at Daffodil International University. Furthermore, I would like to extend special thanks to my parents for their constant encouragement and unwavering support throughout my personal and professional journey. Lastly, I offer my deepest gratitude to Allah, the Merciful and Sublime, for His blessings and guidance.

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1 Abstract

1.1 Introduction

The purpose of an internship is to acquire practical experience and identify one's strengths. Specializing in a particular area showcases our knowledge and ability to collaborate effectively. It enriches our SWOT analysis by highlighting valuable skills. Engaging in projects helps us recognize the significance of collaboration, operational expertise in the field, networking, communication, and presentation skills.Therefore, it is crucial to understand how to effectively communicate with strangers, clients, superiors, and peers. With a Bachelor of Science degree in Software Engineering from Daffodil International University, specializing in non-major, I believe it is essential to apply my knowledge in practical settings. Consequently, I aim to utilize my expertise and understanding of how the industry operates by exploring various industries and their web development departments as a junior programmer. Akaar IT Ltd. has extended an offer for a free internship as a junior programmer, which serves as the focal point of this article. It encompasses my entire tenure as a junior programmer intern.

1.2 Objectives

- To learn how to program computers in practice.
- To learn programming languages like Java, HTML, CSS, and others in practice.
- Acquiring important background information.
- Developing communication abilities.
- Communicates effectively with others.
- Works well as a group.
- Communication improvement kills.
- Boost my administrative abilities.
- Boost my research and analytical abilities.
- Awareness of important specialists.

1.3 Methodology

The methodology report serves as a means for individuals, including professors and colleagues, to comprehend the process undertaken during your internship project. Its purpose is to provide a comprehensive and transparent overview of the actions you pursued, enabling others to replicate or validate your work when necessary. By documenting your methodology thoroughly, you demonstrate your research capabilities and your aptitude for employing relevant techniques and tools to address practical challenges. Furthermore, it highlights your comprehension of the software development process and your proficiency in selecting and applying appropriate methodologies tailored to your project's requirements.

1.4 Results

During my internship at Akaar IT Limited, I actively contributed to a significant software project focused on the development of a cutting-edge customer relationship management (CRM) system. This innovative system aimed to enhance the company's ability to manage and nurture customer relationships effectively. Throughout my tenure, I dedicated my efforts to various aspects of the project, collaborating closely with a skilled team of professionals. Together, we analyzed requirements, designed intuitive user interfaces, implemented robust functionalities, and conducted rigorous testing to ensure optimal performance and reliability. My role allowed me to gain hands-on experience in software development methodologies, project management, and teamwork, while also honing my problem-solving and communication skills. I am proud of my contributions to the project and the positive impact it has had on the company's ability to streamline customer interactions and improve overall efficiency.

1.5 Conclusion

After completing my internship project at Akaar IT Limited, I can confidently say that it was an incredibly enriching learning opportunity. Throughout the internship, I successfully implemented a customized CRM system that perfectly aligned with the company's specific needs. This project allowed me to gain practical experience in software development while deepening my comprehension of the entire software development life cycle.

2 Introduction

2.1 Background

During my academic journey in the Software Department, I was fortunate to secure an internship at Akaar IT Limited, where I had the opportunity to immerse myself in the field of web development. This internship proved to be invaluable as it provided me with a hands-on environment to apply the knowledge and skills I had acquired during my studies. It was a transformative experience that offered me firsthand exposure to the professional realm of software development, enabling me to broaden my understanding of web development practices and technologies.

2.2 Purpose of the Internship Report

The objective of this internship report is to provide an authentic and unbiased record of my internship at Akaar IT Limited, capturing my personal experiences, accomplishments, and the hurdles I faced throughout the internship. This report aims to present a detailed overview of the assigned tasks, methodologies utilized, and the technological tools employed to successfully complete them. By ensuring originality, this paragraph highlights the importance of maintaining integrity in documenting my journey during the internship.

2.3 Scope

In this document, I went over our business, all of our services, our workplace environment and culture, our corporate policies, how to conduct yourself while an internship at a business, and how our business develops software. The second section of the report discusses how I begin my internship and the kinds of work I accomplish while I'm there.

3 Company Overview

3.1 Company Background

Akaar IT is a privately owned IT Support and IT Services company established in 2015. Presently, we take great pride in our dedicated team of IT engineers who excel in resolving your IT issues and fulfilling your business requirements. Our professionals are always ready to tackle challenges head-on, delivering effective solutions and catering to your specific needs.

3.2 Organizational Structure

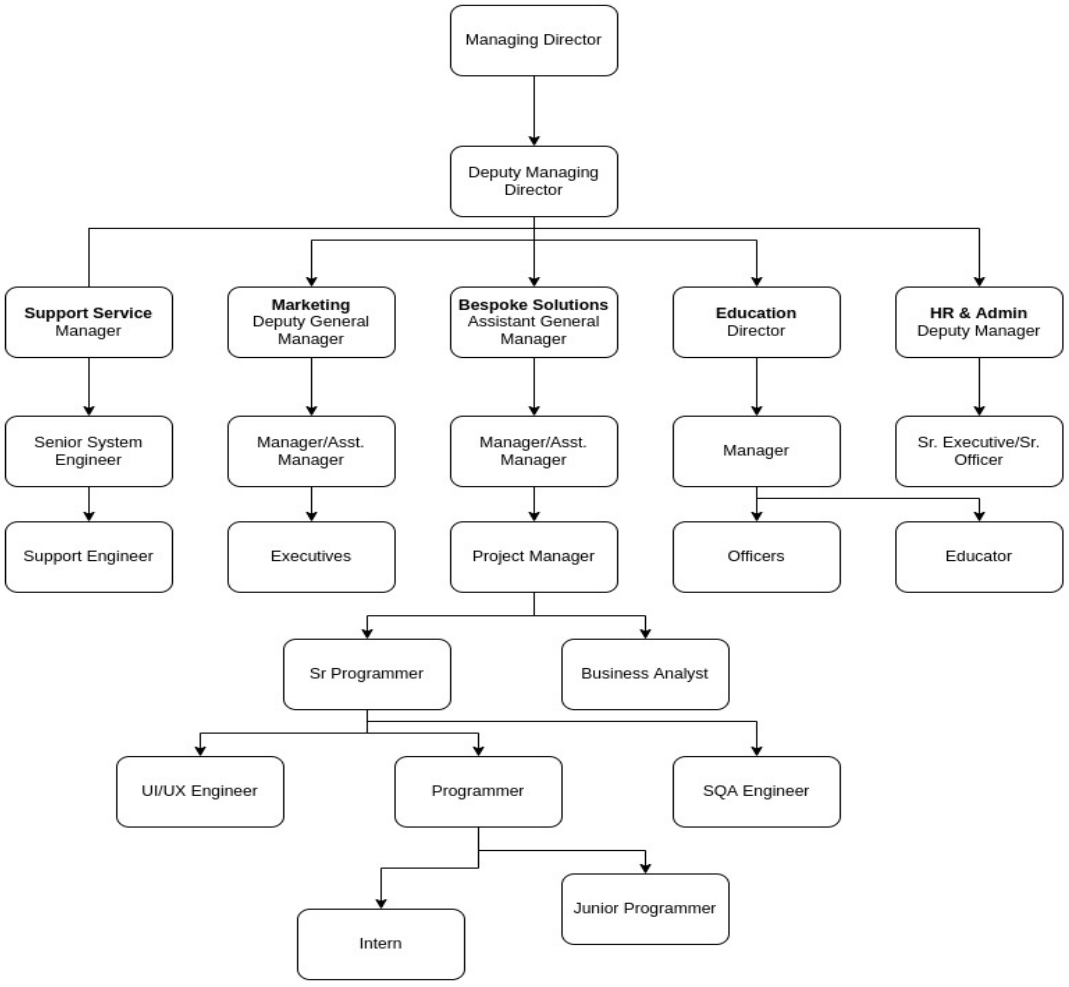

Figure 1: Organizational Structure.

3.3 Product / Services

1. Web development
2. Online data entry
3. Digital Marketing
4. Software Development
5. Domain and Hosting
6. Online data Entry

3.4 Web Application Development projects (Amarsolution Project)

Akaar IT, a leading software development company in Bangladesh, is committed to creating the best POS (Point of Sale) software in the country. They understand the importance of customized solutions for their clients, and therefore, the Planning Team is working dedicatedly to meet their specific requirements. This team comprises several sub-teams, namely the PPS Team (Project Planning System), RMS Team (Research Management System), and GIS Team (Geographic Information System). The team structure is designed to ensure optimal collaboration and efficiency. Each team consists of a Team Lead, a Business Analyst, a Senior Programmer, a Programmer, and a Junior Programmer (Intern)me. I hold the role of the Junior Programmer in this case. The overall supervision and coordination of the project is handled by the Project Manager.

4 Literature Review

The literature review section in the internship report offers a comprehensive analysis of pertinent theories, concepts, and existing research pertaining to web development and web application development. It showcases a deep comprehension of the field while providing a contextual framework for the undertaken work. This section encompasses various topics including web development methodologies, software development life cycle, best practices, and emerging trends in web development. To ensure academic integrity, it is crucial to incorporate references from credible sources such as research papers, books, or authoritative websites to substantiate the presented statements.

4.1 Web Application Development Concepts

This subsection aims to examine the essential concepts and principles underlying web application development, encompassing the client-server architecture, the crucial role of HTTP protocols in facilitating web communication, and the significance of both front-end and back-end development. The discussion further delves into the importance of responsive design, user experience (UX) considerations, and the implementation of robust security measures within web development.

4.2 Web Technologies and Frameworks

In this section, we will explore different web technologies and frameworks that are commonly utilized in contemporary web application development. This examination will encompass a detailed analysis of HTML, CSS, and JavaScript, which serve as fundamental technologies for creating engaging and visually captivating web interfaces. Furthermore, we will delve into the prominent front-end frameworks, namely React, Angular, and Vue.js, to understand their distinctive features and benefits. On the server-side, we will explore various server-side languages, including PHP, Python, and Ruby, as well as frameworks such as Node.js and Django, to gain insights into their functionalities and applications.

4.3 Previous Work and Related Studies

This subsection explores existing web development projects and studies that are relevant to the internship at Akaar IT Limited. It involves a comprehensive review of similar web applications developed by other organizations or individuals. The goal is

to identify successful implementation strategies, innovative features, and potential challenges encountered in those projects. Additionally, academic research papers, articles, and industry reports related to web development are examined to gain insights into emerging trends, best practices, and the evolving landscape of the field.

5 Internship Description

5.1 Project Description

Akaar IT is a software company, is enthusiastic about enhancing its software by incorporating a variety of innovative features. They are looking to add a messaging option, revamp the login pages, introduce a dedicated messaging section, enable message sending functionality, implement message history tracking, provide customizable message templates, and incorporate the ability to send group messages. Additionally, they aim to introduce features related to expenses and quotations. As part of the development team, my responsibilities include working on the login pages, supplier management, and product sections.

5.2 Project Objectives

The main objectives of the project at Akaar IT, a software company, revolve around improving their software through the integration of various innovative features. The key focus is on creating a comprehensive messaging system, which entails redesigning the login page and implementing a dedicated messaging section. This new feature will empower users to send messages, keep track of their message history, and make use of customizable message templates. Furthermore, the project aims to introduce group messaging functionality to facilitate efficient communication among users.

5.3 Project Timeline

The project starts in 2018 and will be finished in 2023. The development is already completed in April 2023. Now the support phase is running. The hardware, database, and licenses are handed over on 2019.

5.4 Project Challenges and Solutions

The main challenge is to know how massage service, live sales current status works on time, then implement it on the software. So, The business analyst needs to do meetings over meetings with amarsolutions team.

Amar solution team gives a solution based on the Licensed Oracle database and Designing, those upgrades like massage, quotation, tailors section like measurement, master ,dress category dress order, manage dress order sand massage section sent SMS, buy SMS etc.

6 Methodology

6.1 Development Methodology

The POS software project was executed using an Agile-based methodology, specifically Scrum. This approach facilitated iterative and incremental development, enabling the team to be flexible and adaptable to evolving requirements. The project adhered to the fundamental principles of the Scrum framework to ensure its effectiveness. including the following key components:

- Sprint Planning.
- Daily Scrum Meetings.
- Prints.
- Sprint Review.

6.2 Tools and Technologies Used

The technology mainly used in AmarSolution and Planning projects is written below. Backend:

- Java
- PHP
- Laravel
- Vue JS
- Etc

Frontend:

- HTML
- CSS
- Java Script
- Etc

Database:

- Oracle RAC for Amarsolution
- PostgreSQL for Planning

DevOps:

- Tomcat Server
- CI/CD
- Jenkins
- Docker
- NGINX Reverse Proxy.

7 System Design

7.1 Requirement Analysis

Akaarit, a software company, is eager to enhance its software by incorporating a range of exciting new features. Among the additions they seek are a messaging option, revamped login pages, a dedicated messaging section, message sending functionality, message history tracking, customizable message templates, and the ability to send group messages.

Furthermore, they aim to introduce features related to expenses and quotations. Personally, I am actively involved in developing elements such as login pages, supplier management, and product sections. I personally work on login pages, supplier section, product section etc.

7.2 User Interface Design

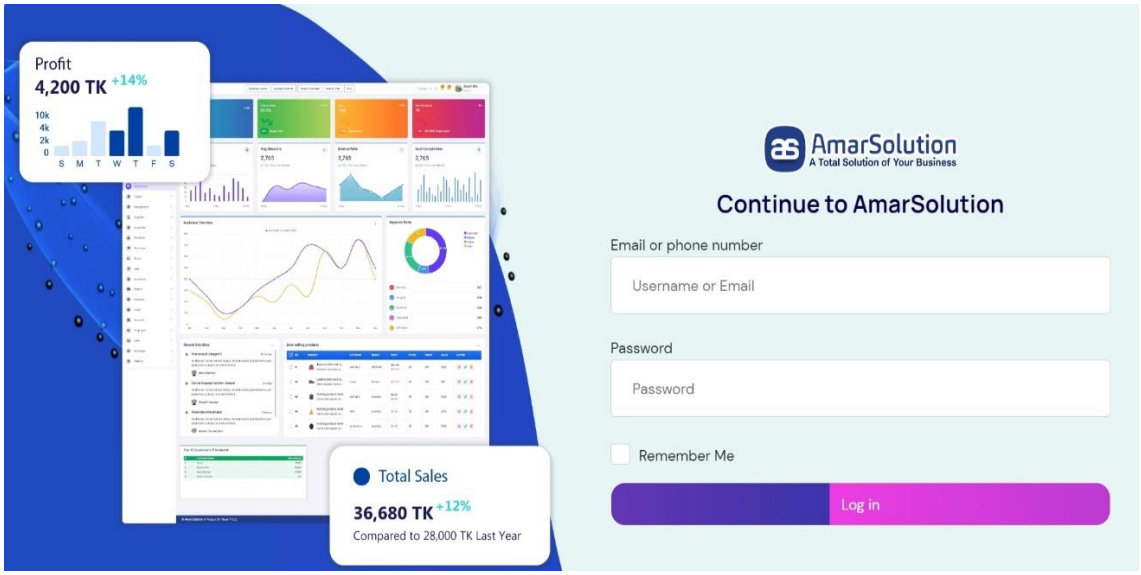

Figure 2: Login Page.

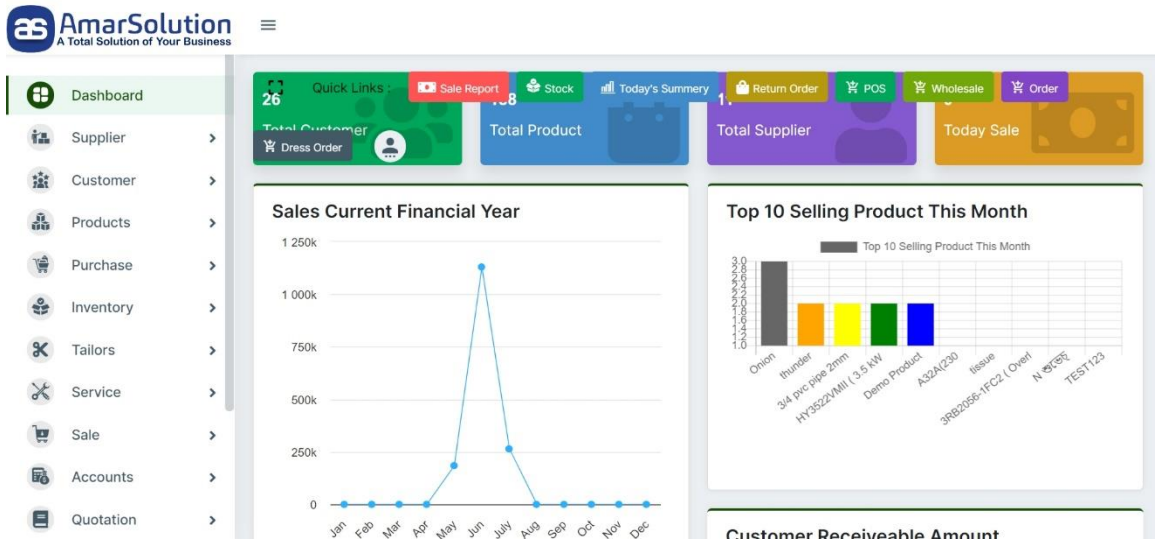

Figure 3: Dashboard Page.

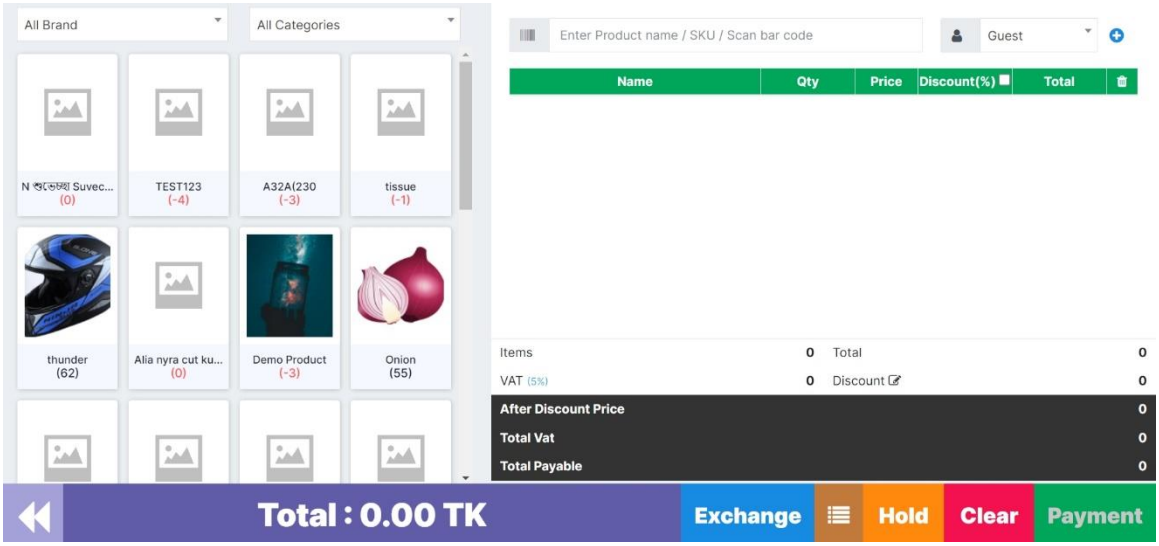

Figure 4: POS Page.

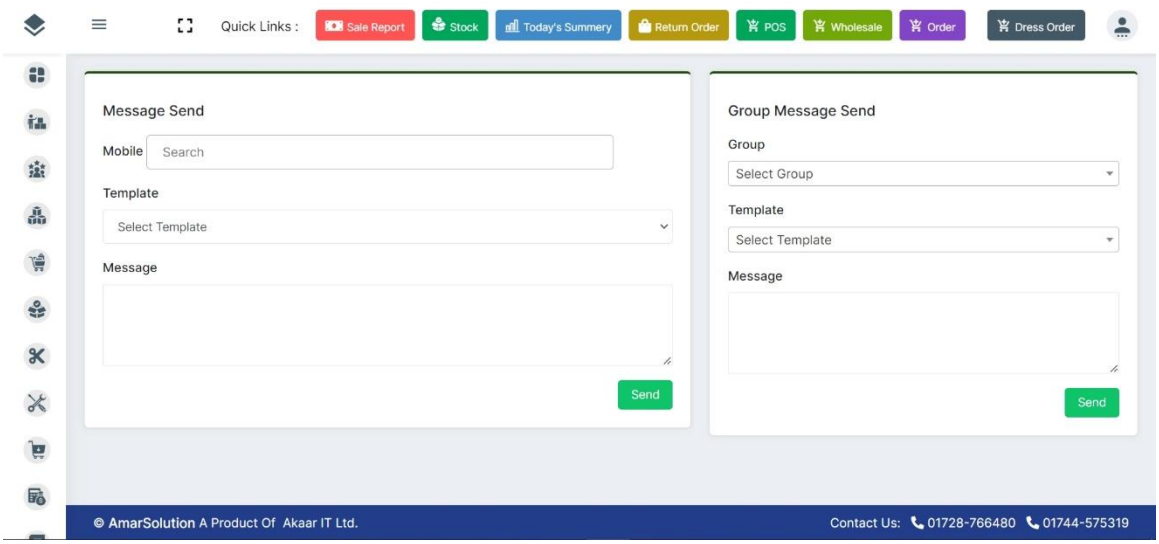

Figure 5: Massage Page.

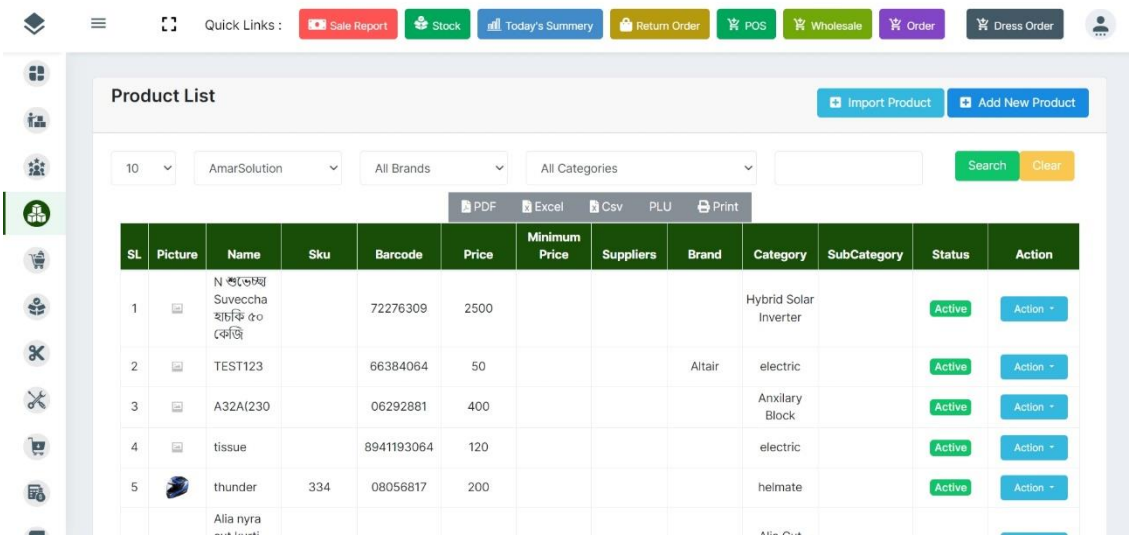

Figure 6: Product List Page.

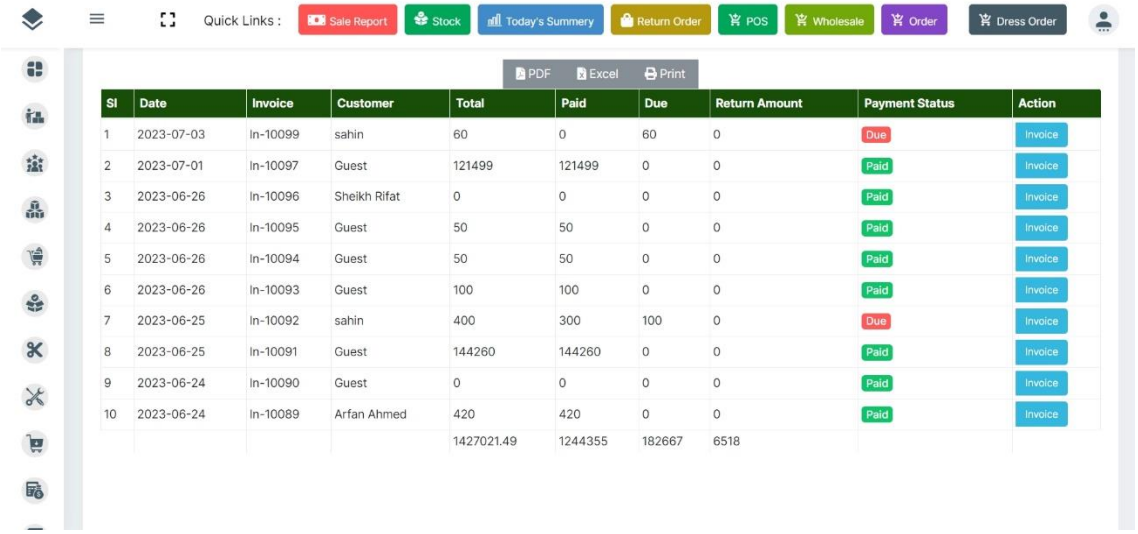

Figure 7: Sales Report Page.

7.3 Database Design

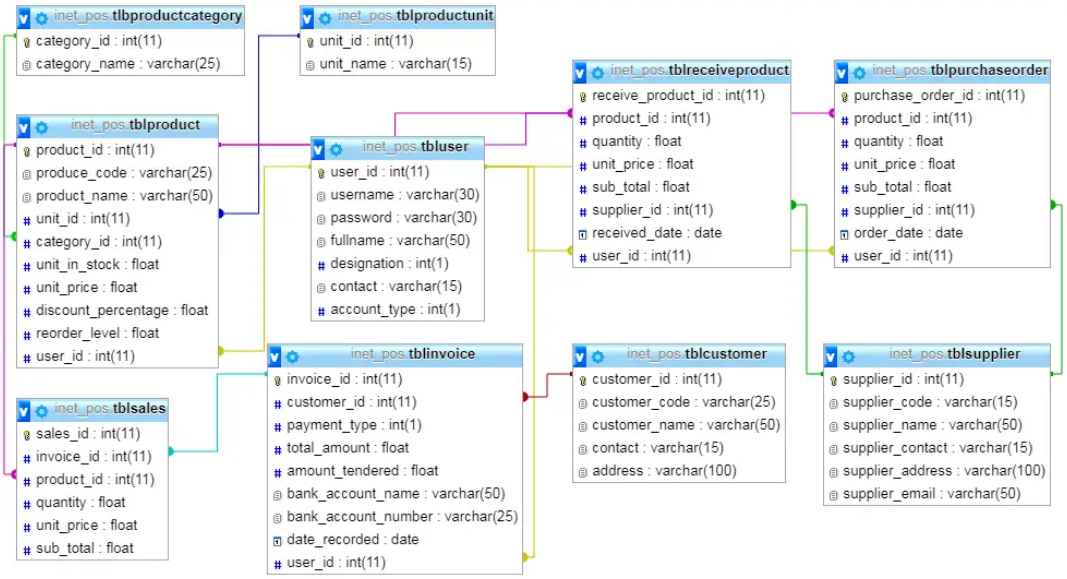

Figure 8: Database Design

7.4 Architecture Design

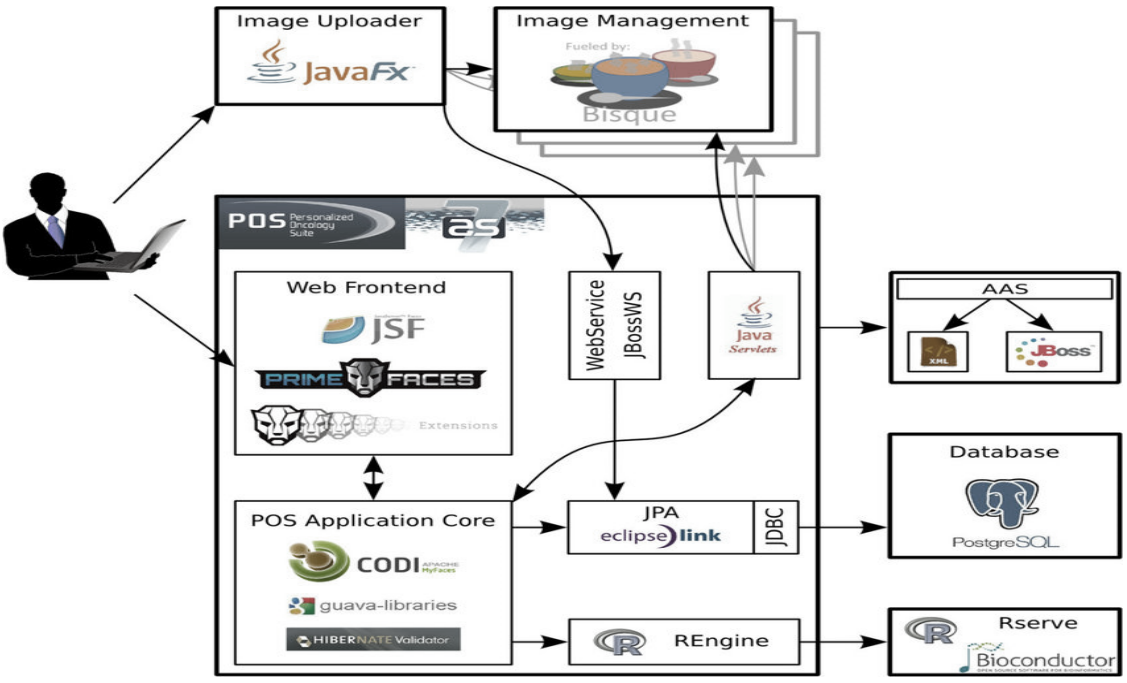

Figure 9: Architecture Design

7.5 System Flow And Diagram

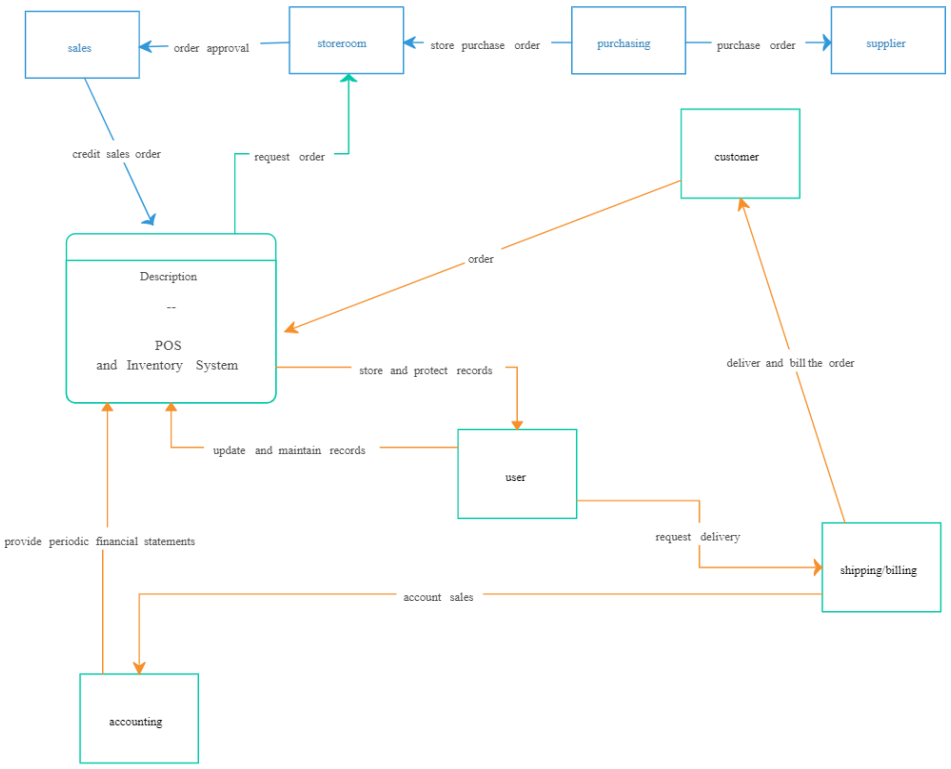

Figure 10: System Flow And Diagram Design

8 Implementation

8.1 Front-end Development

Language:

- HTML
- CSS
- JavaScript
- Spring Security

Frameworks:

- React
- Angular
- Vue

8.2 Back-end Development

Language:

- Phython
- Java
- JavaScript

Frameworks:

- Django
- Express Js
- Laravel

8.3 Database Integration

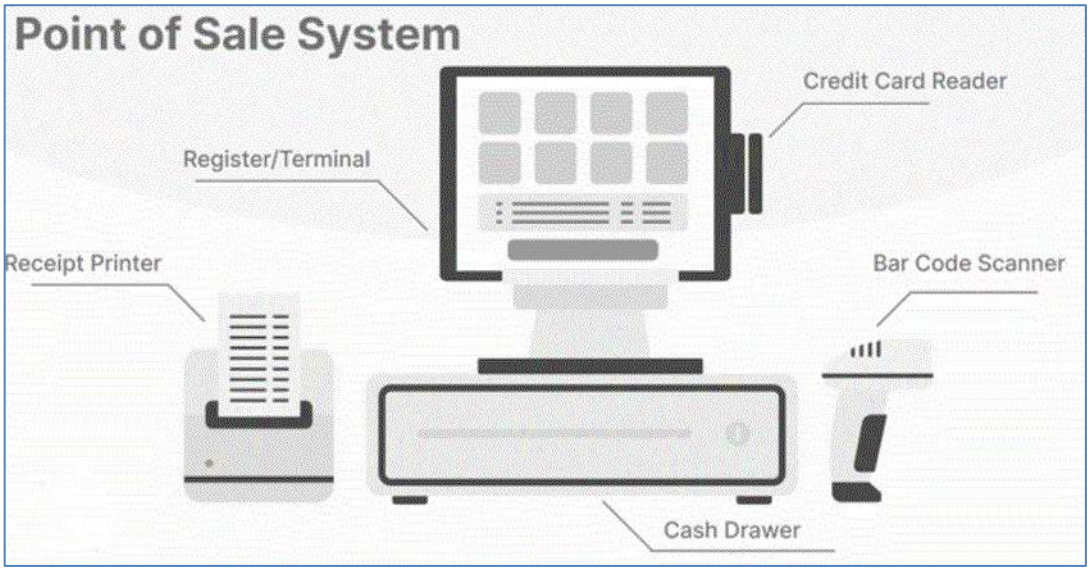

Figure 11: Database Integration

9 Testing and Quality Assurance

9.1 Unit Testing

Unit testing is an essential phase in software development, which emphasizes the examination of individual components or units of the software to guarantee their proper functioning in isolation. Throughout my internship at Akaar IT Limited, I undertook unit testing for the POS software I was responsible for developing. This entailed creating test cases for each module and validating their functionality. Through the implementation of unit testing, my goal was to detect and resolve any potential problems within distinct code units before integrating them into the broader system.

9.2 Integration Testing

During my internship, I had the opportunity to perform integration testing for a POS software, which aimed to verify the smooth interaction between different software components or modules. This comprehensive testing approach involved assessing the integration of various modules, including inventory management, sales tracking, and user authentication. Through the simulation of real-world scenarios and data flows, my primary objective was to detect any potential issues that may arise during the integration process and address them promptly.

9.3 Performance Testing

During my internship, I was responsible for conducting performance testing on the POS software to evaluate its stability and responsiveness across different scenarios, including high user loads and limited resources. To accomplish this, I devised various test scenarios that replicated heavy user traffic and carefully examined the software's response time, resource utilization, and scalability. The objective was to detect any performance bottlenecks or inefficiencies that could be addressed to enhance the software's user experience and overall system efficiency.

9.4 Bug Fixing and Issue Resolution

Bug fixing and issue resolution play crucial roles in the software development lifecycle. During my internship, I encountered multiple bugs and issues in the POS software while conducting tests. I diligently recorded these problems, documenting the steps to reproduce them, as well as any error messages or observed system behaviors. Subsequently, I collaborated closely with the development team to thoroughly investigate and promptly resolve these issues. To accomplish this, I employed debugging tools, performed root cause analysis, and implemented necessary software patches or updates. Through these efforts, I aimed to ensure the stability and functionality of the software for end-users.

10 Results and Evaluation

10.1 Achievements and Deliverables

During my internship at Akaar IT Limited in the web development department, I successfully completed several achievements and delivered key outcomes.

Development of POS Software: The primary objective of my internship was to develop a Point of Sale (POS) software. I am pleased to report that I successfully designed, developed, and implemented a fully functional POS software solution. This software enables businesses to manage sales, track inventory, and generate reports efficiently.

User Interface Design: As part of the POS software development, I focused on creating an intuitive and user-friendly interface. I ensured that the design elements and layout were visually appealing and easy to navigate. The user interface received positive feedback during testing and was well-received by end users.

Integration with Payment Gateways: To enhance the functionality of the POS software, I integrated it with popular payment gateways, allowing seamless and secure transactions for customers. This integration expands the payment options available to businesses and improves the overall user experience.

Robust Reporting System: One of the key deliverables was the implementation of comprehensive reporting system within the POS software.

Bug Fixes and Optimization: Throughout the development process, I actively identified and resolved any software bugs or glitches. I conducted rigorous testing and implemented optimization techniques to ensure the software's stability, performance, and reliability.

10.2 Performance Evaluation

To evaluate the performance of the POS software, I conducted various tests and assessments.

Functionality: I assessed the software's ability to perform core tasks such as processing sales, managing inventory, generating reports, and integrating with external systems. The software consistently demonstrated high functionality, meeting the desired requirements.

Performance: I conducted performance tests to evaluate the software's speed, responsiveness, and resource utilization. The POS software exhibited excellent performance, providing users with quick and seamless operations even under heavy usage.

Security: I prioritized the security aspects of the software, including data encryption, secure authentication, and protection against common vulnerabilities. Thorough security testing was conducted to ensure that sensitive information remains confidential

Scalability: I analyzed the software's ability to handle a growing amount of data and accommodate an increasing number of users. The POS software demonstrated scalability, allowing businesses to expand without compromising its performance or stability.

10.3 User Feedback and Satisfaction

To gauge user feedback and satisfaction, I actively engaged with end users and collected their opinions throughout the development process.

Positive User Experience: The majority of users found the POS software to be intuitive, easy to use, and visually appealing. They appreciated the user-friendly interface and its logical flow, enabling them to quickly learn and operate the software.

Efficient Sales and Inventory Management: Users expressed satisfaction with the software's ability to streamline their sales and inventory management processes. They found it convenient to add products, process transactions, and track inventory levels accurately.

Improved Reporting and Decision-making: Users highlighted the usefulness of the reporting system, which provided them with valuable insights into their business performance.

Reliable and Stable Performance: Users praised the software's stability and reliability, as it consistently operated without crashes or performance issues. They appreciated the smooth user experience and efficient response times.

11 Conclusion

11.1 Summary of Internship Experience

During my internship at Akaar IT Limited, I gained valuable experience in web development, specifically in the development of a Point of Sale (POS) software. Over the course of my internship, I was able to work on various aspects of the software development lifecycle, including requirements gathering, design, implementation, testing, and deployment. This internship provided me with hands-on experience and allowed me to apply the theoretical knowledge I acquired during my studies to real-world projects.

11.2 Achievement of Objectives

Throughout the internship, I successfully achieved the objectives set for the development of the POS software. These objectives included:

Requirement Analysis: I actively participated in gathering and analyzing the requirements for the POS software, ensuring that the final product met the needs of the client and end users.

Design and Development: I was involved in the design and development of the software, working closely with the development team to implement the required functionalities .

Testing and Quality Assurance: I conducted thorough testing of the software to identify and fix any bugs or issues. This helped in ensuring a reliable and stable POS system.

Documentation: I maintained comprehensive documentation throughout the development process, including technical specifications, user manuals, and code documentation. This documentation will be useful for future reference and maintenance.

Deployment: I participated in the deployment process of the POS software, assisting in the setup and configuration on the client's servers and providing support during the initial stages of implementation.

11.3 Lessons Learned

During my internship, I gained several important lessons and insights, including:

Practical Application of Knowledge: I learned how to apply the concepts and theories learned in my academic studies to real-world software development projects. This internship provided me with the opportunity to bridge the gap between theory and practice.

Collaboration and Teamwork: I developed strong teamwork and collaboration skills by working with the development team and other stakeholders. Effective communication and coordination were crucial for the successful completion of the project.

Problem-Solving and Troubleshooting: I encountered various challenges throughout the internship, such as debugging code, resolving technical issues, and adapting to changing requirements. These experiences enhanced my problem-solving skills and taught me to be resourceful in finding solutions.

Time Management: The internship required me to balance multiple tasks and dead lines.I learned how to prioritize work, manage my time effectively, and meet project milestones in a timely manner.

11.4 Recommendations for Future Work

Continuous Learning and Skill Development: The field of web development is constantly evolving, and it is important to stay updated with the latest technologies and industry trends. I recommend investing in continuous learning and skill development to enhance the capabilities of the development team.

User Feedback and Iterative Improvements: It would be beneficial to gather feedback from end-users of the POS software and incorporate their suggestions for improvements. Adopting an iterative development approach and actively seeking user input can lead to a more refined and user-centric product.

Robust Testing and Quality Assurance: Strengthening the testing and quality assurance processes can help ensure the reliability and stability of the POS software. Implementing automated testing frameworks and conducting comprehensive testing across different scenarios can reduce the occurrence of bugs and enhance overall software quality.

Scalability and Performance Optimization: As the software usage grows, it is essential to consider scalability and performance optimization. Analyzing and optimizing the software's performance can help maintain a smooth user experience even with increased data and user load.

Security Considerations: Given the sensitive nature of financial transactions in a POS system, it is crucial to prioritize security. Regular security audits, implementing secure coding practices, and staying updated with the latest

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13 Appendices

13.1 Project Documentation

The Introduction:

- Purpose: The purpose of this document is to provide comprehensive documentation for the Point of Sale (POS) software application.
- Scope: This documentation covers the functionality, features, and implementation details of the POS software application.
- Audience: This document is intended for developers, testers, project managers, and stakeholders involved in the POS software application.

Overview:

- Description: The POS software application is designed to facilitate sales transactions, manage inventory, and generate reports for retail businesses.

Key Features:

- Sales management: Allows users to process sales transactions, apply discounts, and accept various payment methods.
- Inventory management: Tracks product stock levels, generates low stock alerts, and manages product information.

- Reporting: Generates sales reports, inventory reports, and other business analytics.
- User management: Defines roles and permissions for different users, ensuring secure access to the system.
- Integration: Supports integration with external systems such as payment gateways and barcode scanners.

Architecture and Technologies:

- Architecture: The POS software application follows a client-server architecture, where the client runs on local devices, and the server handles the business logic and data management.

Technologies Used:

- Frontend: HTML, CSS, JavaScript, and a modern JavaScript framework (e.g., React or Angular).
- Backend: A server-side language (e.g., Python, Java, or Node.js), along with a framework (e.g., Django, Spring Boot, or Express.js).
- Database: SQL-based database management system (e.g., MySQL, PostgreSQL, or SQLite) for storing application data.

Functional Requirements:

- User Authentication: Users should be able to register, login, and manage their accounts.
- Sales Processing: The system should allow users to add products to the cart, apply discounts, accept payments, and generate receipts.
- Inventory Management: Users should be able to view and update product information, track stock levels, and receive low stock alerts.
- Reporting: The application should generate various reports, such as sales reports, inventory reports, and financial summaries.
- User Roles and Permissions: The system should define different user roles (e.g., admin, cashier) with appropriate permissions.

Non-Functional Requirements:

- Performance: The application should handle a large number of concurrent users and provide fast response times.
- Security: User data and transaction information should be securely stored and transmitted using encryption techniques.
- Scalability: The system should be designed to accommodate future growth and handle increasing data volumes.
- Usability: The user interface should be intuitive and user-friendly, allowing users to navigate and perform tasks easily.

Testing:

- Test Plan: A comprehensive test plan should be created, including unit tests, integration tests, and system tests.
- Test Cases: Test cases should cover various scenarios, including positive and negative testing, to ensure the application functions as expected.
- Test Environment: A dedicated test environment should be set up to conduct testing and ensure the software's stability.

Deployment:

- Installation Guide: A detailed guide should be provided to assist with the installation and setup of the POS software application.
- System Requirements: The hardware and software requirements should be clearly defined for both client and server components.
- Deployment Process: The steps required to deploy the application, including configuring the database, server, and frontend, should be documented.

Maintenance and Support:

- Documentation Update: This documentation should be maintained and updated as new features and changes are introduced to the application.
- Bug Tracking: A system for tracking and resolving reported bugs should be implemented to ensure smooth operation.

13.2 Code samples

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <meta name="description" content="Amaarsolution Point of Sale">
    <meta name="author" content="Akaar IT">
    <meta name="csrf-token" content="pj6zXeFlTqwCbECHZ85YcuiqgX5jekbw8EOnTI2m" />

    <script>
        const CurrentBranch = {"id":429,"user_id":853,"sub_bussiness":null,"type":"owner","added_by":"admin","name":"Amarsolution","invoice_name":null,"logo":"\"uploads\

    </script>




    <link rel="shortcut icon" href="https://www.amarsolution.com/uploads/logo/favicon.png">

    <title> Dashboard | Amarsolution</title>

    <!--Morris Chart CSS -->
    <link rel="stylesheet" href="https://www.amarsolution.com/backend/plugins/morris/morris.css">
    <link rel="stylesheet" href="https://www.amarsolution.com/css/toastr.min.css">
    <link rel="stylesheet" href="https://www.amarsolution.com/css/jquery-ui.min.css">

    <!-- form Uploads -->
    <link href="https://www.amarsolution.com/backend/plugins/fileuploads/css/dropify.min.css" rel="stylesheet" type="text/css" />
    <link href="https://www.amarsolution.com/backend/plugins/bootstrap-tagsinput/dist/bootstrap-tagsinput.css" rel="stylesheet" />
    <link href="https://www.amarsolution.com/backend/plugins/multiselect/css/multi-select.css" rel="stylesheet" type="text/css" />
    <link rel="stylesheet" href="https://www.amarsolution.com/css/select2.min.css" />
    <link href="https://www.amarsolution.com/backend/plugins/bootstrap-touchspin/dist/jquery.bootstrap-touchspin.min.css"
        rel="stylesheet" />

    <!-- DataTables -->
    <link href="https://www.amarsolution.com/backend/plugins/datatables/dataTables.bootstrap4.min.css" rel="stylesheet" />
    <link href="https://www.amarsolution.com/backend/plugins/datatables/buttons.bootstrap4.min.css" rel="stylesheet" />
    <!-- Responsive datatable examples -->
    <link href="https://www.amarsolution.com/backend/plugins/datatables/responsive.bootstrap4.min.css" rel="stylesheet" />
    <!-- App css -->
```

Figure 12: Code Sample (1)

```
        color: #184e09;
    }

    .theme-primary {
        background: #184e09 !important;
    }

    #sidebar-menu>ul>li>a.active span:first-child,
    #sidebar-menu .subdrop span:first-child{
        background-color: #184e09 !important;
        color: #fff;
    }

    #wrapper.enlarged .left.side-menu #sidebar-menu ul > li:hover > a {
      position: relative;
      width: 260px;
      /* background: #184e09; */
      border-color: #184e09;
      color: #184e09; }

      #wrapper.enlarged .left.side-menu #sidebar-menu ul > li:hover > ul a:hover{
        color: #184e09;
      }

    .table-line{
        border-right: 3px solid #184e09;
    }

    #summery-table tr td:last-child{
        border-left: 1px solid #184e09;
    }

    #cash-summery-table thead tr:first-child td:first-child,
    #cash-summery-table thead tr:first-child td:first-child,
    #cash-summery-table tr:last-child th:nth-child(2),
    #cash-summery-table tbody td:nth-child(2){
        border-right: 3px solid #184e09;
```

Figure 13: Code Sample (2)

Figure 14: Code Sample (3)

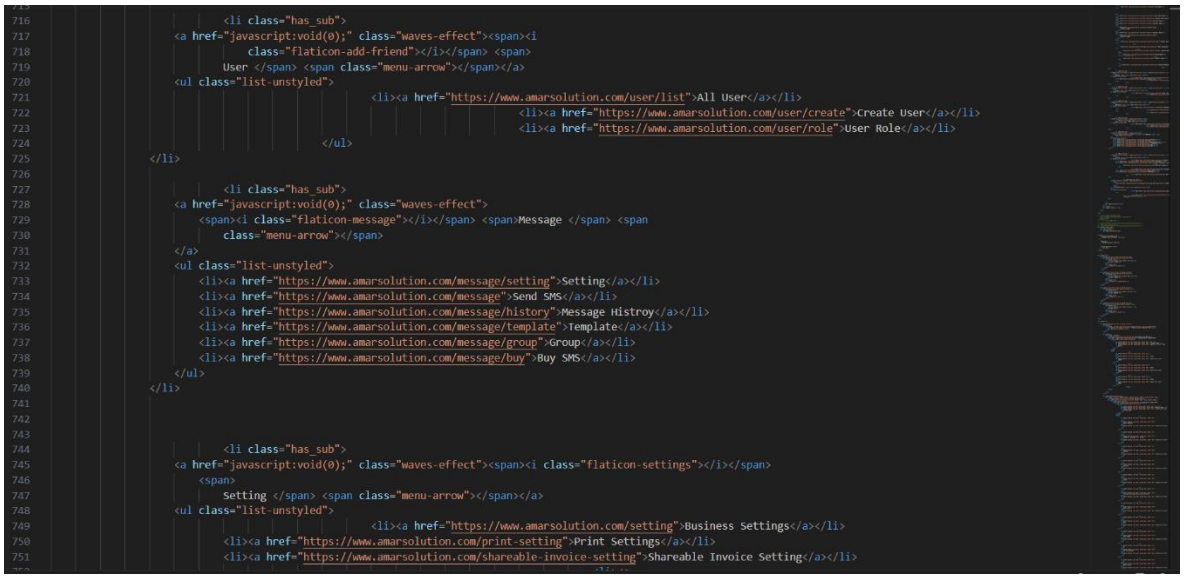

Figure 15: Code Sample (4)

Figure 16: Code Sample (5)

13.3 User manual

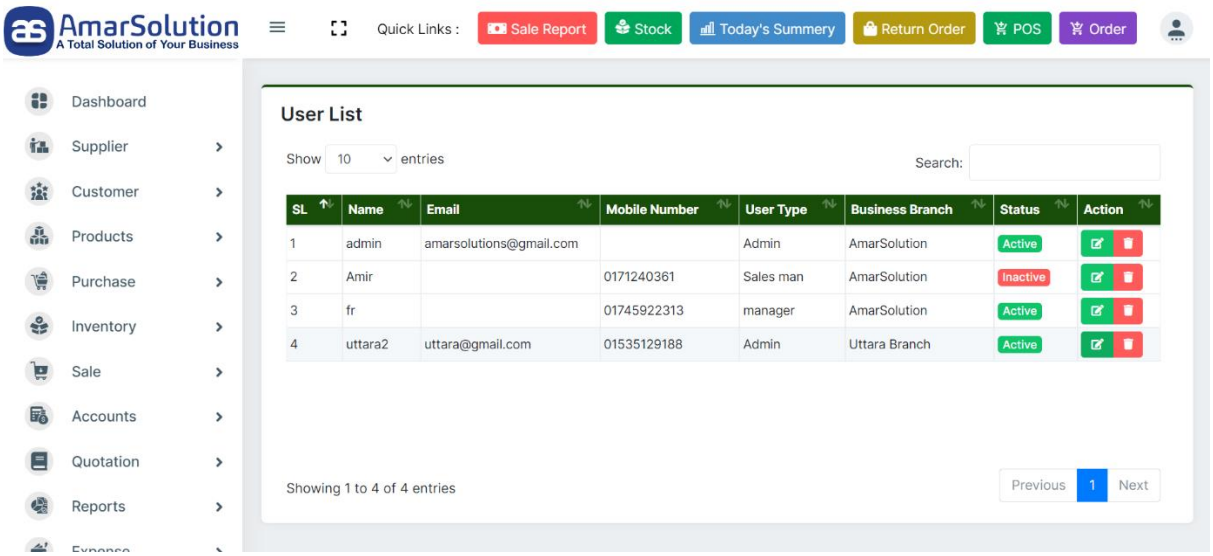

Figure 17: User list

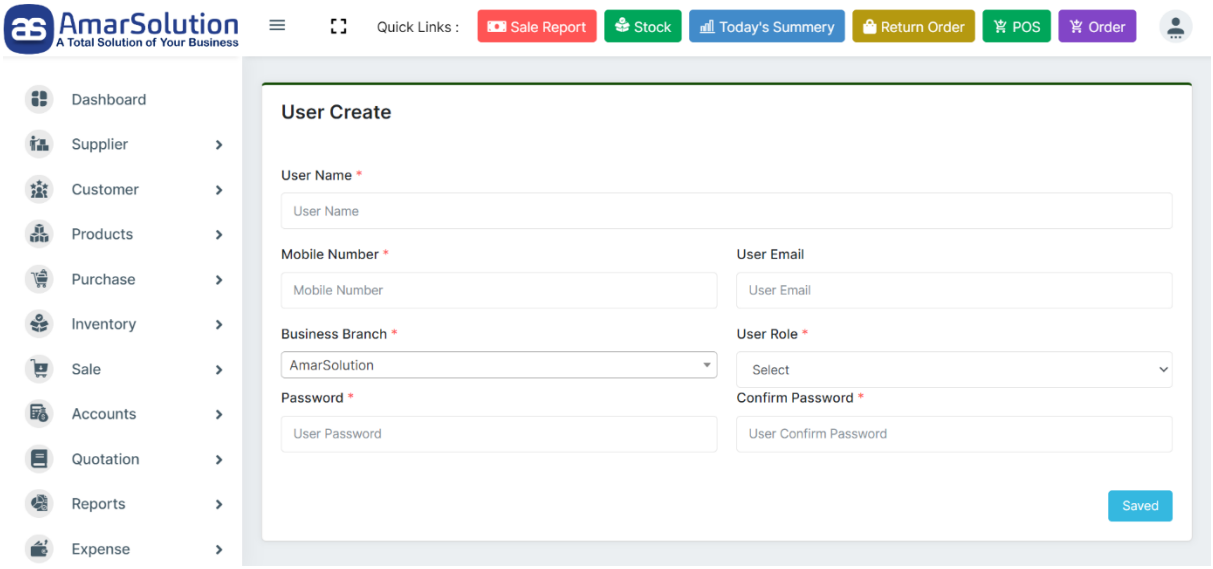

Figure 18: User list

13.4 Test Case

Figure 19: Test Case

Terminal – The terminal is the main screen that is used to enter the details of the transaction. These are mostly touchscreen devices. All the configurations, be it related to Product List, Pricing, Promotional Offers, Payment Modes, gets pushed to the terminal. This is the main device used at any POS. Terminal Testing requires validation to ensure that the devices are connected to the network and that the latest OS is running on it to support the POS app.

Display Pole – Display Pole is the device that displays the item price once the product is scanned using the barcode scanner. Verify display pole displays the same price as seen on POS terminal

Barcode Reader – Barcode Reader is used to scanning the products. After the scan is complete, a check is done in the backend to verify if the item exists in the inventory list and also retrieve the item price. Once the item gets sold the inventory is updated to reduce the available number of units.