

**Final Project Report**

For

**POINT OF SALES MANAGEMENT SYSTEM FOR ASIAN DISTRIBUTORS**

By

**Group - BlitzCodes**

**ID - 23**

Client Mr. MZM . Shahlan

Supervisor :

Mr. Roshan Jayawardhana

**DECLARATION**

We hereby declare that the project work entitled “POINT OF SALES MANAGEMENT SYSTEM FOR ASIAN DISTRIBUTORS”, submitted to the SLIIT Academy (Pvt.) Ltd. a subsidiary of Sri Lanka Institute of Information Technology is a record of an original work done by us, under the guidance of our Supervisor Mr. Roshan Jayawardhana. This project work is submitted in the partial fulfillment of the requirement for the award of the Diploma in Information Technology. The Results embodied in this report have not been submitted to any other University or Institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

Date of Submission: 31/10/2021

Name of the supervisor: Mr. Roshan Jayawardhana

………………………………………………

Signature of the Supervisor.

**Acknowledgement**

We would first like to thank our lecturer in charge for PPA project Mr. Roshan Jayawardana at SLIIT Academy for his immense support and guidance. We like to extend our gratitude towards the lecturers Mr. anuruddha for the support given in the lab sessions.

We would also like to thank our client Asian Distributors who gave us the guidance for the project. Without their passionate support and input the completion of this project would not have been successfully completed.

Finally, we must express our very profound gratitude to our group members for their cooperative and attitude and dedicated efforts.

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# Group Members

|  |  |  |
| --- | --- | --- |
| **Name** | **Role** | **Responsibilities** |
| M.Z.A. Rahman. | Team Leader/Project Manager | Managing and coordinating project work |
| M.N. Salmanul Faris | Backend Developer | Developing the algorithm for calculation and other functions |
| H.K. Najumudeen | Database Developer | Managing the Database |
| F.A. Ozeer | Documentation | Framing the Documentation |
| H.N.Ahamed | UI developer | User interface developer |

# Executive Summary

The Asian Distributors are a small chain that is managed by the client MZM. Sahalan. They are currently involved in mobile phones and accessories etc. The main shop of Asian Distributors is located in Kahawatta, Rathnapura Currently the Asian Distributors use a manual system that monitors the distributed records and stock has been recorded in a book that needed to be maintain frequently. This method is error prone, and they don’t have proper method to calculate a profit as well. Therefore, with the proposed System information on inventory, sales and salary are recorded. The client can analyze the current and past transaction, payments, sales etc. Through this system client can get an idea about how the business is performing and what are the necessary steps to be taken in order to improve this business and the client can maintain the branches efficiency. The main role of our project is to develop the system of routes in to many areas which would Display the option in the shop Asian Distributors

# Project Background / Literature Review

## Introduction / Background

This document contains the software requirement specification of The Asian Distributors. This is managed by Mr. Sahlan as software requirement specification report is more detailed version of the proposed Software. The main purpose of this system is to keep track of information of sales, and distributed records and also the client can analyze detail about the current and past transaction, sales and etc. This document covers the all the aspects of this project as our strategic plan to create a successful company (The Asian Distributors). Through this system the client can get an idea about how the business of performing and step by step necessary taken to improve the business and client to maintain the company effectively. through this object of our project this system develops and stock handling and payroll and profit calculation for Asian Distributors. This software requirements specification report helps to get guidness of the developing project this contains an Overall description about the project including functional requirement, non-functional requirements, and the diagram to represent the proposed system.

* 1. **Similar System / Current Process**

The main purpose of this system is to keep track of information of sales, and distributed records, inventory and also the client can analyze detail of the current and past transaction, sales and etc.

This process is going with a manual system to get more error prone and a very tedious. the documentation managed manually as the main objective of our project to develop a system for stock handling and balance-income report, database to connect and store data of the system, secure access with rolls such as administrator, user, maintain system payrolls. This system maintains the client to view the system details anytime.

**Solution**

With the proposed system, information and inquiries are recorded in sales and salary. Therefore, the client can generate and analyze detailed reports on current and past transactions, payments, sales and etc. Through this system the client can get an idea about how the business is performing and what are the necessary steps to be taken in order to improve this business and the client can maintain efficiently. The main objective of our project is to develop a system for stock handling, payroll and profit calculation for Asian Distributors.

# Problem Definition and Requirement Analysis

## **Problem Definition**

Since all the documentation is managed manually. It is error prone and time wasting. A proper system is needed to organize the data. It is a risk to keep the data without any security measures as it can be stolen or destroyed. The goal of this project is to create a system that calculates profit, inventory management and salary along with a secure and user-friendly application.

### People Affected

* Admin

### Limitations of Current Manual System

* Data Loss
* More time consuming
* Data could be entered incorrectly
* High risk
* Redundant data
* Difficult to update data
* Less user friendly
* Unorganized

## Requirement Analysis

### Gathering Requirements

The information and data was gathered through an interview with the client Mr. MZM. Sahlan the owner of the Asian Distributors. Where he provided the current documents such as log books, inventory books and current sales records of the company. We had some interviews with the user to get their perspective on the current system and got their feedback. We distributed some questionnaires among the employees. The group members were able to get a clear idea about the business and what requirements that the client expect through this project.

### General Objectives

* A system to generate balance-income reports
* Control database to connect and store data of the branche
* Control database to connect and store data of the stocks
* Secure access roles such as administrator, user etc.
* A system to maintain payrolls

### Specified Objectives

* There’s an interface to view manage and generate report
* There should be a password protected access
* There’s an interface being recorded on transactions.
* Must have an interface to manage cash receipts for goods.
* Sales and inventory should be recorded
* There are routes to manage their clients’ details
* There should be a user-friendly interface that is easily accessible

## Results

The user can log in to the system by entering the password. When the system is opened, user can access to the home page and select the specific operation to do. If the user wants to update the stock, he/she can simply press the View Products button and click on the product to be updated and update the stock. He / She also can update details about customer. In view shop button, the balance-income of a customer is calculated by the system.

# Design and Implementation

## Diagram Description automatically generatedHigh level architecture diagram

Figure . - Architecture diagram of the system

The SQLite database used as the database for the system. Because the system is only used by one user and it doesn’t need to monitored by any others. SQLite database uses local storage to store data.

## Hardware, Software and Communication Interfaces

### Hardware Requirements

* Integrated Development Environment (IDE) – Android Studio
* Operating System – Windows Operating System/Mac OS
* RAM - 4GB or above
* Interface Design – Adobe Photoshop

Requirements for consumers,

* OS: Android 5.0 or higher
* RAM: 2GB or higher.
* Storage:more than 500MB

## Non-Functional Requirements

This defines a non-functional criterion was necessary to avoid creating conflicts by developing the software. So Non-functional requirements will be accessible to the system available 24 hours and 7 days a week. System can be installed in android mobile phones or tablets. Also, the system is user friendly and security base.

### Operational Requirements

We developed a Mobile application called “Asian distributors” which the user can run by simply clicking on the icon. The application will first prompt the user to login to the system. Then user can experience other options.

### Performance Requirements

Any day-to-day mobile should be able to run this program without any issues but if the mobile has more memory and processing power the overall system performance will be much smoother.

All the interfaces are designed for the users to be able to easily use and understand. All the functions of the system will be operational when the user opens the mobile application.

### Security Requirements

* To operate the system all users should be logged in the system.
* Admin can authorize users who can access the system.
* Users will only have the authority to enter data give reports of the users will be prohibited to change the system data.

## Implementation

### Development Methodology

Figure . - Waterfall development methodology

We used waterfall methodology to develop out mobile application. For the waterfall methodology to work properly, just like in an actual waterfall each phase was needed to be completed before beginning the next phase and one cannot be moved to a previous phase after beginning the next phase

### Development Technologies

#### Coding Environment

Our team used Android Studio to develop the code for the system. **Android Studio** is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.

#### Database Environment

We used SQLite with Android Studio. It uses local storage to store data, so it doesn’t need to be hosted.

#### Interface Technology

Android Studio interfaces are built by classes that are integrated into the IDE that we used to develop our project. Interfaces are used to display information to the user and get inputs from the user

### Development Tools

#### Coding IDE

We used Android studio to develop our project. It allows developers to use various java libraries and plugins to create the program they want. The IDE provides an easy-to-use tools to develop and test the application.

#### Database Management System

We used SQLite with Android Studio. It uses local storage to store data, so it doesn’t need to be hosted.

# Testing and Deployment

## Login

Test Types:

* Username and password validation
* Null field validation

|  |  |
| --- | --- |
| Field | Condition |
| Username | Username = asd |
| Password | Password = 12345 |

Table . - Login inputs

Test case

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test ID | Test Scenario | Test steps | Test Data | Expected Results | Actual Results | Pass/fail |
| 1 | Enter  Wrong username and password | Enter username and password into necessary fields | Username:  abc  Model:  abc123 | Toast Message (Username or Password is invalid) | As expected | pass |
| 2 | Null input fields | Press login with empty field |  | Toast Message (Username or Password is empty) | As expected | pass |
| 3 | Enter  Correct username and password | Enter username and password into necessary fields | Username:  asd  Model:  12345 | Toast Message (Login Successful) | As expected. | pass |

Table . - Login test cases

## Add/Edit Brand

Test Types:

* Null validation

|  |  |
| --- | --- |
| Field | Condition |
| Brand Name | Null validation |
| Seller Name | Null validation |
| Contact No | Null validation |
| Address | Null validation |

Table . - Add Brand inputs

Test case

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test ID | Test Scenario | Test steps | Test Data | Expected Results | Actual Results | Pass/fail |
| 1 | Add Product with valid data | Enter data into all necessary fields click  Add | Brand Name:  Star  Seller Name:  M21  Price:  37500  Quantity:  10 | Toast Message (Brand added Successfully) | As expected | pass |
| 2 | Add Product with a blank field |  | Brand Name:  Samsung  Model:  M21  Price:  -  Quantity:  10 | Toast Message (Field is empty) | As expected | pass |

Table . - Add Brand test cases

## Add/Edit Product

Test Types:

* Null validation

|  |  |
| --- | --- |
| Field | Condition |
| Brand Name | Null validation |
| Model | Null validation |
| Price | Null validation |
| Quantity | Null validation |

Table . - Add Product inputs

Test case

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test ID | Test Scenario | Test steps | Test Data | Expected Results | Actual Results | Pass/fail |
| 1 | Add Product with valid data | Enter data into all necessary fields click  Add | Brand Name:  Samsung  Model:  M21  Price:  37500  Quantity:  10 | Toast Message (Product added Successfully) | As expected | pass |
| 2 | Add Product with a blank field |  | Brand Name:  Samsung  Model:  M21  Price:  -  Quantity:  10 | Toast Message (Field is empty) | As expected | pass |

Table . - Add Product test cases

## Add/Edit Order

* Test Types:
  + - Character validation
    - Null validation

|  |  |
| --- | --- |
| Field | Condition |
| Shop Name | Null validation, Character validation |
| Model Name | Null validation, Character validation |
| Price | Null validation |
| Quantity | Null validation |
| Total | Null validation |

Table . - Add Order inputs

Shop Name

|  |  |  |
| --- | --- | --- |
| Validation Type | Valid Characters | Invalid Characters |
| Character validation | A-z, a-z, 0-9 | Special Characters (Symbols) |

Table . - Valid shop name

Model

|  |  |  |
| --- | --- | --- |
| Validation Type | Valid Characters | Invalid Characters |
| Character Validation | A-z, a-z, 0-9 | Special Characters (Symbols) |

Table . - Valid Model Name

Test Case

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test ID | Test Scenario | Test steps | Test Data | Expected Results | Actual Results | Pass/fail |
| 1 | Add Oder with valid data | Enter data into all necessary fields click  Add | Shop Name:  Cell fix  Model:  power  Price:  1500  Quantity:  2  Total:  3000 | Successful | As expected | pass |

Table . - Add Order test cases

## Add Repair

* Test Types:
  + - Character validation
    - Null validation

|  |  |
| --- | --- |
| Field | Condition |
| Shop Name | Null validation, Character validation |
| Model Name | Null validation, Character validation |
| Issue | Null validation |
| Received type | Null validation |
| Received date | Null validation |
| Status | Null validation |

Table . - Add Repair inputs

Shop Name

|  |  |  |
| --- | --- | --- |
| Validation Type | Valid Characters | Invalid Characters |
| Character validation | A-z, a-z, 0-9 | Special Characters (Symbols) |

Table . - Valid shop name

Model

|  |  |  |
| --- | --- | --- |
| Validation Type | Valid Characters | Invalid Characters |
| Character Validation | A-z, a-z, 0-9 | Special Characters (Symbols) |

Table . - Valid model name

Test Case

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test ID | Test Scenario | Test steps | Test Data | Expected Results | Actual Results | Pass/fail |
| 1 | Add repair with valid data | Enter data into all necessary fields click  Add | Shop Name:  Cell fix  Model:  power  Issue:  Battery.  Received type:  Whole unit  Received date:  30/11/2021  Status:  Pending | Repair added Successfully | As expected | pass |

Table . - Add Repair test cases

## Add Shop

|  |  |
| --- | --- |
| **Field** | **Condition** |
| Shop Name | Null validation |
| Address | Null validation |
| Contact Number | Null validation, Checking for only integer values |

Table . - Add Shop inputs

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test ID | Test Scenario | Test Steps | Test Data | Expected Results | Actual Results | Pass/fail |
| 1 | Add Route with data | Enter data into all necessary fields and click Add | Shop Name  Techno  Address  42, MosqueLane, Katugoda, Galle  Contact Number  0779612645 | Toast Message(Shop Saved) | As expected | Pass |
| 2 | Add Route with a blank field | Enter no data to the address field | Shop Name  Night Haul  Address  -  Contact Number  0781264593 | Toast Message(Fill all the fields) | As expected | Pass |
| 3 | Add Route with words on the number field | Add some words to the contact number field and enter | Shop Name  Techno  Address  42, MosqueLane, Katugoda, Galle  Contact Number  abcd | Toast Message(Enter valid contact number) | As expected | Pass |

Table . - Add Shop test cases

## View on Map/Delete Route

|  |  |
| --- | --- |
| **Field** | **Condition** |
| Index of the given Shop | Should be available in the location data list, Null validation |

Table . - Delete route inputs

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test ID | Test Scenario | Test Steps | Test Data | Expected Results | Actual Results | Pass/fail |
| 1 | Press Show on map button for an index available in the list | Enter an index that is visible in the list | 1 | Shows the location on map | As expected | Pass |
| 2 | Press Delete/ Show on map button for an index that is not available in the list | Enter an index that is not on the list | 80 | Toast message(Enter an index available in the list) | As expected | Pass |
| 3 | Press Delete/ Show on map button without entering an index | Do not enter any index | - | Toast message(Enter an index available in the list) | As expected | Pass |
| 4 | Press Delete button for an index available in the list | Enter an index that is visible in the list | 1 | Toast message(Location Deleted) | As expected | Pass |

Table . - Delete route test cases

# Future Enhancement

* Update the system to more user friendly.
* Develop a desktop application.
* Develop using an online server-based database.

# Summary and Discussion

With the new system, the customer can track which goods have been brought and can generate and analyze detailed reports on current and past transactions, payment, inventory levels, etc. Even with this client can get an idea of how the business works. Another advantage is that the customer can manage and display everything about the business in one place.

The point of sales for Asian distributors company is developed to monitor on current and past transactions, sales, balance-income report. To diminish the current major drawbacks of recording the data manually, And also the uncertainty of the future business position by introducing the new system. The most obvious measurement of success of this system is the client’s satisfaction. If the feedback given by the client is positive most likely the project is a success. If the client can manage the system and get the maximum use of this system.

The client can generate and analyze detailed reports on current and past transactions, payments sales and balance-income etc. In order to ensure quality, an iterative quality process will be used throughout the project life cycle. This iterative process includes measuring process of the calculating income of the customer , the customer details will be store in the system, and the client required he wants to check weekly the availability of the stock. Therefore, it measuring analyzing process data and continuously improving the process.

The final report for the project contains a full description of the purpose and environment of the entire system offers an insight into the current processes of the customer, requirements analysis, the design and implementation of the proposed system, test method and test cases of the system and finally future improvement that could be made to the system.

# References

|  |  |
| --- | --- |
| [1] | M. Lotz, "Waterfall vs. Agile," Segue Technologies Inc, 05 July 2018. [Online]. Available: https://www.seguetech.com/waterfall-vs-agile-methodology/. [Accessed 17 July 2019]. |

## Appendix B: Gantt Chart

Graphical user interface

Description automatically generated with medium confidence

Figure . - Gantt chart

## Appendix C: Budget

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **Hourly wage (LKR)** | **Estimated No. of hours** | **Total (LKR)** |
| Project manager and tech lead | 1500 | 40 | 60,000 |
| Frontend developer | 480 | 55 | 26,400 |
| UX/UI designer | 450 | 50 | 22,500 |
| Database administrator | 530 | 40 | 21,200 |
| QA engineer | 460 | 30 | 13,800 |
| **Total Employee Cost** | | | 143,900 |

Table . - Employee Budget

|  |  |
| --- | --- |
| **Elements** | **Total (LKR)** |
| Employee cost | 143,900 |
| Hardware cost | 15,000 |
| Documentation cost | 2,000 |
| Travel cost | 1,500 |
| Virtual meeting | 1,500 |
| **Total Estimated Cost** | **163,900** |

Table . - Final budget