



Sri Lanka Institute of Information Technology

Micro Electronics

Project Report

Information Technology Project 2018

Project ID: ITP-2018-MLB-G1-15

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.....
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Date of submission

14/10/2018

Abstract

For our project, we decided to choose our client Mr. Edirisoriya who is the owner of the Micro Electronics which is located in Matara. This project is aimed at developing an Automated Electronic Shop System Software that is optimize employee workload. The general nature of the business is selling and manufacturing of electronic spare parts. This project was selected as they were in need of a comprehend automated system to manage and replace human power which consumes less time and fewer resources having a higher accuracy.

Moreover, the procedure involved in the electronic shop is difficult to handle where they currently use a manual file base system for management and maintains of information. This current process requires bill books and other books to record product data and salary details. So, they cannot get decision immediately and wasting their workable hours for manually maintaining records. The primary need of the client was to store data efficient in a well-ordered manner, restrict employee works and reporting capabilities. As a solution we decided to develop desktop application to solve their problems including all the client requirements.

To build that we are using java as the programing language, MySQL database and Apache Tomcat Server. The source code will be created in the software Eclipse IDE.

The proposal provides a useful insight about the project carried out as a whole. It provides details on the requirement specification, analysis, application modeling, design, testing and implementation future scope and limitation of the application development. The importance of this system to organization is Efficient data access, Restricting unauthorized access and Concurrent access.

The software helps them maintain day to day transaction in computer and it could lead business to its success.

Acknowledgement

We place on record and warmly acknowledgement the continuous encouragement, invaluable supervision, timely suggestion and inspired guidance offered by our guide Ms. Uthpala Samarakoon, Lecturer-in-Charge Information Technology Project, Department of Information Technology, at SLIIT in bringing this project report to a successful completion.

We are grateful to Mr. Edirisoriya, Owner of Micro Electronics and management for permitting us to make use of the requirement in the software to carry out the project successfully. Also, we are grateful to our respected lectures to giving us to support and knowledge to develop the software.

Last but not the least we express our sincere thanks to all of our friends and our parents who have patiently extended all sorts of help for accomplishing this undertaking.

Declaration

We declare that this project report or part of it was not a copy of a document done by any organization, university any other institute or a previous student project group at SLIIT and was not copied from the Internet or other sources.

Project Details

Project Title	Micro Electronics
Project ID	ITP-2018-MLB-G1-15

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List of Acronyms and Abbreviations

- UML – Unified Modeling Language
- ER Diagram – Entity Relationship Diagram
- SQL – Structured Query Language
- UI – User Interface
- IDE – Integrated Development Environment
- URL - Universal Resource Locator
- SLIIT – Sri Lanka Institute of Technology
- Reg. No – Register Number

1. Introduction

1.1 Problem Statement

Micro Electronics is an electric shop located in Matara. It was started in the month of September 2017. And also, it is one of the leading and fast-growing business in that area. There are five employees including the manager, cashier, employees and security officer. Currently this shop is using manual method to manage larger amount of information. So, they face problems in maintaining registers as well as complicated searching, editing, updating, less accuracy in calculations etc... And those are very time-consuming process.

Since they have high competition in this business field they request a system that can solve above problems at the conference we had. So, we decided to develop a system reduce complicated manual work by computerize employee, stock, product, customer details, salary generate, profit calculation, leaves etc. And handle the process easily in a secure manner.

So, in the future with the help our system they will be able to handle current problems and reach their business goals successfully.

1.2 Problem Statement

We developed a system that meets all the above requirements and with solutions for all problems specified by our client. The main objective of Creating the Micro Electronic Shop Management System is to implement all processes and manage the working process in a more efficient way.

This system covers all key processes that are currently followed inside and outside the shop. And this project will automate the manual processes done by the workers in the shop and according to their suggestions this system would be a great help to all the work. In Micro Electronic Shop Management System, there are different management levels considering the overall process. Such as Product Management, Stock Management, Payroll System, Employee Management, Leaves Management, Customer Management, Salary Management, Admin Management etc.

This system will give benefits through increased efficiency and effectiveness. It also shows the commitment to increased performance, employee and customer satisfaction, and continuous improvement.

1.3 Project Report Structure

The project report structure consists of 5 main sections.

Introduction – Under the introduction, a brief description about the problems faced by the old manual file-based system used at the institute is presented. The product scope and the benefits of the newly developed system are also mentioned in brief.

Methodology – Under the methodology, the design diagrams used in designing the functionalities of the system are included. The diagrams that have been included are Use-Case diagrams(UML), ER diagrams, Class diagrams, Activity diagrams and A High-Level Software Architecture diagram relevant to the functions of this newly built automated system. A reusable code has also been added here. Test cases of validations have been presented in tabular format.

Evaluation – In this section a brief evaluation of the developed Micro Electronic Shop System has been included.

Conclusion – A brief conclusion of the implemented system has been included in this section. This includes an overview of the benefits of the system and a brief description on how it was successfully developed.

References – The sources which were used for several purposes while doing the project have been included in the references section.

2. Methodology

2.1 Requirement and Analysis

Main Requirements of the Entire System

1. A system to manage Stocks
2. A system to manage Product
3. An Inventory Control System
4. A Customer Management System
5. An Employee Management System
6. A system to manage Salary
7. A system to manage Leaves
8. A system to manage Inquiries and Other Financial aspects

After interviewing our Owner of the Micro Electronics, we analysis above functions for the systems automated to make their work easier.

As the non-functional requirements we include our systems to speed, reliability, ease of use, availability, security and response at time.

As the security we given privilege level to users therefore shop crew member can easily use the system. In the availability Owner will able to view check any time available product.

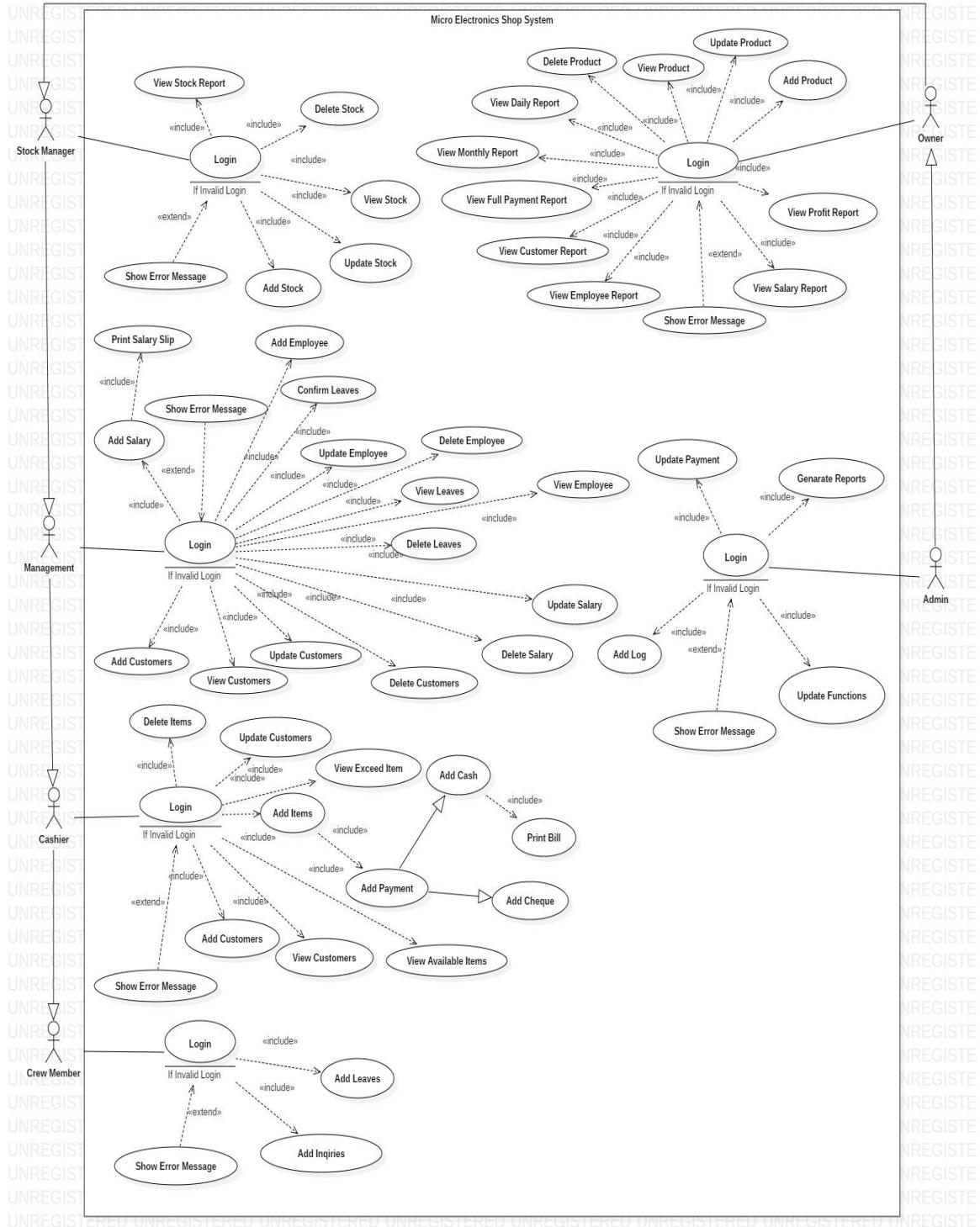


Figure 2.1.1

Product, Stock and Bill Management Systems

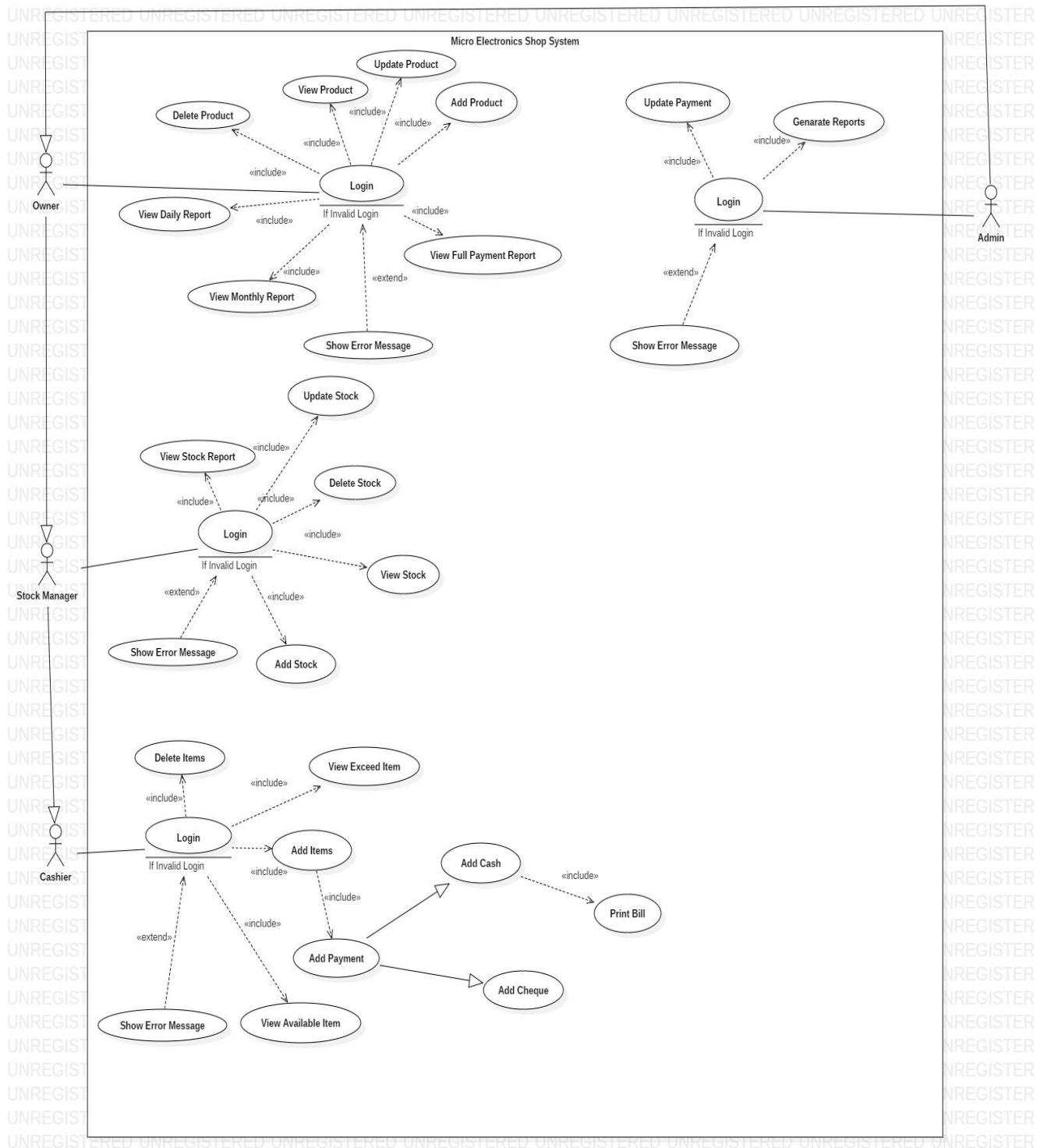


Figure 2.1.2

Product Management

In this process there are some options that will done by the owner. those are Adding, Removing and Updating items. The owner able to view the wholesale prices of the items.

Stock Management

In order to manage stocks Stock Manager should be able to use a specific way. Stock Manager able to Add, Remove and Update stocks from the system. Stock management system that will be implemented will keep track of stocks and alert when a production runs out of the stock. When a customer purchases an order, there must be a deduction form the available items. So that the system will generate an exceed stock report automatically. This exceed stock report can be viewed by the Owner and the Stock Manager.

Bill Management

When a customer purchases an item from the shop there is system called bill management to add that item. It's done by the cashier. Cashier able to calculate the bill and add to the payment. And there are two option types to take when a customer pays the bill. those are full cash and check. Cashier able to remove item and print bill. And only the admin can update and remove the payment. Daily reports, monthly reports and Year Full Payment Report of sales goes to the Owners section. So that the Owner able to view them.

Salary and Leaves Management Systems

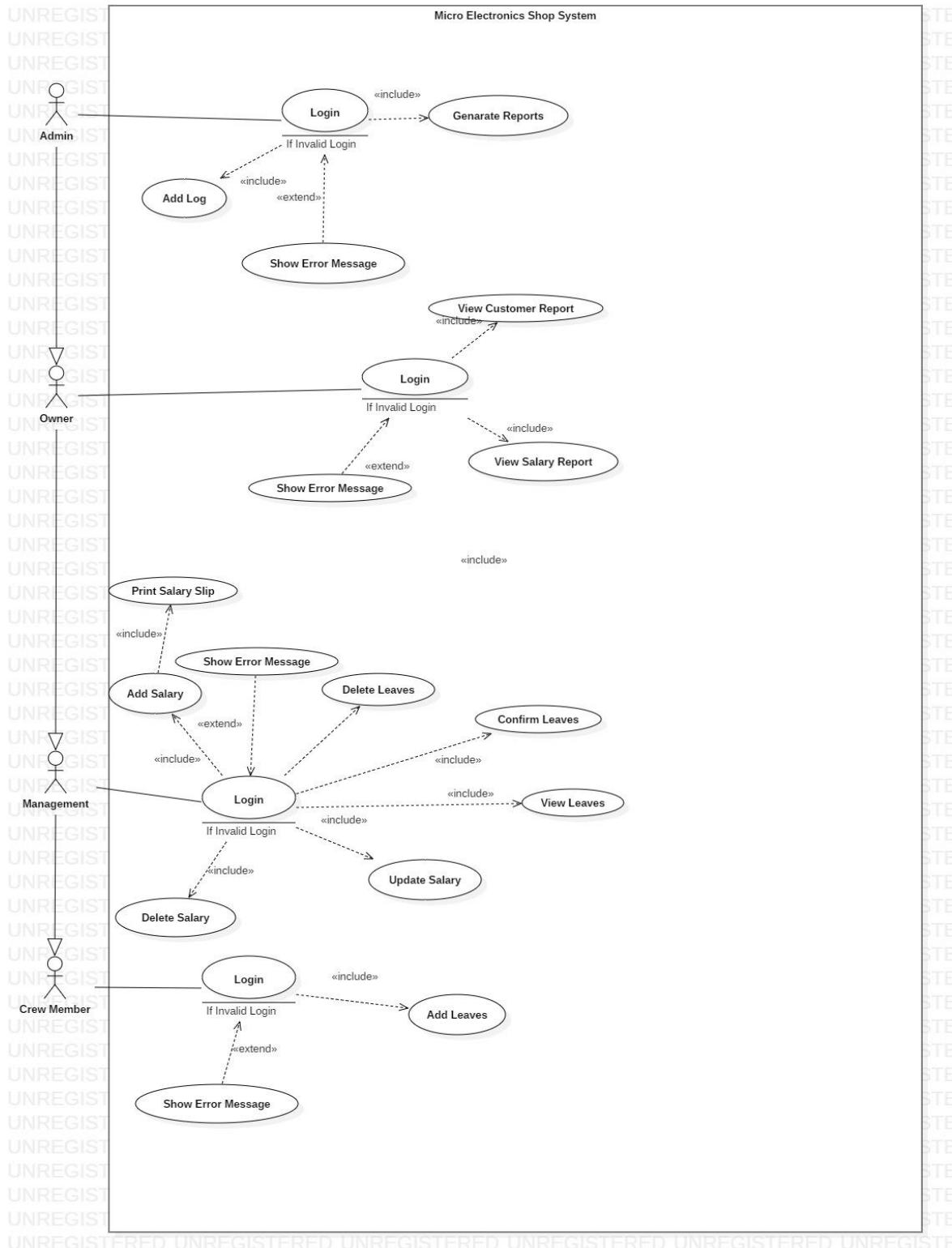


Figure 2.1.3

Leaves Management

When an employee wants to get a leave or considering this matter, employee able to add, remove or update leaves. Those leaves will be approved or updated by the manager. And all the leaves and absent dates will count by the system. That data will used by the salary management to calculate the salary for employees. Admin able to create separate user accounts for users when login.

Salary Management

Owner and the manager able to Add, Remove and Update bonus for the salary. That data took from the leaves management will be used to generate the salary for employees. Manager creates the salary slip from the calculations and owner can view the salary report. And only the admin can update or delete employee's salary slip. All the calculations should be correctly done in the system.

Customer and Employee Management

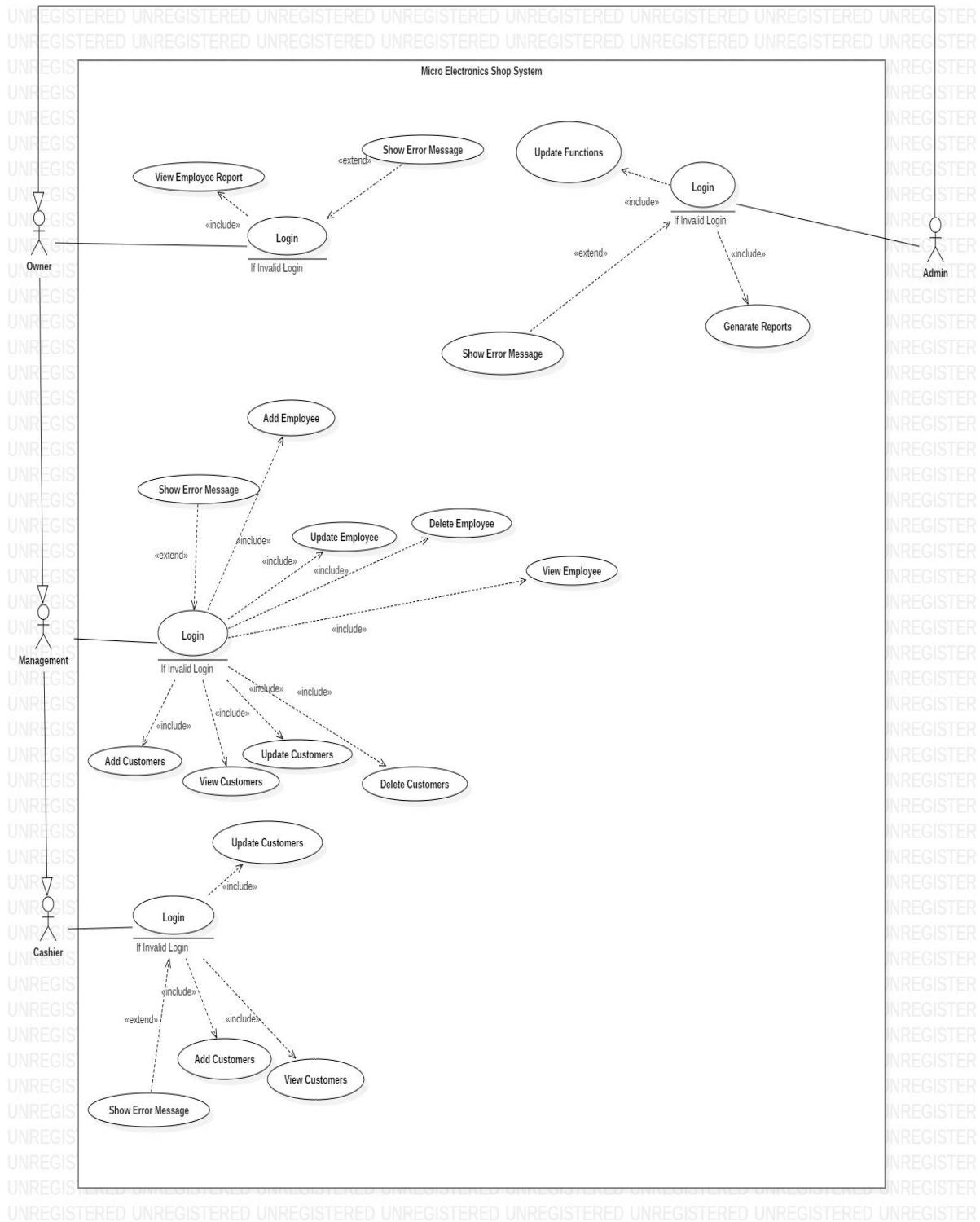


Figure 2.1.4

Customer Management

This system deals with the customers. Manager and cashier take the responsibility to do keep up with system. Adding, Removing and Updating customer will done by cashier. Manager able to view loyalty card details and all the customers details with payments. System will generate back list of customers when they did not pay their installment in particular time period. Customer cannot buy new items without complete their installment that black list. Cashier able to view that black list. Cashier will make loyalty account when customer registered the system.

Employee Management

This is an important section in the system. all the processes depend on employees' work. admin will pay their salary according to their working progress. Good employees will be promoted by the manager. Adding, Removing and Updating employees will also done by the manager. Employees able to make and update inquiries which is handled by the Admin.

Inquiry Management and Finance Management

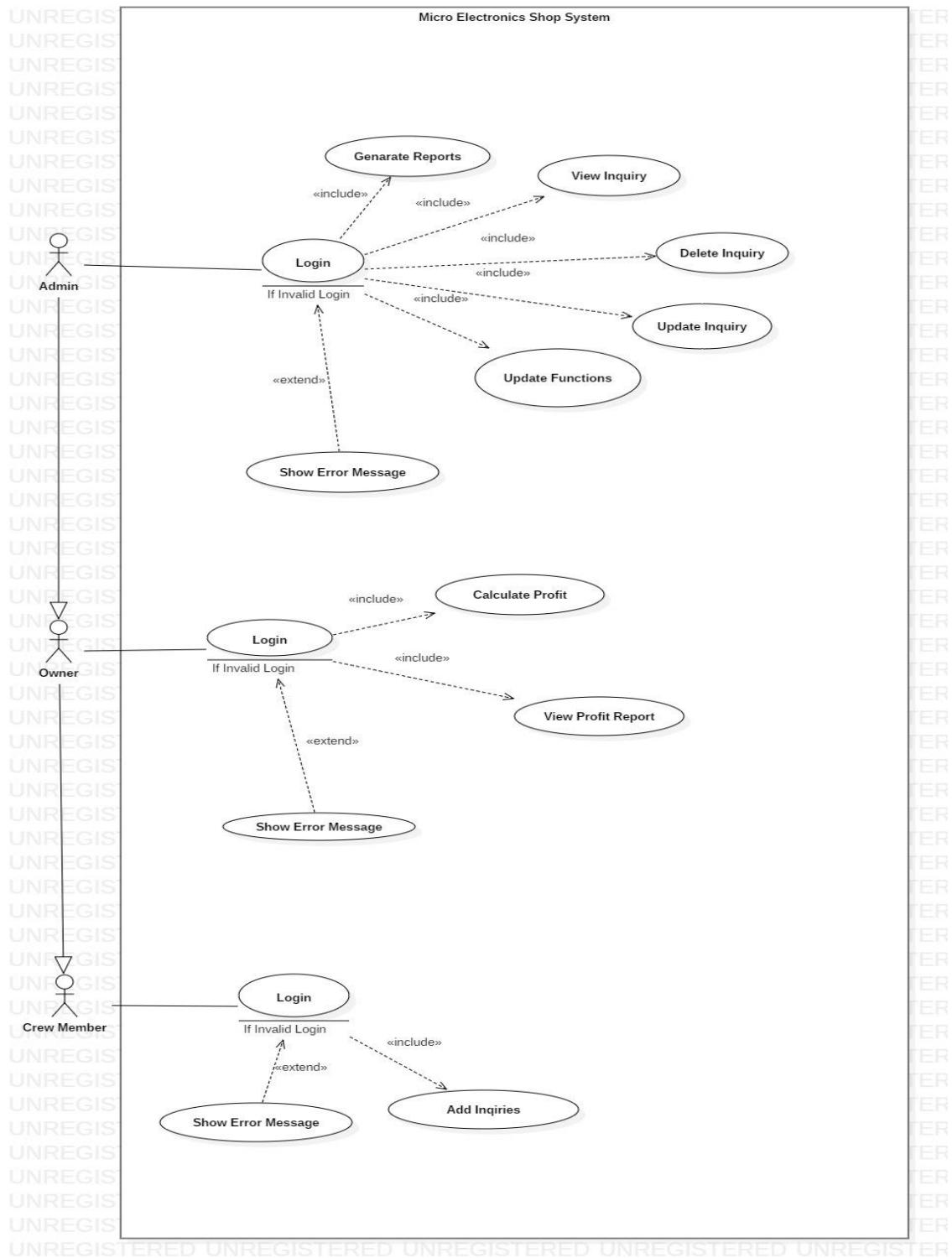


Figure 2.1.5

Admin Management

When it comes to admin management there are some rules within the system. It's like a restricted section for the other employees and crew members. All the profit from the shop will be calculated by the admin. Admin gets the inquiries from the crew members and admin able to handle, delete those inquiries. Admin also able to add, update, remove all the functions inside the system.

2.2 Design

High Level Diagram

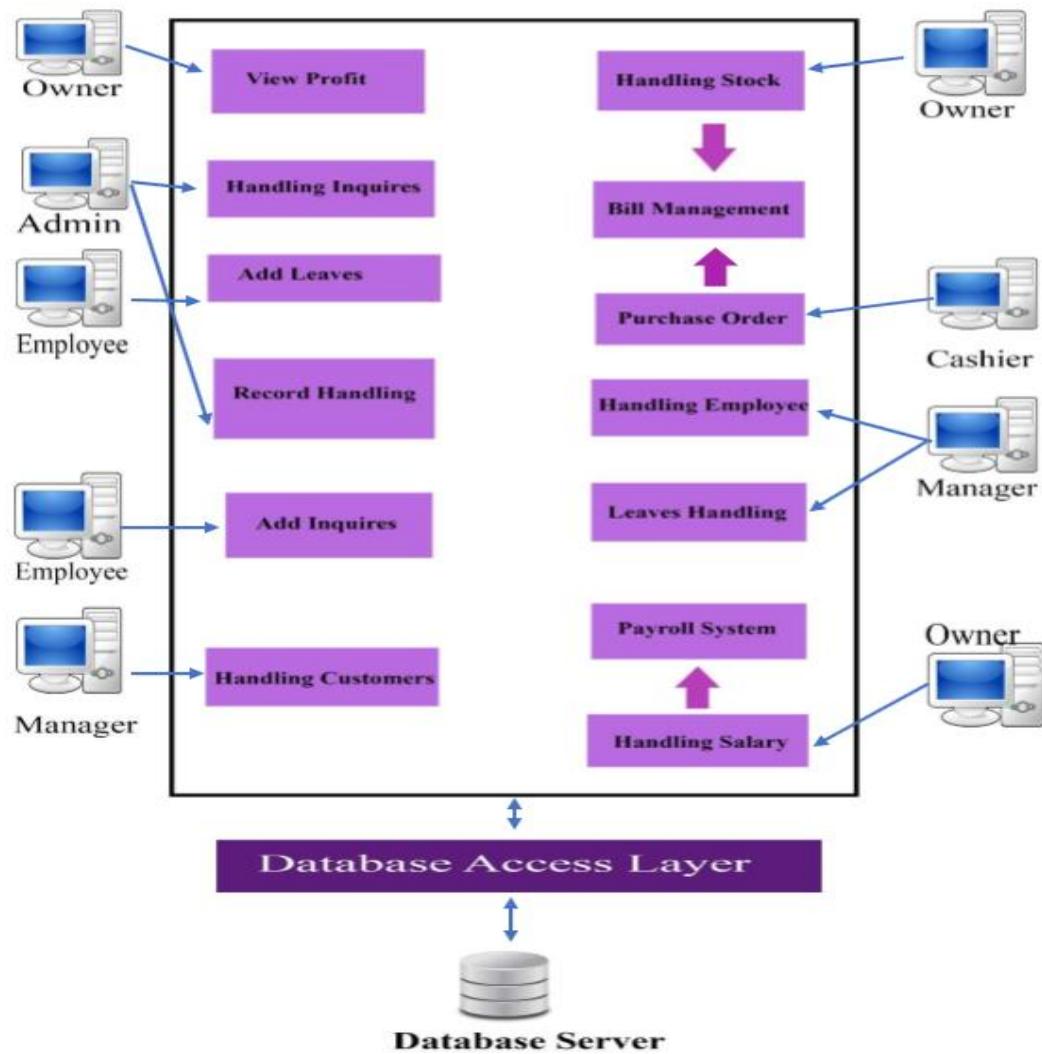


Figure 2.2.1

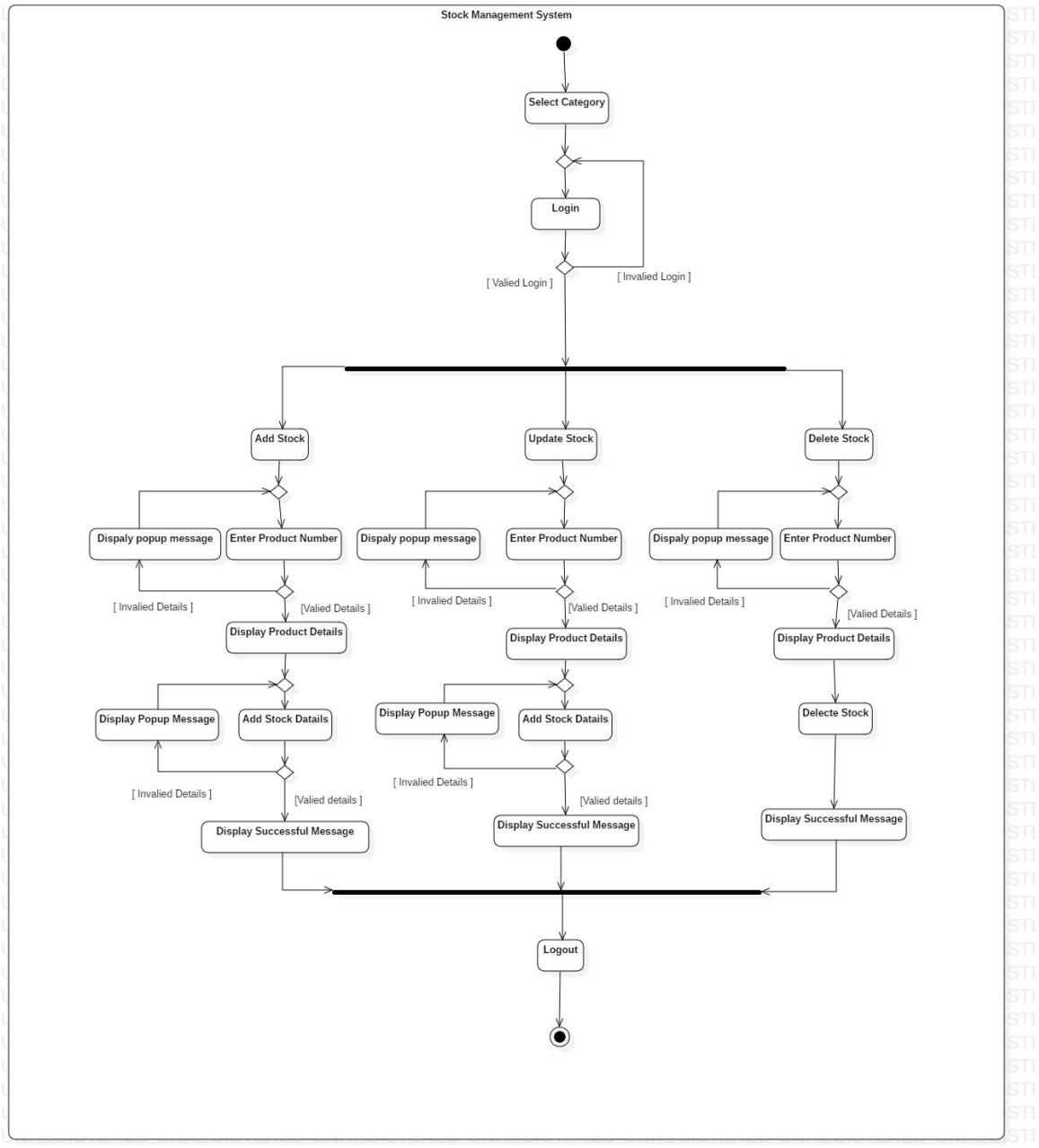
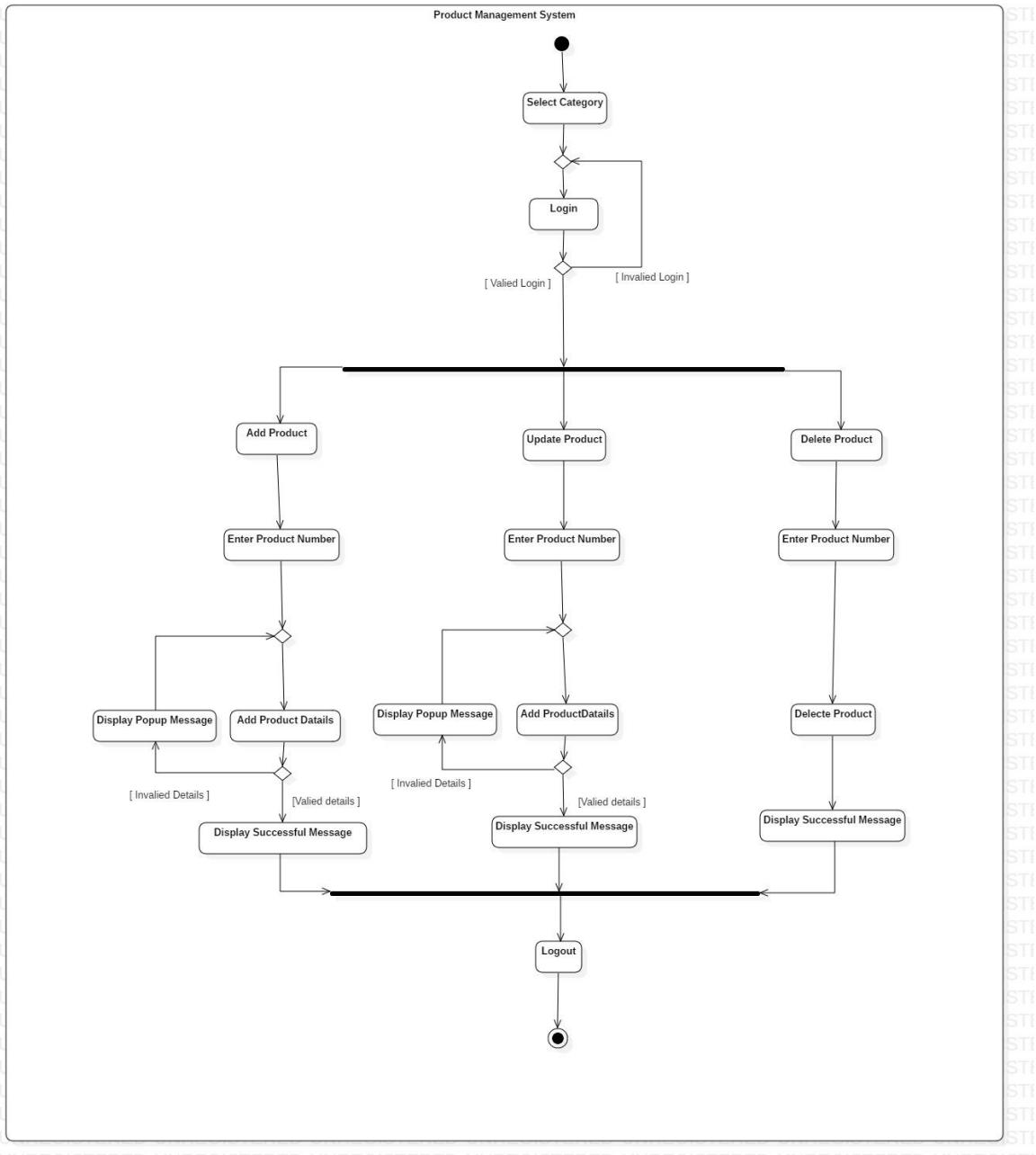


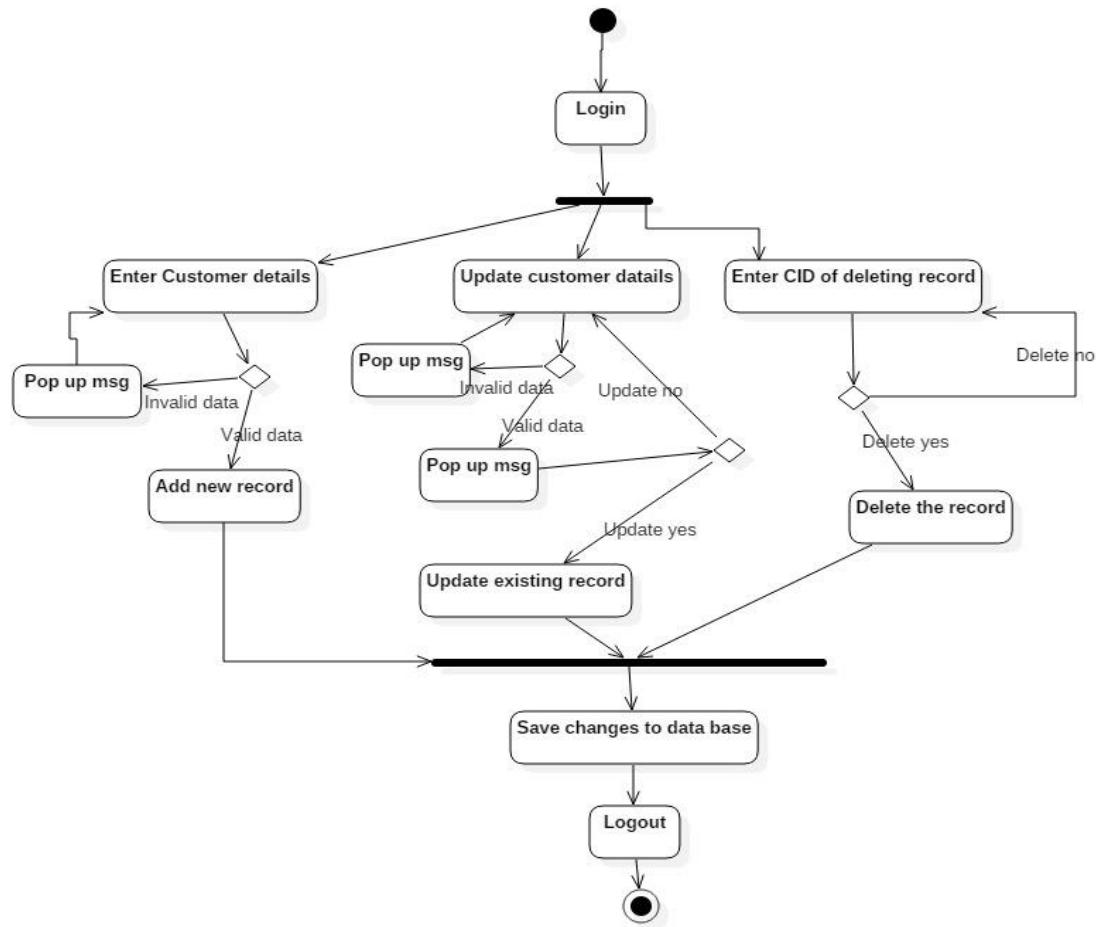
Figure 2.2.2



UNREGISTERED UNREGISTERED UNREGISTERED UNREGISTERED UNREGISTERED UNREGISTERED UNREGISTI

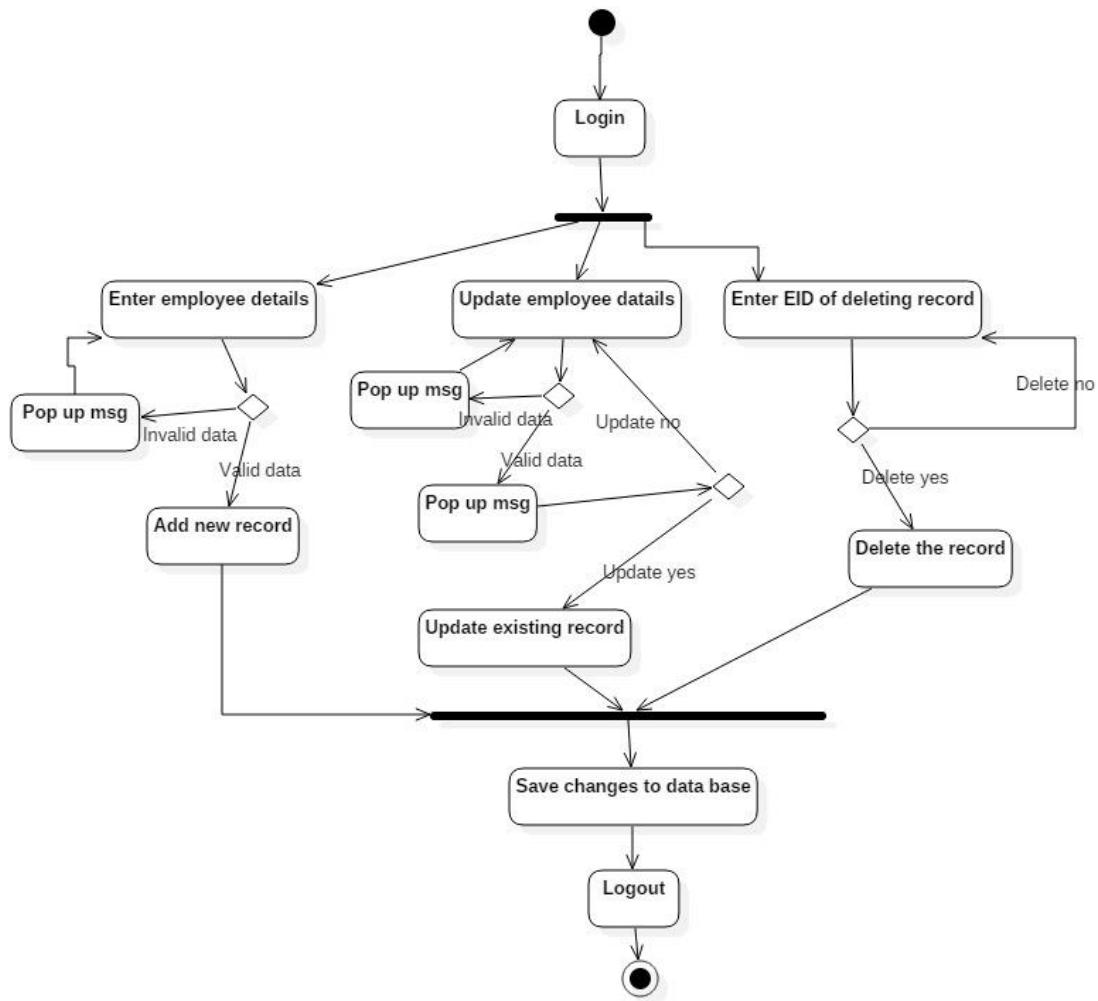
Product Management

Figure 2.2.3



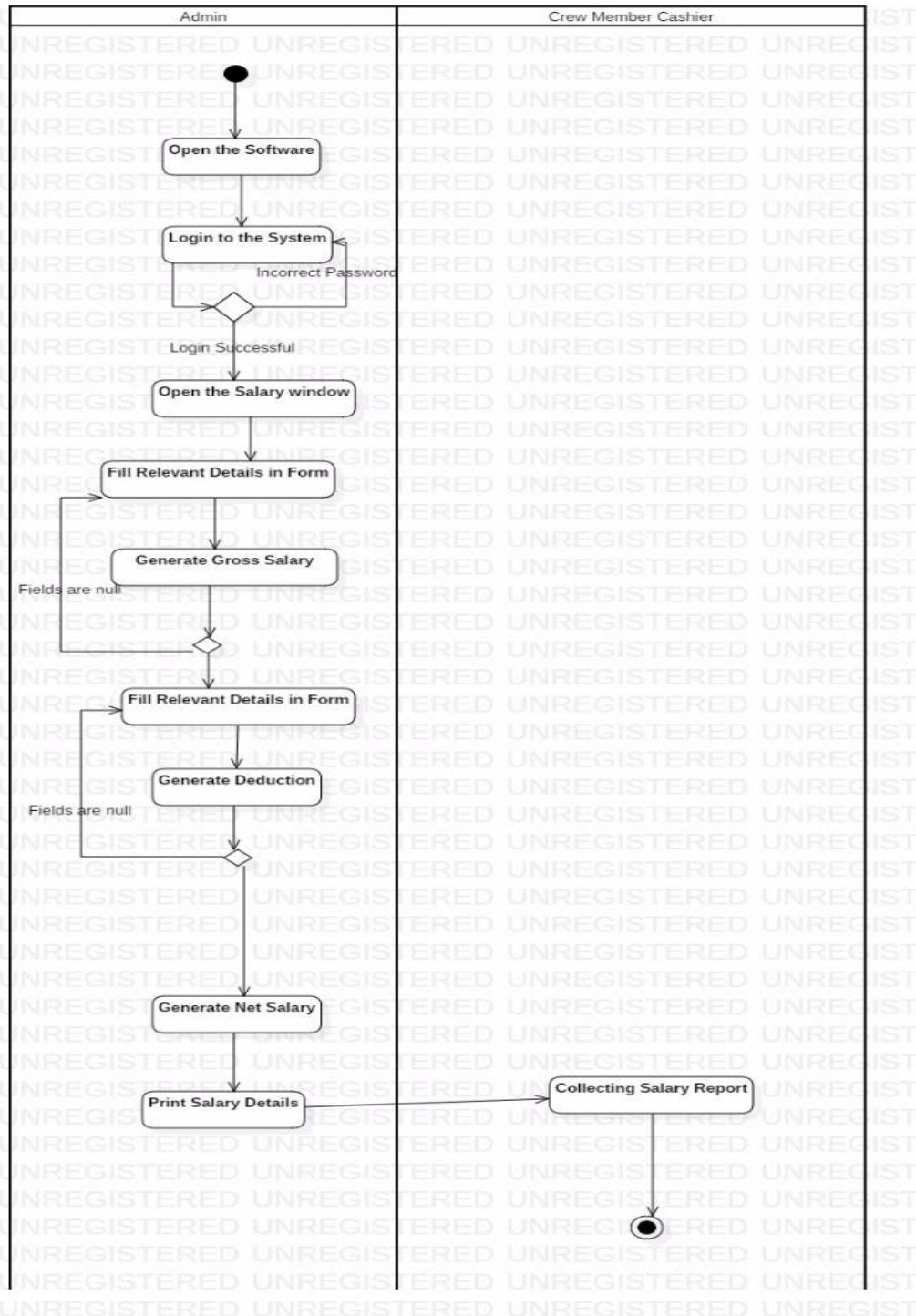
Customer Management

Figure 2.2.4



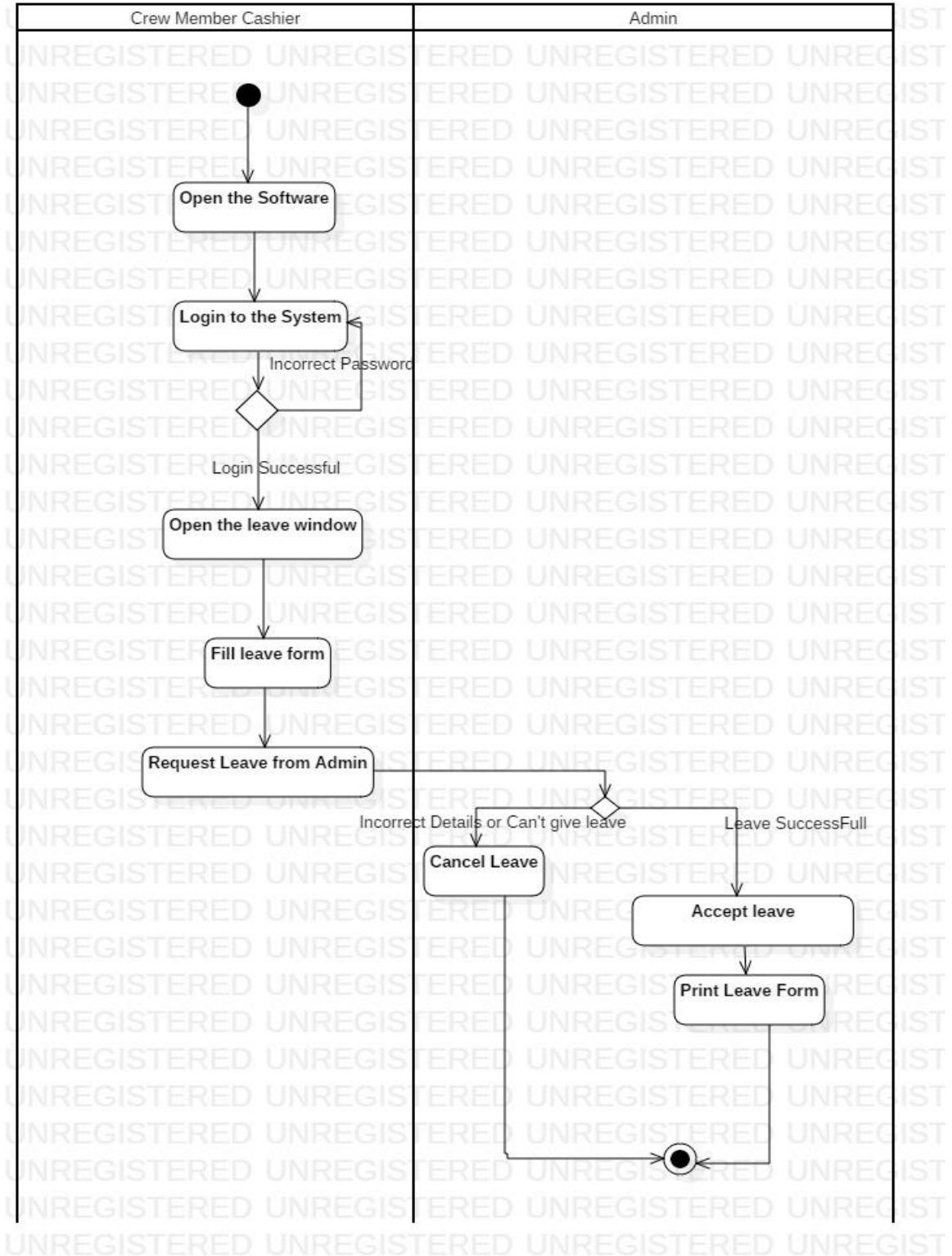
Employee Management

Figure 2.2.5



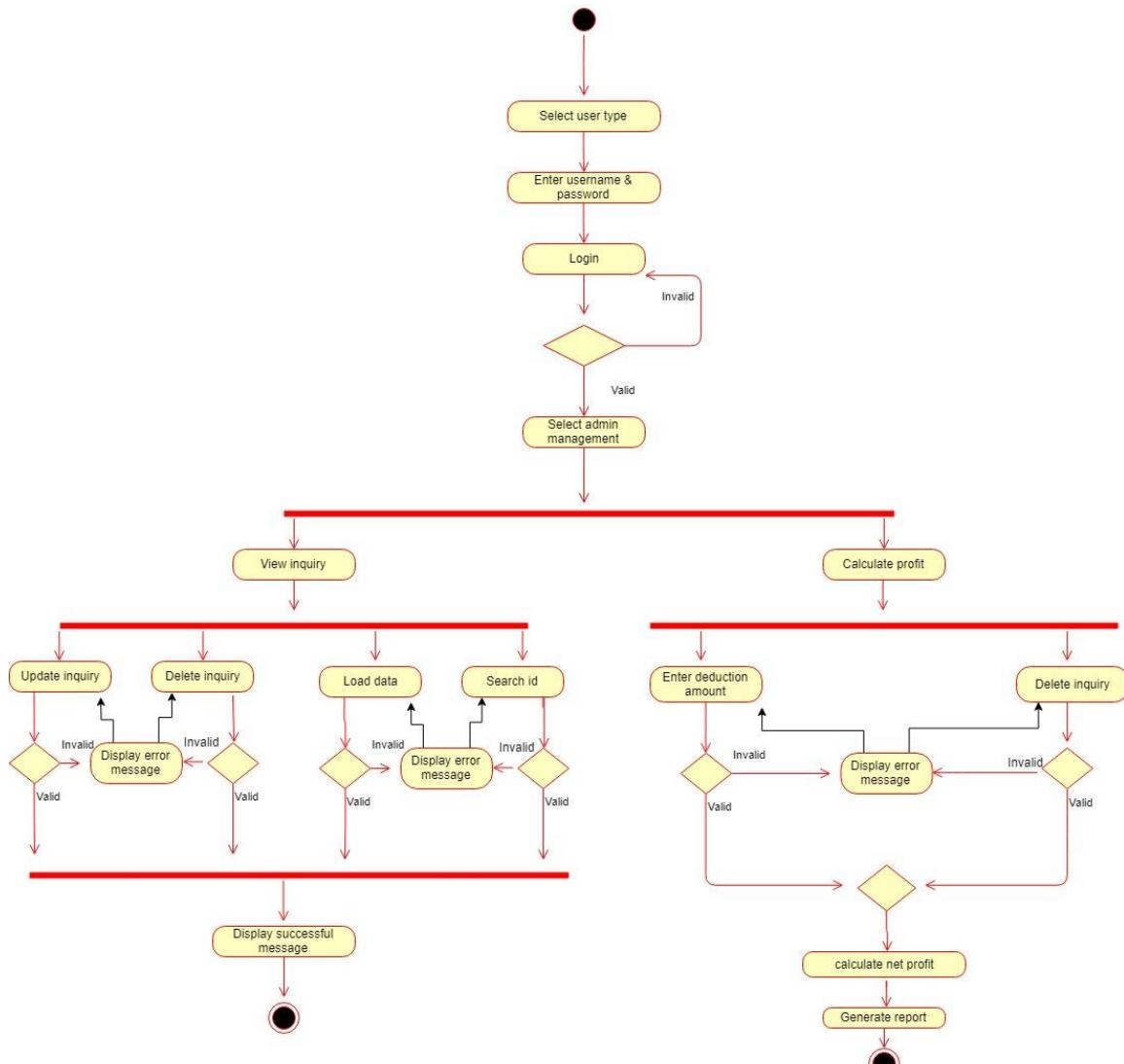
Salary Management

Figure 2.2.6



Leave Management

Figure 2.2.7



Admin Management

Figure 2.2.8

Class Diagram of the System

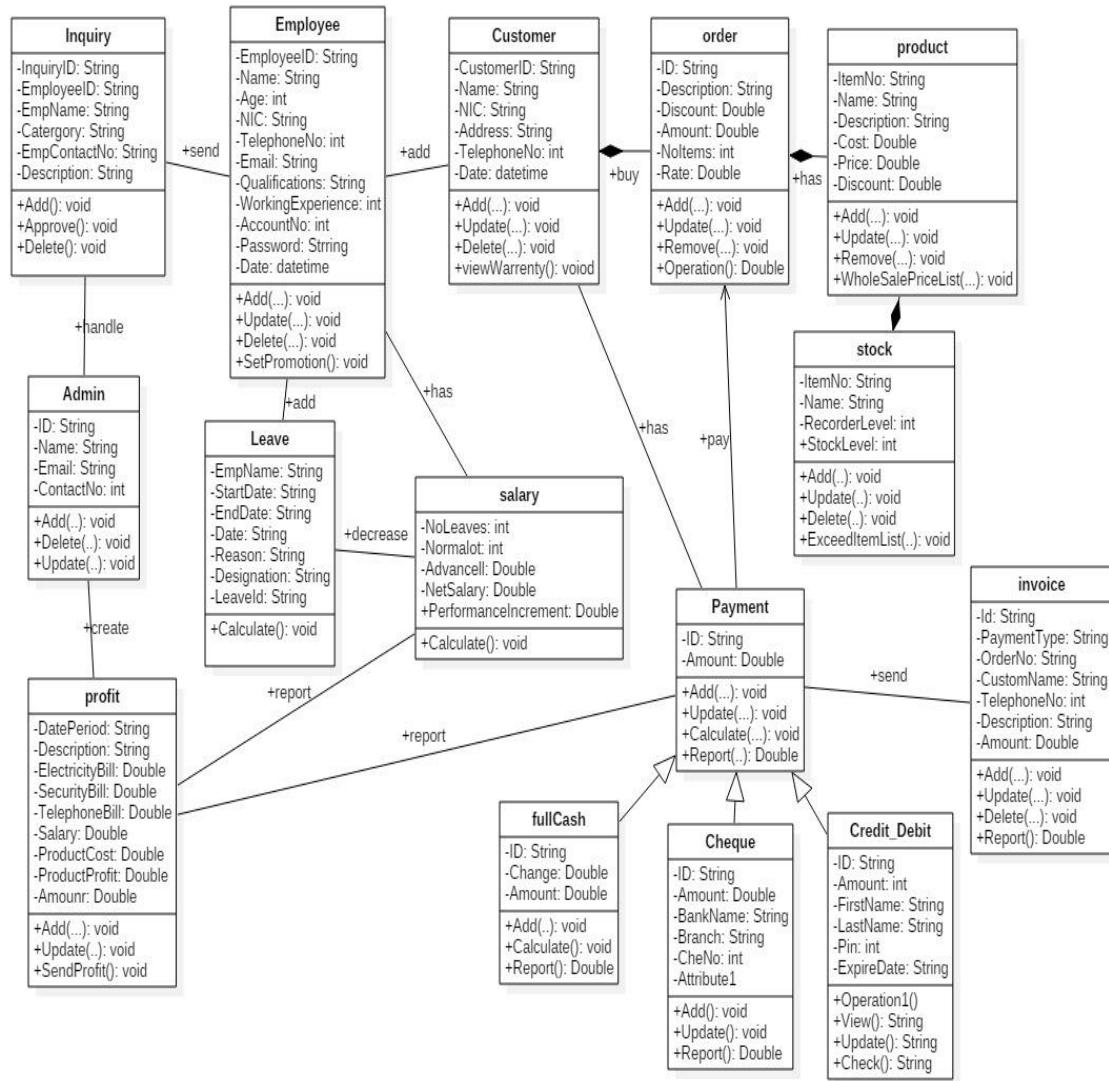


Figure 2.2.9

ER Diagram for the System

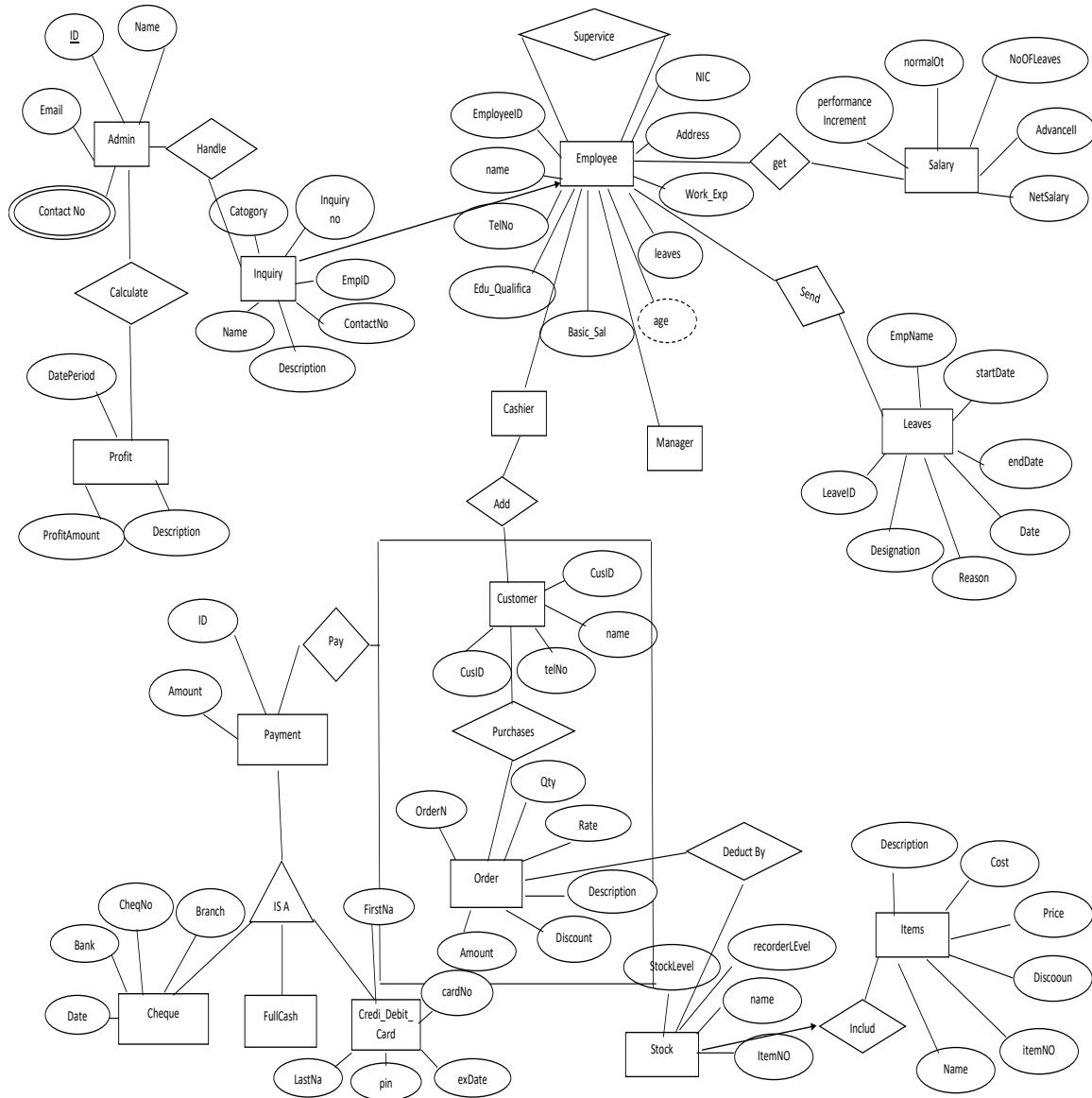


Figure 2.2.10

2.3 Implementation

The project “Electronic Shop System” was implemented by using the following technologies which are Java (JFrame, Application Window and JApplet will include), Java Swing Designer, MySQL (For the connecting the Windows Builder Pages with the Database), and for the Server we used WAMP Server along with the Apache Tomcat Server.

Since we used object-oriented programming concepts we were able to minimize the data redundancy.

Eg: Separate database connection class

```
package com.microElectronics.dataBase;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;

public class dbConnection {

    public static void main(String args[]) {
        Connection con = null;
        PreparedStatement st = null;
        Connection connection = connection();

    }

    public static Connection connection() {
        Connection connection = null;
        try {

```

```

        Class.forName("com.mysql.jdbc.Driver");
        connection = (Connection)
DriverManager.getConnection("jdbc:mysql://localhost:3306/micro_electronics", "root",
"");

    } catch (Exception e) {
        System.out.println("Error");
    }
    return connection;

}

```

Since we used design patterns such as Factory Producer, Strategy and DAO design pattern, we were able to reach high standard in our implementation of the system. And also, that improves re-usability, maintainability and makes our code easy for debugging. Finally, it leads our code to very understandable level for the outsiders and it was fast development which saved our time.

2.4 Testing

Table 2.4a

Test Id	TC_001
Function	Calculate the bill
Description	Cashier enters valid item details and calculate bill.
Input	Item Details (Item no quantity, name, address, discount)
Output	Display the calculated bill
Expected Output	Display the calculated bill
Status(pass/fail)	pass

Table 2.4b

Test Id	TC_002
Function	Calculate the bill
Description	Cashier enters valid item details and calculate bill.
Input	Invalid item Details (Item no quantity, name, address, discount)
Output	System prompts an error message “Item not available”
Expected Output	System prompts an error message “Item not available”
Status(pass/fail)	pass

Table 2.4c

Test Id	TC_00
Function	Calculate the bill
Description	Cashier enters valid item details and calculate bill.
Input	Item Details(Item no quantity, name, address, discount) with empty text fields
Output	System prompts an error message “Fields are empty”
Expected Output	System prompts an error message “Fields are empty”
Status(pass/fail)	pass

Table 2.4d

Test Id	TC_004
Function	Calculate the salary
Description	Admin enters valid salary details and calculates salary.
Input	Salary details (Employee Id, normal OT, number of leaves, performance, advance)
Output	Display the calculated salary
Expected Output	Display the calculated salary
Status(pass/fail)	pass

Table 2.4e

Test Id	TC_005
Function	Calculate the salary
Description	Admin enters valid salary details and calculates salary.
Input	Invalid Salary details (Employee Id, normal OT, number of leaves, performance, advance)
Output	System prompts an error message “Can’t enter string values to the field”
Expected Output	System prompts an error message “Can’t enter string values to the field”
Status(pass/fail)	pass

Table 2.4f

Test Id	TC_006
Function	Calculate the salary
Description	Admin enters valid salary details and calculates salary.
Input	Salary details (Employee Id, normal OT, number of leaves, performance, advance) with incorrect employee id
Output	System prompts an error message “Incorrect employee ID”
Expected Output	System prompts an error message “Incorrect employee ID”
Status(pass/fail)	pass

Table 2.4g

Test Id	TC_007
Function	Calculate the profit
Description	Admin enters deductions, earnings and calculate bill.
Input	Payroll, utility, tax
Output	Display the calculated profit
Expected Output	Display the calculated profit
Status(pass/fail)	pass

Table 2.4h

Test Id	TC_008
Function	Calculate the profit
Description	Admin enters deductions, earnings and calculate bill.
Input	Month sales
Output	Display the calculated net profit
Expected Output	Display the calculated net profit
Status(pass/fail)	pass

Table 2.4i

Test Id	TC_009
Function	Calculate the profit
Description	Admin enters deductions, earnings and calculate bill.
Input	Enter invalid details
Output	System prompts an error message “Enter valid details”
Expected Output	System prompts an error message “Enter valid details”
Status(pass/fail)	pass

3. Evaluation

3.1 Assessment of the Project results

Project went fairly well exceeding our expectations. Everything went according to the plan and our team was able to work within tight schedules and succeeded. Overall, the project is a huge success on our part and we are looking forward for positive and good client feedback.

3.2 Lessons Learned

Members were design same tables for others function. As the leader to do many changes for doing intergrade full system. So as a team we want design database design first at all. This was due to our lack of understanding with regards to database entity relationship roles among separate sub systems and we learned that we should be much more careful at the database design stage as it could turn out to be lot of problems later if we are not analytical enough when it comes to database designing.

3.3 Future Work

Currently only the having nine functions in the system. So, we want added new function named supplier management and design management for the system in future. So, for any future work, we hope to implement separate those features to each individual subsystem.

4. Conclusion

This project was developed to replace manual file system used at the Micro Electronics and we can be satisfied with the state of our software as a generally formidable replacement. It has much more work to be done before being a feature full system that can completely replace the human power.

We also learned a lot of useful technologies and design patterns while developing this software, which we think could be of tremendous help in our future software development skills.

The following benefits can be gained from our system

Accuracy

Because of the manual system data can be lost. Most of the details regarding Employees incorrect. We can obtain accurate results by using this automated management system.

User Friendly

In the Current manual system users have to face lot of difficulties while handling information and searching details. We introduced user friendly interfaces for the users to get in touch with the system in an easy manner.

Time saving

Calculation of the leaves, salaries, payment report and other financial instances could be done in seconds. As well as retrieving and entering data would be quick.

Security of data

Employees are given an Employee Id and a password to access the system. Therefore, personal details of employees and logs can be recorded securely than the manual system.

Fast access and fast retrieval

Automated system can be accessed faster than the manual system. Whenever they need to retrieve details and reports from the manual system it takes lot of time to get the exact data we need. But from the automated system we can access fast and obtain the data fast.

No redundancy

We are giving a fixed format to enter data to the system. Therefore, no redundancy will occur when the data inserting.

Good Connection

Employees can send their inquiries to the admin regarding any issue at any time. So, that the admin should be able to solve the problems and provide the answers within the system. And using the inquiry method is less time consuming and accurate.

5. References

Internet -

[1] "GitHub Repository", [Online].

Available: <https://github.com/KaushiRajapakshe/ITP>

[2] "SonarQube Testing", [Online].

URL: <http://localhost:9000/dashboard?id=MicroElectronics>

[3] "YouTube Uploaded Project Video", [Online].

URL: <https://www.youtube.com/channel/UCxhInkxIkPBBXMaVQuG6LEg>

[4] Oracle Corporation, "MySQL :: MySQL 8.0 Reference Manual," dev.mysql.com, July 13 2018. [online]. Available: <https://dev.mysql.com/doc/refman/8.0/en/> [Accessed: July. 14, 2018].

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Appendix A: Design Diagrams (UI)

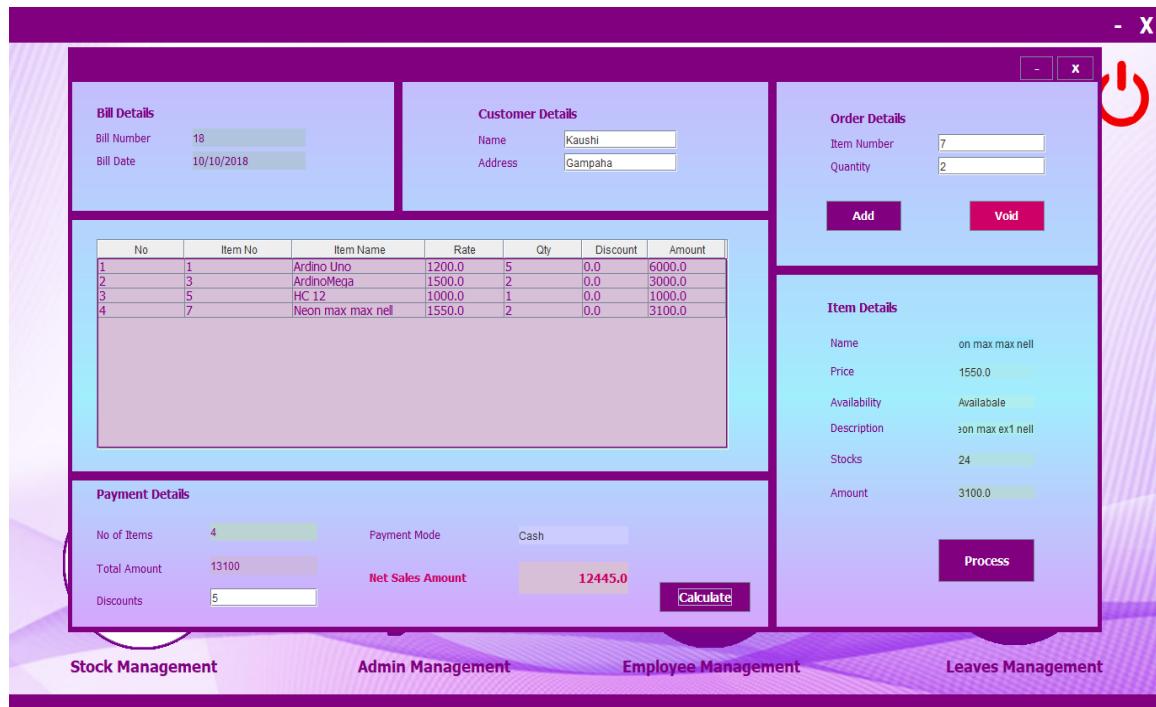


Figure 6.0.2

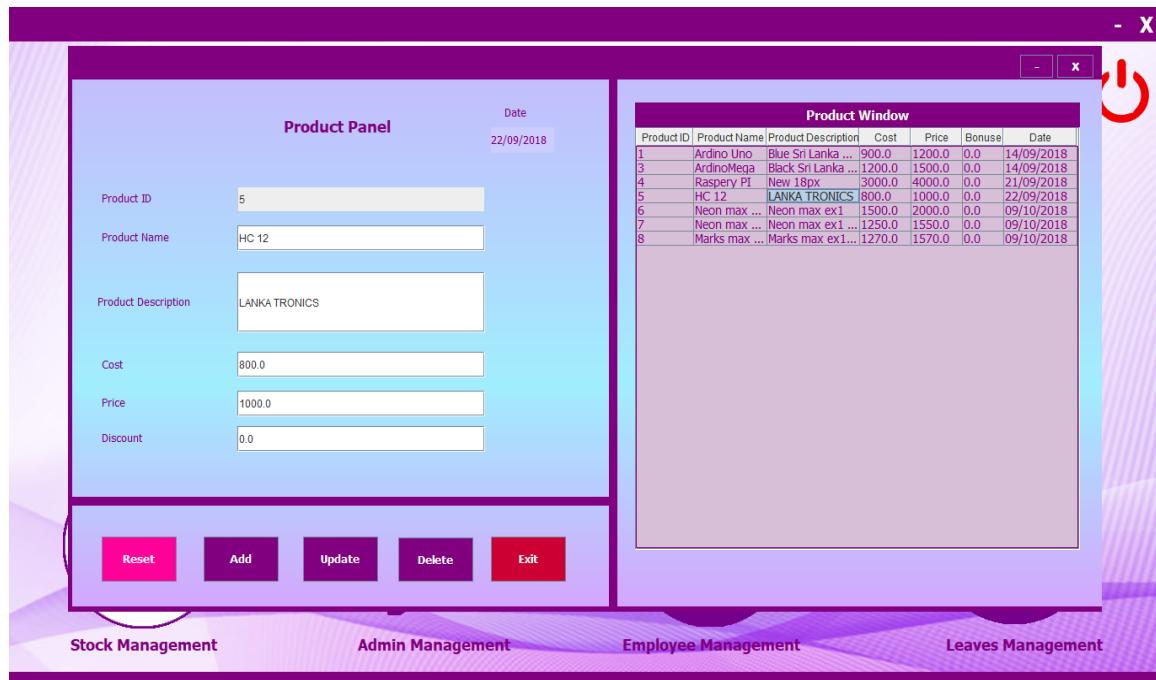


Figure 6.0.2

Customer

Customer form

CID	Name	TelephoneNo	Address	Date
C101	Mal	0112277846	67.Wellawatta	2018-10-08
C102	Akash	0477996854	67.Maradana	2018-10-08
C103	Roshni	0784569758	89.Hanwella	2018-10-08
C104	Thanya	0917788945	87.Karapitiya	2018-10-08
C105	Lahiru	0334567458	34.Nittambuwa	2018-10-08
C106	Rajiththa	0757895679	67.Karapitiya	2018-10-08
C107	Chathuri	0776644539	34.Weligama	2018-10-08
C108	Sunanda	0887894568	67.Mahoya	2018-10-08
C109	Jalya	0678943946	56.Bandarawela	2018-10-08
C110	Ekshara	0776554346	43.Kallur	2018-10-08

Customer

Add Customer Update Customer Details View Customer Details Delete Customer Details

Customer form

Customer ID: C111
Name: Sithmi
Telephone Number: 0718916485
Address: 45,Kamburugamuwa
Date: 2018/10/9

Demo Add Reset

Back

Stock Management Admin Management Employee Management Leaves Management

Figure 6.0.3

Employee

Application for employment

Employee ID	111	Name	Shane Jackson	Status	Mr.	Designation	Manager
Age	40	NIC	783841607v	Address	40,Malabe		
Telephone No	0767539428	Qualifications	Diploma	Account No	78945628		
Password	*****	BasicSalary	35000	Email	shane@gmail.com		
Work Experience	3yrs	Date	2018/10/9				

Employee

Add Employee Update Employee Details View Employee Details Delete Employee Details

Employee Details

EID	Name	Status	Designation	Age	Address	NIC	AccNo	TelNo	Email	Qualification	WorkExper...	Password	Salary	Date
105	Malan	Mr.	Cashier	25	78.Kottawa	935859725v	32112365	767899875	malan@.../A/L	1yr	mal123	25000	2018-10-08	
104	Diarent	Mr.	Cashier	29	45.Kadana	895642394v	98789955	774568267	dias@gma.../A/L	3yrs	dis123	25000	2018-10-08	
103	Diana	Mrs.	Assistant...	28	67.Malabe	907894359v	94828486	776663489	diana@gm.../A/L	3yrs	dia123	30000	2018-10-08	
102	Anna	Mrs.	Assistant...	30	45.Kaduw...	887897438v	14774165	787794562	anna@gm.../Diploma	5yrs	ana123	30000	2018-10-08	
101	Alan	Mr.	Manager	40	12.Knifa	788264813v	741136070	717804558	alan@mail.../Diploma	10yrs	alan123	40000	2018-10-08	

Employee

Add Employee Update Employee Details View Employee Details Delete Employee Details

Employee Details

Employee ID: 111
Name: Shane Jackson
Status: Mr.
Designation: Manager
Age: 40
Address: 40,Malabe
NIC: 783841607v
Telephone No: 0767539428
Qualifications: Diploma
Email: shane@gmail.com
Password: *****
BasicSalary: 35000
Work Experience: 3yrs
Date: 2018/10/9

Demo Add Reset Back

Stock Management Admin Management Employee Management Leaves Management

Figure 6.0.4

Inquiry Handling

inquiryID	EID	Name	contactNumber	category	date	description
3	ED001	Kaushi	777425432	Payment	09/10/2018	call me
20	101	Alan	077894556	payment	09/10/2018	a]
16	16	new	0772311272	a	09/10/2018	a]
15	16	new	0772311272	asd	09/10/2018	a]
17	101	Alan	077894556	None	09/10/2018	Save this content
18	105	Malan	0767899875	None	09/10/2018	Save this content
19	108	Somapala	0772311272	gays	09/10/2018	Save this content

INFORMATION

EID :
Name :
Contact No
State :

Buttons: Load Emp Data, Update, Delete, Exit

Navigation: Stock Management, Admin Management, Employee Management, Leaves Management

Figure 6.0.5

Profit Calculation

DEDUCTION		EARNINGS	
Payroll Amount :	<input type="text" value="95200.0"/>	Monthly Sales :	<input type="text" value="122100.0"/>
Utility Expenses (Electricity, Water, Phone) :	<input type="text" value="1200"/>		
Tax :	<input type="text" value="100"/>		
TOTAL	96500.0		

Buttons: Report, NET PROFIT
(Earnings - Deduction)

Navigation: Stock Management, Admin Management, Employee Management, Leaves Management

Figure 6.0.6

Salary Form

Employee ID		Search	Date	10/10/2018	*****	
Employee Name	Alan	Designation	Manager	*****		
Basic Salary	40000	No of leaves	2	*****		
Performance Variable Incentive	1900	Normal OT	2800	Gross Salary	*****	
				Gross Salary : 44700.0	*****	
Advance II	4000	Calculate Deduction		*****		
EPF Employee Cont.(8%)	3576.0	Total Deduction : 7576.0		*****		
				THANK YOU		
				Print		
				Net Salary: Rs. 37124.0		
Cancel		Calculate Net Salary		Net Salary: Rs. 37124.0		

Stock Management Admin Management Employee Management Leaves Management

Figure 6.0.7

Confirm Arrival

Emp ID:	101	Today	09/10/2018
Return Date	19/10/2018	Delete Leave	
Return Status	Yes	ID	101
<input type="button" value="Cancel"/>		<input type="button" value="Update"/>	
		<input type="button" value="Delete Salary"/>	

View Leaves

ID	name	designation	sdate	edate	rdate	reason	tdate	recBy	relDate	arrival
101	Alan	Manager	12/10/2018	19/10/2018	19/10/2018	Fever	09/10/2018	N001	21/10/2018	No
102	Anna	Assistant mana...	19/10/2018	20/10/2018	20/10/2018	None	09/10/2018	N001	21/10/2018	No
103	Diana	Assistant Manag...	09/10/2018	12/10/2018	09/10/2018	None	09/10/2018	N001	21/10/2018	No
105	Maria	Cashier	19/10/2018	20/10/2018	21/10/2018	None	09/10/2018	N001	21/10/2018	No
109	Sajini	Salesman	09/10/2018	12/10/2018	12/10/2018	None	09/10/2018	N001	21/10/2018	No
108	Somapala	Salesman	2018/10/12	2018/09/08	2018/09/08	Fever	09/10/2018	N001	21/10/2018	No

Stock Management Admin Management Employee Management Leaves Management

Figure 6.0.8

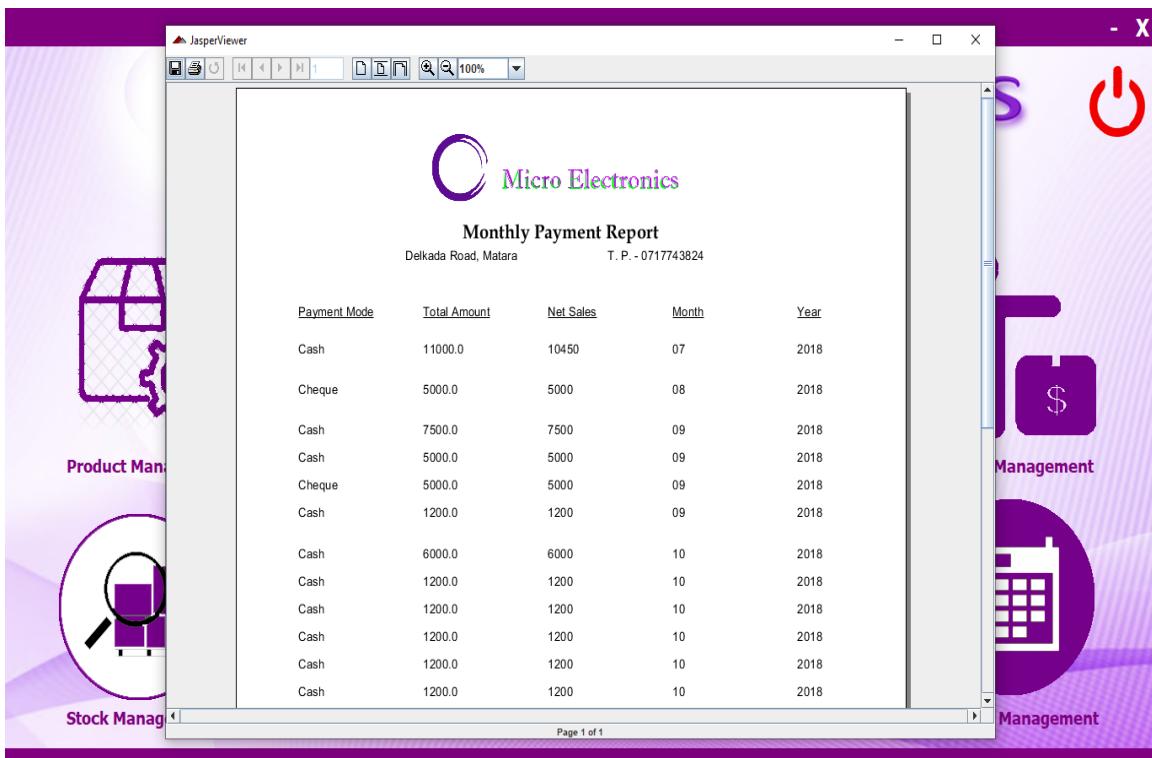


Figure 6.0.9

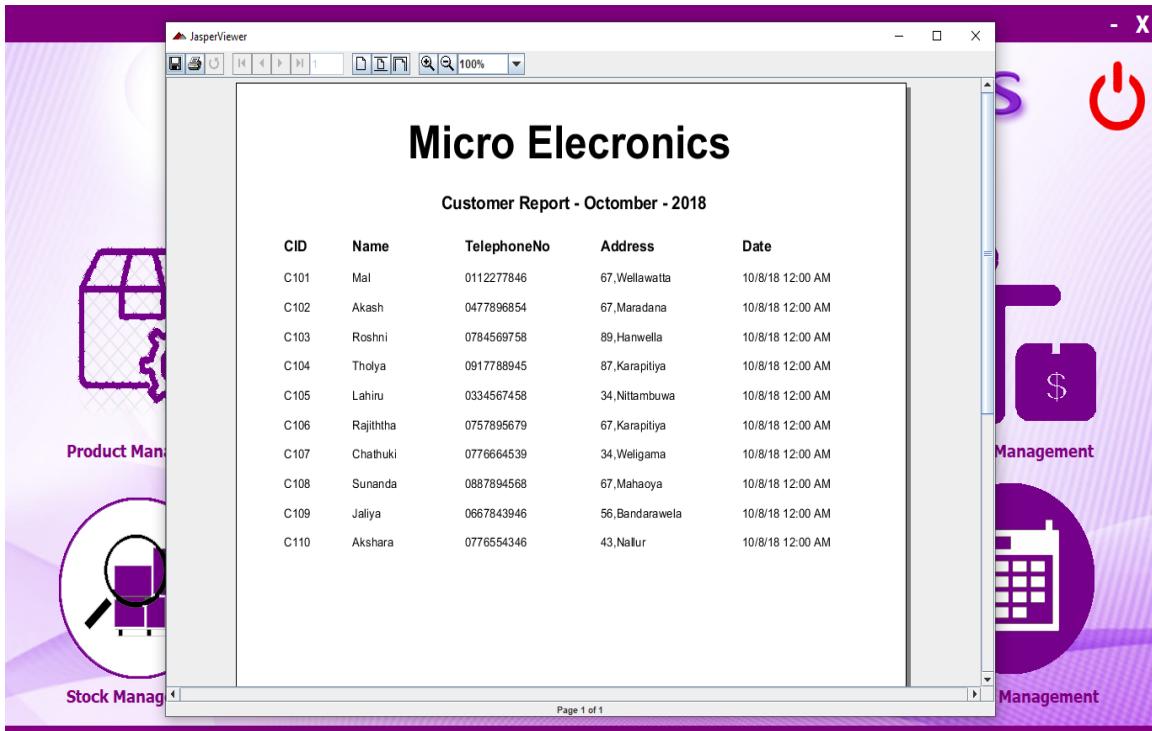


Figure 6.0.10

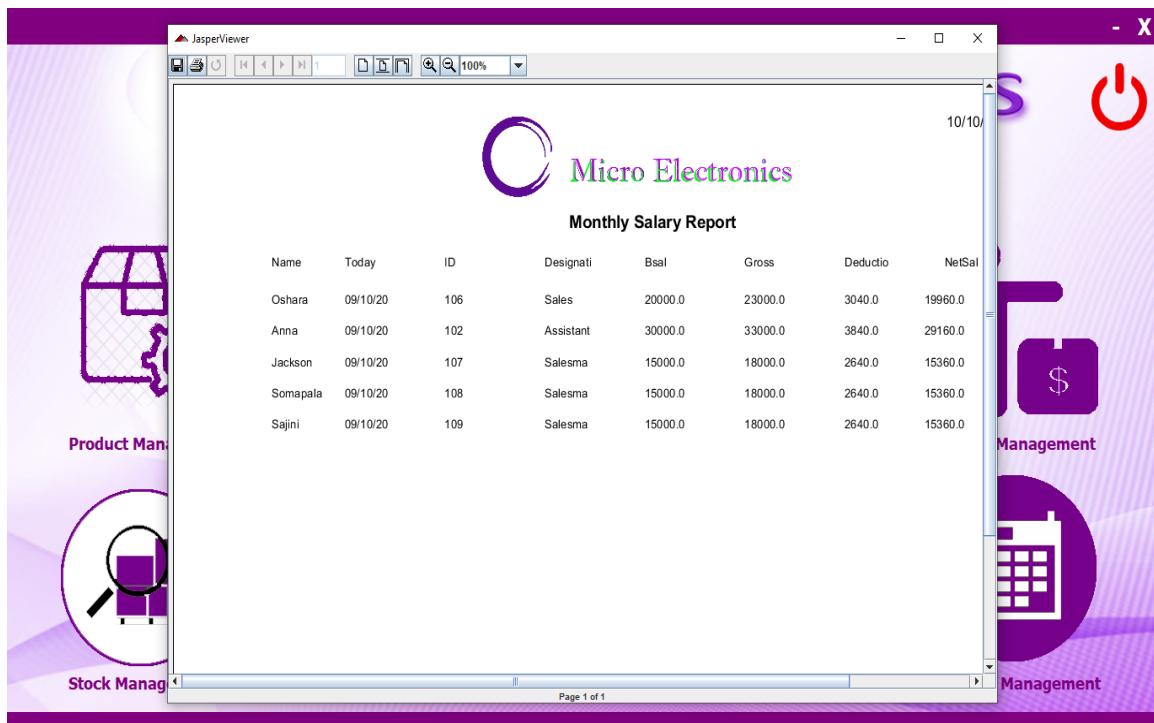


Figure 6.0.11

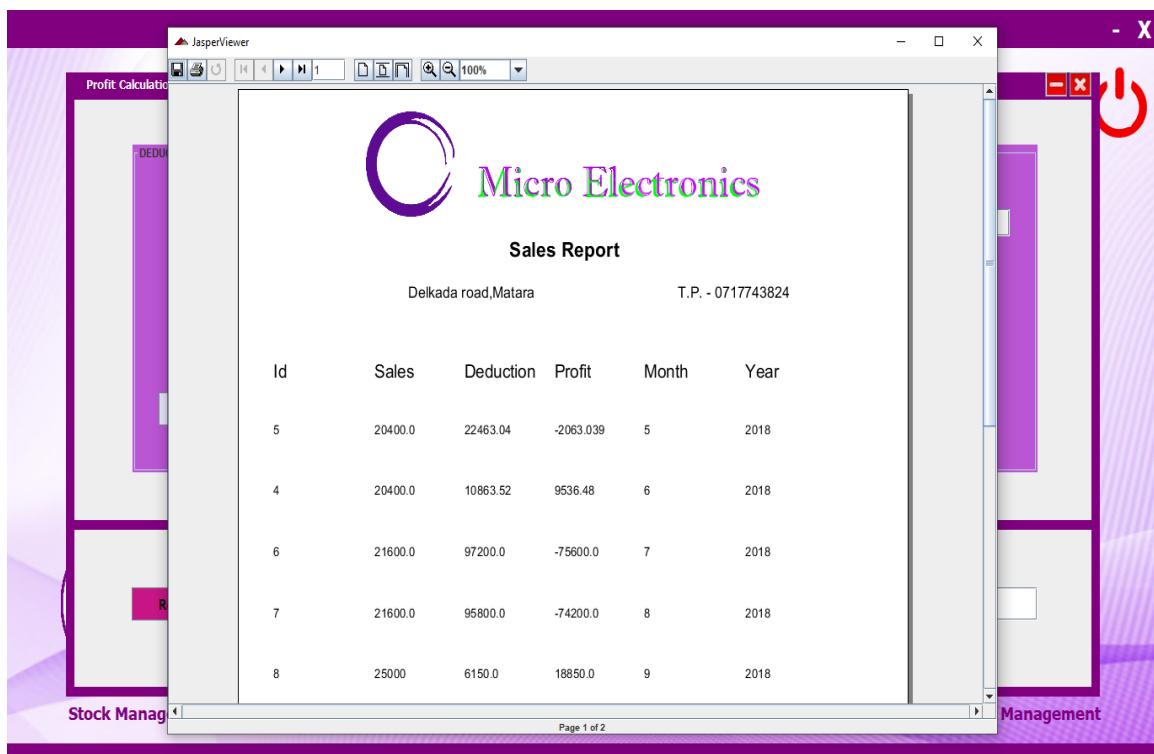


Figure 6.0.12

Appendix B: Test Results

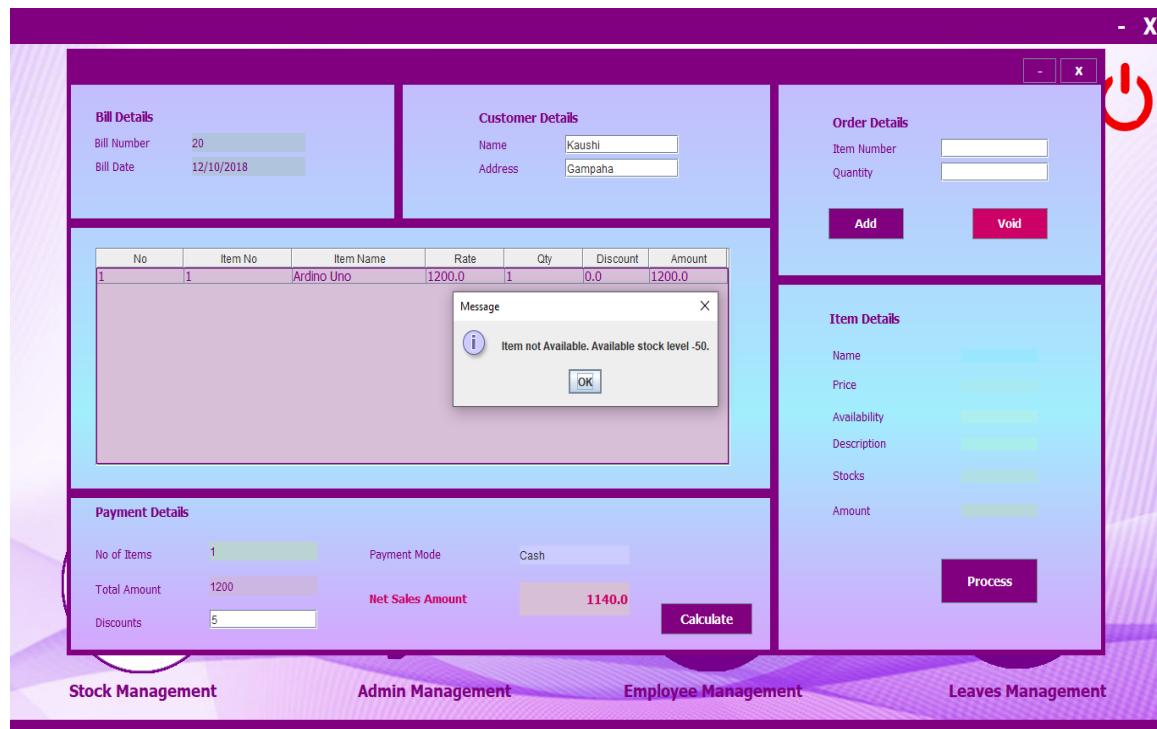


Figure 6.1.1

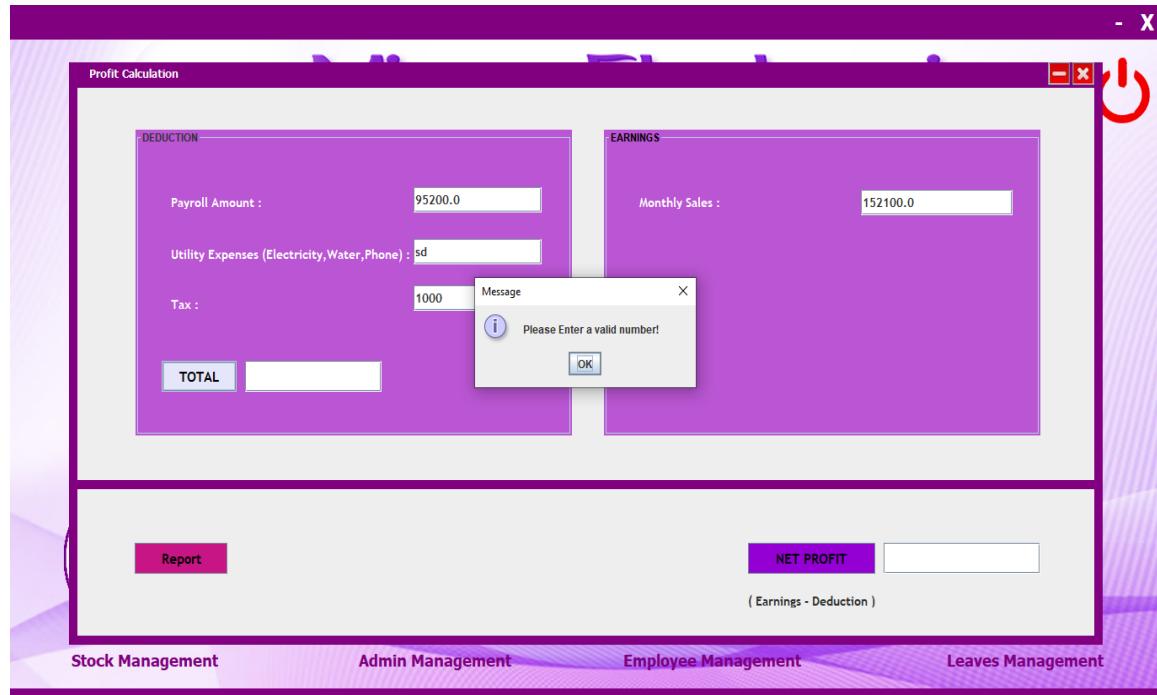


Figure 6.1.2

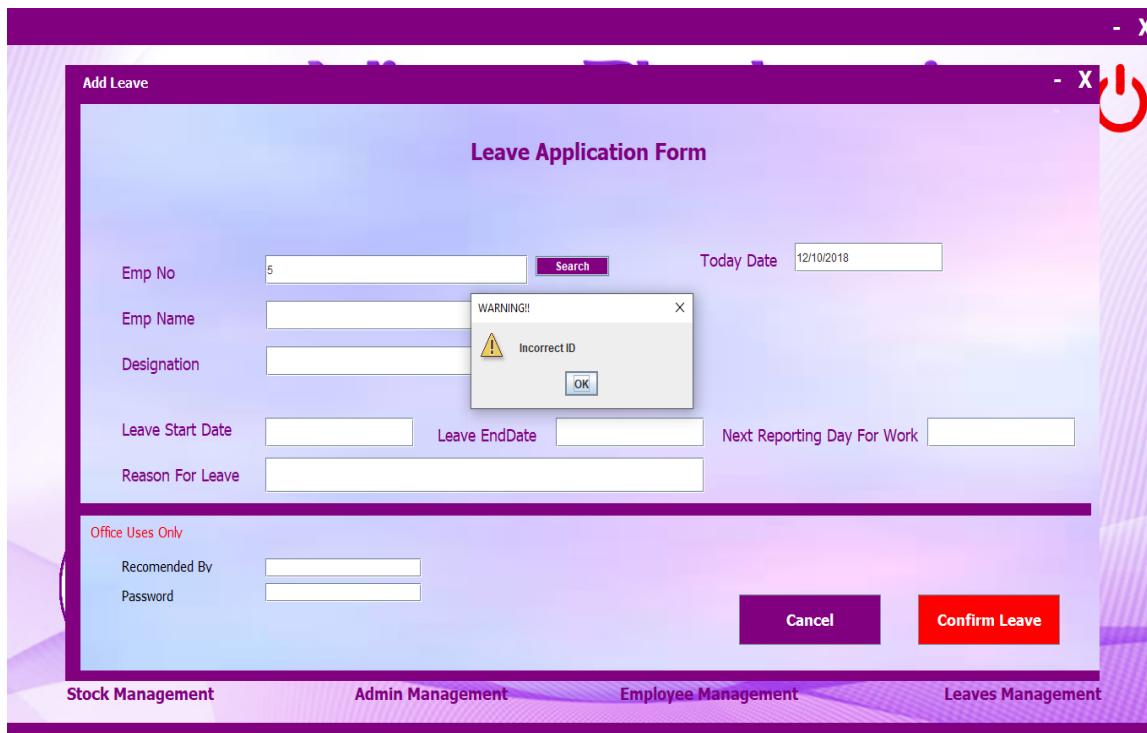


Figure 6.1.3

Appendix C: References Image

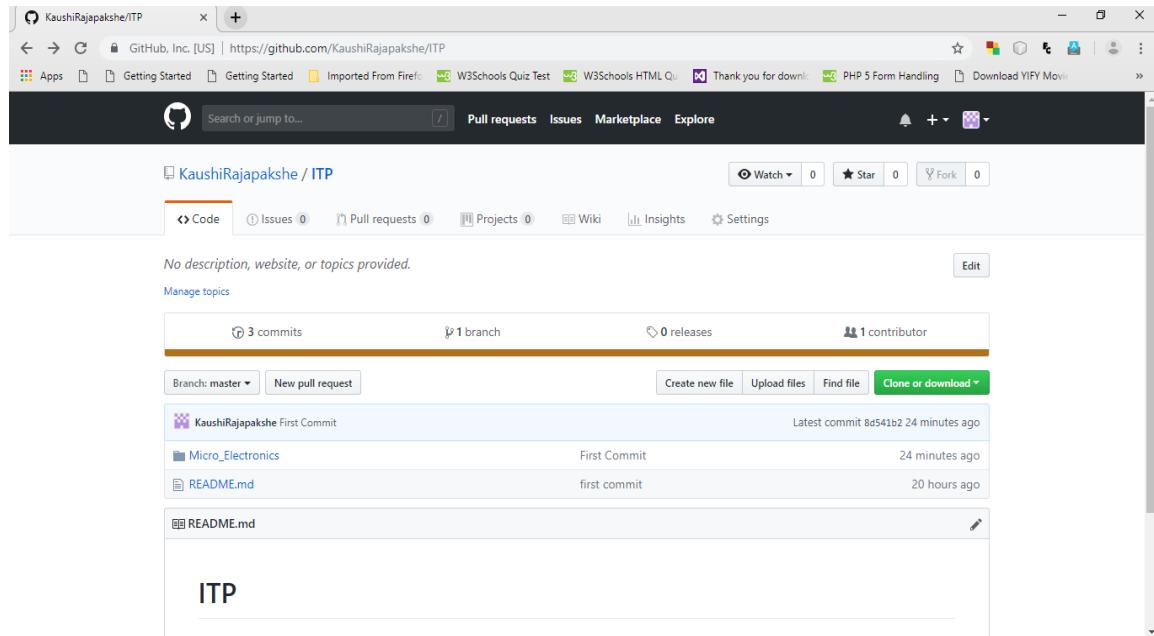


Figure 6.2.1 [1]

The screenshot shows the SonarQube interface for the 'MicroElectronics' project. The 'OWASP Top 10' report is displayed, showing a table of vulnerabilities categorized by type. The categories and their counts are:

Category	Vulnerabilities	Open	In Review	Won't Fix
A1 - Injection	10	0	0	0
A2 - Broken Authentication	8	0	0	0
A3 - Sensitive Data Exposure	0	0	0	0
A4 - XML External Entities (XXE)	0	0	0	0
A5 - Broken Access Control	0	0	0	0
A6 - Security Misconfiguration	0	0	0	0
A7 - Cross-Site Scripting (XSS)	0	0	0	0

Figure 6.2.2 [2]

Appendix D: Selected Code Listings

Eg: Separate validation classes.

```
package com.microElectronics.controller;

import java.util.regex.Matcher;
import java.util.regex.Pattern;

import com.mysql.jdbc.StringUtils;

public class Validation {

    public Boolean ValidateNIC(String nic) {
        if (nic.length() != 10) {
            return false;
        }
        for (int i = 0; i < 9; i++) {
            if (!Character.isDigit(nic.charAt(i))) {
                return false;
            }
        }
        Character c = Character.toLowerCase(nic.charAt(nic.length() - 1));
        if (!(c == 'V' || c == 'v')) {
            return false;
        }
        return true;
    }

    public boolean ValidateTelNo(String telNo) {

        for (int i = 0; i < 10; i++) {
```

```

        if (!Character.isDigit(telNo.charAt(i))) {
            return false;
        }
    }
    if (telNo.length() != 10) {
        return false;
    }
    return true;
}

```

```

public boolean ValidateAccNo(String accNo) {
    if (!accNo.matches("[0-9]+")) {
        return false;
    }
    if (accNo.length() != 8) {
        return false;
    }
    return true;
}

```

```

public boolean Alphanumeric(String val) {
    if (!val.matches("[a-zA-Z0-9]+")) {
        return false;
    }
    return true;
}
public boolean numeric(String val) {
    for (int i = 0; i < val.length(); i++) {
        if (!Character.isDigit(val.charAt(i))) {
            return false;
        }
    }
}

```

```

        }

        return true;
    }

    public boolean EmailValidation(String email) {
        String regex = "^[\\w!#$%&'^+=?]{|}~^-[+](?:\\.\\[\\w!#$%&'^+=?]{|}~^-
    ]+)*@[?:[a-zA-Z0-9-]+\\.]+[a-zA-Z]{2,6}$";
        Pattern pattern = Pattern.compile(regex);
        Matcher matcher = pattern.matcher(email);

        if (matcher.matches() == false) {
            return false;
        }
        return true;
    }

    public boolean Password(String pwd) {
        if (pwd.length() < 5 || pwd.length() > 8) {
            return false;
        }
        if (!pwd.matches("[a-zA-Z0-9]+")) {
            return false;
        }
        return true;
    }

}
}

```