Sri Lanka Institute of Information Technology

Web Portal for Sampath Bank

Project Proposal
Information Technology Project (IT2080)
2018

ITP-2018-MLB-G3-10

Submitted by:

1. IT17395588 – Samarasekara S.A.M.I.D.
2. IT17139786 – Bogahawatte W.W.M.K.A.
3. IT17137492 – Atheeq M.M.M.
4. IT17138796 – Sandeepani K.K.T.
5. IT17134668– Gamage V.S.
6. IT17156998 – Wijemanna M.D.C.V.
7. IT17134736 – Subasinghe S.M.M.K.
8. IT17138864 – Sankalpani K.K.T.

Submitted to:

<<Name of the supervisor>>

…………………………..
(Supervisor's signature)

15th July, 2018

TABLE OF CONTENTS

1 INTRODUCTION

1.1 Company Background

Company Name: Sampath Bank PLC.
Head Office: 110, Sir James Peiris Mawatha, Colombo 02, Sri Lanka.

Sampath Bank PLC is a locally renowned leader in private banking sector. Established in 1986, today boast of being the third largest private sector bank in Sri Lanka in terms of revenue. Sampath Bank, popularly known as 'Sampath', is the first bank to operate a multi-point network of ATMs in the country, as "SET". The bank was also introduced MasterCard for the first time locally as well as the debit cards for the first time in whole of South Asia.

In credit to be the technological leader (locally) in banking, the bank has introduced the "Tele-banking" facility which led to re-engineering of its IT induced banking technology, which has led the bank to launch Internet Banking, Internet Payment Gateways and Mobile Banking services. Sampath Bank was the initial bank in Sri Lanka to operate with fully computerized database and technologies and the bank has secured numerous awards in respects to technological stand point. [1]

1.2 Problem Statement

1.2.1 Actual Problems

Currently, in Sampath Bank there is no module for branch staff to calculate the monthly instalments/rentals and lease capital. The calculations are done using an Excel worksheet by logging to a server with remote desktop connection.

Since there are technical difficulties with related to excel work sheets (macros) such as, unable to login to the server, copying of the generated text files (structured payments schedules) to local server and there is no direct mechanism to export data from the excel sheets to generate security documents and save the same, credit officers face many difficulties with regards to proceeding with leasing facilities.

1.2.2 Simulated Problems

The above-mentioned problems are not sufficient to meet the academic requirement, since it only address a single functionality. Hence, it was assumed that the client needs an entire web portal which consists of online banking functionalities. As the client is a banking company, we decided to build both the customer side as well as the employee side. It was also assumed that the client is in need for a web portal. The research conducted by the company shows that the existing portal is not user friendly, which creates a vacuum for improvement. So, the company is looking for a system which will attract more matured target audience.
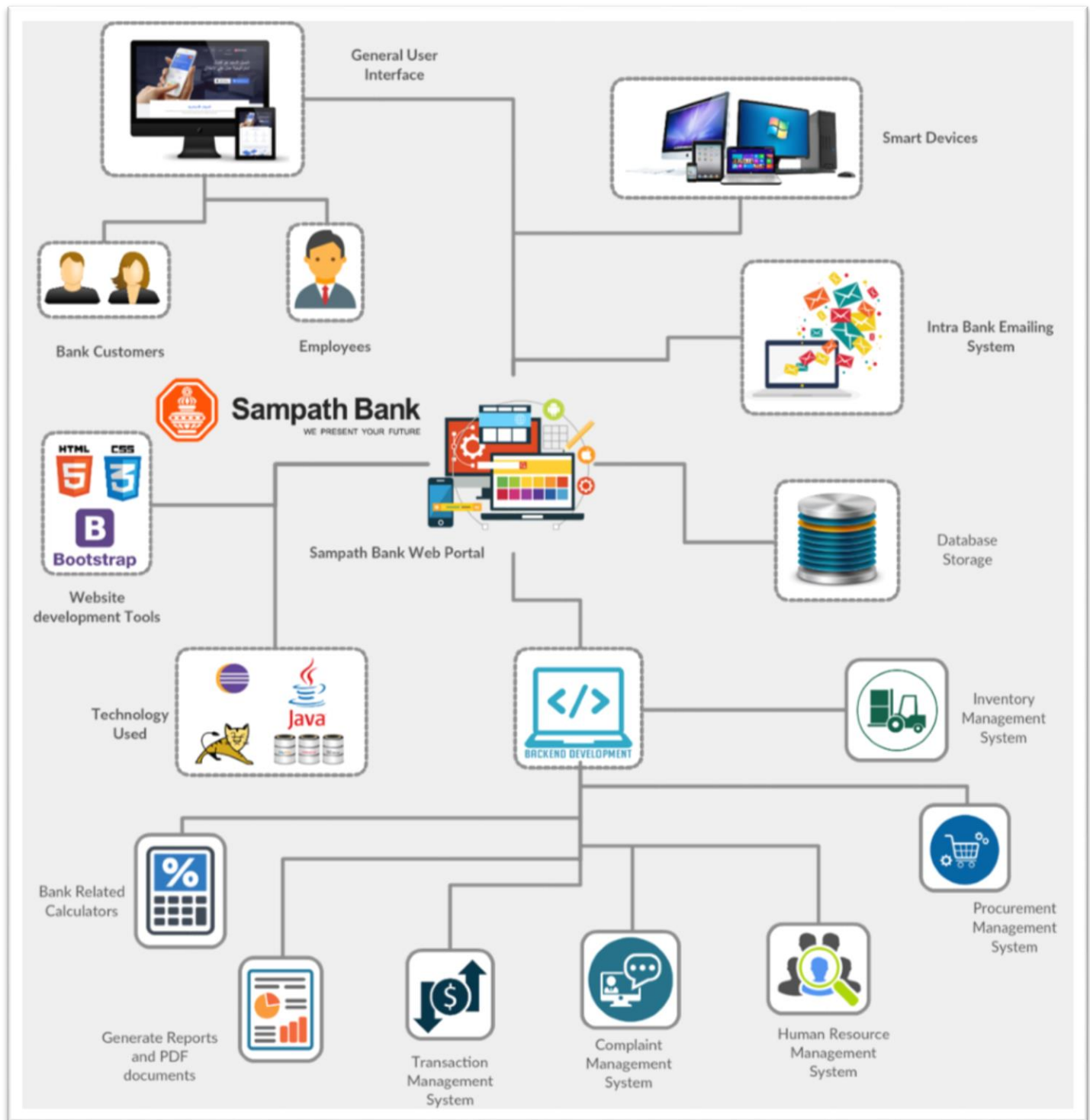
1.3 Solution

Design and implement a Leasing Calculator, along with the facility to print needed security documents, which is expected to overcome all technical difficulties mentioned above and enable the branches to facilitate smooth operation process for Leasing facilities.

Develop a user-friendly web portal for the client which; manages users of all kinds, enables online transactions for customers whilst managing them, facilitates employee and payroll management, handles inventory as well as procurement, oversees fault and complaints, conducts Loan/Deposit/FD calculations and handling, finally, which holds the earlier mentioned leasing implementation.

2 OVERALL BASIC BUSINESS OPPERTUNITIES & OBJECTIVES [BENEFITS]

- Manage the details of the employee, salary, leaves, attendance, registration and the system is built at administrative so that it will reduce the work of managing the employees by the employee manager.

- Prepare the detailed salary record of all the employees and generate the pay-in-slip through the calculation of the salary.

- User management aims to grant authorized users the right to use the system conveniently while preventing access to un-authorized users.

- Professionally manages the user accounts by notifying users about the changes made in their accounts.

- Efficiently manage the company's inward and outward items.

- Make sure the company has the sufficient stock levels to meet the requirements.

- Develop strong relationships with other groups within the bank.

- Manage the procurement processes and the supply base efficiently.

- Capture, gather, process and store transactions and to produce useful documents related to routine bank activities.

- Ensure data and information integrity and maintain a high degree of accuracy.

- Promptly identifies loans/FD with well-defined weaknesses.

- Provides management and directors with an objective assessment of portfolio quality.

- The leasing calculator will display the monthly rental for the leasing facility (including structured lease) and Lease Capital, once the required data is entered.

- Generate and provide the customer with the necessary documents as evidence for transactions that took place within the bank.

- Improve confidence in the performance by implementing functions to guarantee the company's integrity is not compromised.

- Make sure the system is protected against high-risk faults, which will play a major role in limiting risk due to potential for undesired Fault Management behavior.

3 SYSTEM OVERVIEW

General User Interface

Smart Devices

Bank Customers

Employees

Intra Bank Emailing System

Sampath Bank
WE PRESENT YOUR FUTURE

Website development Tools

Sampath Bank Web Portal

Database Storage

Technology Used

BACKEND DEVELOPMENT

Inventory Management System

Bank Related Calculators

Procurement Management System

Generate Reports and PDF documents

Transaction Management System

Complaint Management System

Human Resource Management System

4 SYSTEM FUNCTIONS

4.1 Employee & HR Payroll Management

Employee and HR Payroll Management discussed here is, an integration of Employee Management System, Payroll System, Leave Management System and Skills Development System. Employee Management System composes of diverse features which will allows the company to perform general human resource management tasks. Payroll System will focus primarily on salary management, which includes wage calculations and wage payouts. This system will minimize the labor cost and will simplify the complexities. Leave Management System facilitates the total leave process, from leave applications being completed by the employees to them being approved by HR and Management. [2] These are some of the identified functionalities,

- Recruitment of Employees.
    - This will only focus on recording entire employee details in the system and will not include entirety of features from an Induction System.
- Keeps records of inactive Employees.
    - Employees who have left the company will also be recorded in the system. [3]
- Records current number of employees according to department.
    - Numbers will automatically update when an employee is recruited or left. [3]
- Employees should be able to update their own recorded information which will be sent to the management for approval before it is implemented.
- Search facility to find staff members and their information.
    - This will have a certain access level.
- Processing of employee salaries.
    - This will depend upon numerous inputs such as employee status, attendance, tax implied, OT hours, etc.
- Wage payouts.
    - Calculated wages will be implemented via a printed pay slips. [4]
- Manage administrative settings of leave management.
    - Setting the types of leave allowed, ideal amount of days for each type, persons to be notified when leave requests are received.
- Employees can place leave requests.

- - Supporting documentation should be able to be uploaded when placing a leave request.
- Leave summary should be displayed to each employee.
  - Summary will contain the leave days left, number of leave days taken, status of recent leave application, etc.
- Relevant managerial authorities should be able to work with the leave requests.
  - A relevant manager can log in and choose to approve or reject a leave request from the displayed list. Additional days should be able to be assigned to the employee as well as comments.
- Track the skills of the employees.
  - Skills of an employee will be recorded at the time of their recruitment and they will be assigned to skills development plans on a regular basis. [5]
- Individual performance will be tracked, and they will be rated based on an intracompany rating (point) mechanism.

4.2 User Management

User Management System plays a vital role in web-based application because it enables authorized users to access the system depending upon the hierarchy of access levels. This system mainly focuses on managing both customer and employee profiles with the aid of intracompany mailing system. These are some of the identified functionalities,

- Bank should be able to create new online accounts for the customers who has an existing account in the bank and to create accounts for employees.
    - Both the customer accounts as well as the employee accounts will be created by an employee. Employees will have different access levels to content.
- System should be able to redirect to the relevant pages according to the user levels with aid of credentials entered.
- The system should have a mechanism to send the initial password to the newly registered customers and a mechanism to recover accounts.
    - The initial and recovery passwords will be sent to the user's registered email as a pdf document. After entering either of these, the user will be redirect to a password reset phase.
- Both the employees and customers should be able to change their personal details.
    - A user will be able to change and update only the basic details which will not be affected to the bank's internal account management.
- Managers should be able to generate reports regarding user accounts.
    - Reports can be, all users report output, analysis on the types of users, No. of user accounts and details of the accounts created in a filtered date, etc.
- System should be able to provide two-way authentication for each user login.
    - Each time a user logs on to the system, besides the password, they should be prompted to enter a code sent to them via email.
- System should provide an interface for intracompany mailing system.
    - Company's own mailing/ messaging system should be implemented, which is set out to receive intracompany mails as well as notifications.

4.3 Inventory Management

Inventory is a complete list of company's items such as property, good in stock and other materials. Inventory handling plays a vital role for manufacturing companies but for banking sectors, inventory management system mainly focuses on managing operational items. Inventory control management is initiated by procurement system. So, it can be concluded that the inventory management system is a process of managing the items which were purchased during the procurement process. These are the key functionalities related to this sub system.

- Keep track of branches and warehouse – Sampath Bank has branches all over Sri Lanka, for each branch there is an assigned warehouse to store items. System should be able to precisely display items available in each warehouse and branches related to that specific warehouse.

- Requesting items from Warehouse – Branch head should be able to request items from the warehouse when the branch runs out of items.

- Restocking alert – Initially employee should be able to set the low-level stock count. Notification should be sent to inventory staff about the restock amount.

- Recording inwards and outward items – The system should be able to update the stock level of the item when there are stock inwards, stock outwards and items returned. (Due to damages).

- Generation of reports – Manager should be able to generate following reports,

  1. Warehouse and branches related.
  2. Weekly stock inward report.
  3. Weekly stock outward report.
  4. Weekly stock returned report.
  5. Weekly current stock level.
  6. Report of items requested by branch head.

- Search Functionality - The inventory employee should be able to search item in the inventory (Alphabetical order) and should be able to categorize the item according to their nature.

- Manager verification - All the stock inwards and outwards should be verified by the manager.

4.4 Procurement Management

Procurement mainly deals with the purchase side of the company. This system should be able to provide cost effective supplier suggestions to purchase items. Procurement plays a vital role for Sampath Bank due to its diversification across the island. The main users of this system would be procurement department employees, who has the sole responsibility to purchase good quality products for a low price. These are some of the identified functionalities,

- Procurement staff should have a search function to find suppliers related to the specific item.
  - All the suppliers will be displayed using the keyword provided. Past suppliers as well as all the future-possible suppliers will be retrieved from the database.
- Employees should be able to find low cost suppliers for the requested items.
  - A filtering mechanism will be implemented, which will enable the employee to categorize the results according to a relevant criterion.
- Using the suppliers suggested, employees should be able to make an order invoice.
- Prepared invoices should be sent to the procurement manager for confirmation.
  - Order invoice can be printed or sent via company's intra network, or using personal emails.
- Employees should be able to update the supplier information.
  - An employee should be able to easily introduce new suppliers to the database and update existing supplier information.
- Procurement manger should be able to generate reports for overall procurement process.
  - Overall procurement reports for reviews regarding supplier, item and payments made.
- Confirmed order invoices should be generated as a printable pdf document.
  - After an order invoice is approved, it must be printed in order to be able to send it to the relevant supplier.
- The system must be able to track payments, invoices and payments against an invoice.

4.5 Transaction Management

Transaction operations involve encountering with numerous customers to deal in with their payment and deposit demands in an organized manner with accuracy. Mainly, this system deals with interbank and intrabank transactions including the bill payments. As a bank's major operations revolve around transactions, this subsystem should be the most efficient and secured. These are some of the identified functionalities,

- Customers should be able to check their outstanding balance.
    - After a customer is securely logged on to the system, the account holder can check their physical account balance.
- Customers should be able to make interbank and intrabank transactions.
    - Transactions should be able to conduct among accounts, of different banks as well as of the same bank.
- System should prompt a message during an invalid transaction.
    - Invalid transactions, such as transactions exceeding outstanding balance, must be handled by the system using notifications and rollbacks.
- System should provide a functionality which will enable the customers to view their transaction history.
    - All the transactions in the bank should be recorded and monitored. The account holder or an employee should be able to view and understand the transactions done previously.
- Standing orders amount should be automatically decremented from the relevant customers account, and customer should be able to make their bill payments.
    - Bill payments should be easy to make.
- Relevant documentations should be generated by the system when prompted.
    - Bill payment receipts as well as transaction receipts should be generated at the request of the customer.
- Security alerts should be sent to the customers regarding relevant transactions.
    - Every transaction will be notified to the relevant parties, at least one account involved with the transaction. (in case of a interbank transaction).

4.6 Loan/Deposit/FD/Gift Management

Banking industry mainly focuses on providing loans and fixed deposit facility to their customers in order to maintain the liquidity in the company. This function mainly focuses on managing of loans, Fixed Deposits. As Sampath Bank has a gift rewarding system for their customers, we have also included this part in this functionality. These are some of the identified functionalities,

- System should display all the possible interest rates when customers request for a specific loan (Example-Personal, Vehicle and House loans).
    - Pre-stored interest rates with the relevant loan amount margin should be displayed at the loan officer's or the customer's request.
- Both the Employees and customers should be able to get the monthly installment amount for the loan amount requested.
    - The monthly installment amount for a specific loan amount requested with a specific time span should be calculated and displayed using the stored rates.
- Upon customers confirmation, Employee should be able to enter the required details to obtain a loan. These details will be stored in the database for bank purposes.
- Loan documents are generated using the required loan details stored in the database.
- Suggestions for loans should be displayed for logged in customers considering their monthly cash inflows and outflows.
    - When a customer is logged in and selects the loan tab, suggestions should be displayed for possible and attractive loans based on their financial data.
- Manager should be able to add or remove and update the interest percentage in the database system.
    - New interest rates can be introduced and old ones can be removed or updated.
- Manager should be able to generate overall reports.
    - All loans documentation, revenue generated from interests and other loan analysis reports should be able to be generated.
- Same functionalities are available for FD, Gift management.

4.7 Lease Calculator & Security Documents

Providing leases on customer requests has been a major function in the Banking industry. Even in the present day, the process of approving a lease is a long and tedious task since it requires a lot of manual interactions. This function mainly focuses on digitalizing the lease calculation process, and auto generating the necessary documentations for the transaction. Generated documentations will be stored separately in the database, and hard copies will be provided as requested by the customer or as needed by the lease officer. These are some of the identified functionalities,

- Lease Calculator.
    - This will be available for both online account holders and site visitors. Main purpose is to calculate the lease when the required details are entered into the system. Employees will also use this function whenever customer physically request a lease from the bank.
- Lease officers must be able to store relevant details of a customer in the database when applying for a lease.
    - Numerous details must be stored categorically in the database and the same details should be able to be deleted when necessary.
- Security Documents.
    - The basic templates of the various security documents are stored in the database. These documents will be retrieved and updated with the relevant details. These updated documents can be printed upon the necessity.

4.8 Fault/Complaint Management

Fault/Complaint management enables the company to deliver a better service and reach for perfection by providing an efficient and effective way to handle complaints. Complaint handling, managing along with reporting serious complaints to higher authority figures and responding to complaints are the basic levels of a fault management system. Furthermore, with the help of this system, vital areas where the services could be improved can be identified so that the senior management could be kept informed. These are some of the identified functionalities,

- Complaint Lodging.
  - Customers should be able to log in the complaints and any relevant data with a chosen category. The records will be kept in the database sorted by categories which are clearly defined and exclusive of one another.
- Complaint Handling.
  - The lodged complaints will be assigned to an employee, who, then will start taking relevant action steps.
- Keeping the consumer informed through progress update.
  - After each step is taken, the employee should be able to update the status of the complaint both to the employee and customer.
- Complaint history display.
  - . Customers can view their history of complaints.
- Acknowledge Complaints.
  - Complains involve some inconvenience. Loyal customers with strong feelings could be often involved. As a method of satisfying the customer and to make the customer more engaged, a simple chat box with suggested messages will appear when a customer lodged a complaint.
- Analyze complaints and follow-ups.
  - After a complaint is fully handled, follow-ups will take place to find out whether the customer is satisfied with the responses. Documents should be able to be printed regarding the analyses of the records.
- Card Cancellations.
  - Customer cards will be cancelled when it breaches a particular minimum balance policy.

5 TECHNOLOGIES

Type	Technology
Coding	Java
Web Based Development Tool	HTML CSS Bootstrap Tomcat
Integrated Development Environment	Eclipse
Database	MySQL
Project Management	Trello Git GitHub Inc.
Testing	JUnit

6 GANTT CHART

Key Binding	Sub System	Month 1				Month 2				Month 3				
		1	2	3	4	5	6	7	8	9	10	11	12	13
Planning & Analysis	Meet-up with Samapath Bank	▓												
	Identify the key functions		▓											
	Confirming functionalities with the lectureres		▓											
Design	Build and configure interfaces			▓										
	Full integration				▓									
	Seeking suggestions from the client (2nd meetup)				▓									
	Refining the main functionalities					▓	▓							
	Learning the technology					▓	▓							
Development	Coding the system							▓	▓					
	Integration							▓	▓					
	Unit testing							▓	▓					
	Client meetup (3rd)								▓					
Implementation	Full integration									▓				
	Implement DB									▓				
Evaluation	Security check										▓			
	Group evaluation										▓			
	Testing and debugging											▓	▓	
	Client meetup (4th)												▓	
Finalization	Present the final product													▓
	Team Meetups	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓

- Client meetups will take place on a monthly basis.
- Teem meetups will take place on a weekly basis.
- Actual work calendar structure might differ to uncontrollable reasons.

7 WORK BREAKDOWN STRUCTURE

Student ID	Student Name	Function Allocated
IT17395588	Samarasekara S.A.M.I.D.	Employee & HR Payroll Management. ■ Recruiting/recording employee details. ■ Keep records of inactive employees. ■ Record current employees according to department. ■ Update Employee details. ■ Search Employees. ■ Salary management. ■ Wage payouts. ■ Administrative side of leave management. ■ Leave request application handling. ■ Leave summary display. ■ Leave approval handling. ■ Employee performance analyses.
IT17139786	Bogahawatte W.W.M.K.A.	User Management. ■ Create login for all users. ■ Initial password and account recovery password generation and delivering. ■ Updating of personal details of users. ■ Implementation of two-way authentication. ■ Implementation of intracompany mailing system. ■ Redirecting and error handling.
IT17137492	Atheeq M.M.M.	Inventory Management. ■ Record and track branches and warehouses. ■ Implementation of requesting items through the system. ■ Alert and notification management for restocking purposes. ■ Recording inward and outward items. ■ Search functionality for inventory items. ■ Implementation of manger verification of the inward and outward items. ■ Generation of reports for analyzed stock movement data.
IT17138796	Sandeepani K.K.T.	Procurement Management. ■ Search functionality for supplier identification.

		- Filtering functionality for searching. - Order invoice generation. - Order invoice delivery through intracompany mailing system. - Updating of supplier information. - Overall procurement analysis reports generation. - Printable order invoices for approved orders. - Track payments and invoices.
IT17134668	Gamage V.S.	Transaction Management. - Outstanding balance display upon customer request. - Keeping records of Interbank and intrabank transactions. - Invalid transaction handling. - Transaction history display. - Standing orders and bill payment handling. - Relevant documentation generation for each of above transactions. - Alerting account holders of a transaction.
IT17156998	Wijemanna M.D.C.V.	Loan/Deposit/FD/Gift Management. - Interest rates display for online visitors as well as front desk officers. - Calculation of monthly installments for requested loan amount under requested payback period. - Storing the required and entered information for loan request requirements. - Updating and/or introduction of interest rates. - Generation of, loan documents with modifications using the details of the customer and overall reports. - Implementation of all above functionalities for FD, Gift management.
IT17134736	Subasinghe S.M.M.K.	Lease Calculator & Security Documents. - Lease Calculator Implementation. - Introduction and modification of lease rates. - Instant approval or disapproval of lease considering the finance data of the requestee.

		▪ Generation of all documentations including lease agreements . ▪ Maintenance of audit trails and history records.
IT17138864	Sankalpani K.K.T.	Fault/Complaint Management. ▪ Complaint lodging. ▪ Complaint handling and status updating. ▪ Complaint history display. ▪ Acknowledgement of complaint through providing a simple chatting service. ▪ Complaint analyses and follow-up analyses. (Documentation). ▪ Cancellation of cards based of various available data and transactions.

- Each member will design and implement their own user interfaces.
- Each member will carry out their own unit testing.

8 REFERENCES

[1] Sampath Bank PLC., "Home," 01 January 2018. [Online]. Available: https://www.sampath.lk/en/about/corporate-profile. [Accessed 13 July 2018].

[2] Beehive Software, "Beehive," Beehive Software, 01 January 2017. [Online]. Available: https://beehivesoftware.in/payroll-management/payroll-management-system-definition-features-need/. [Accessed 15 July 2018].

[3] Intoweb Business (PTY) LTD, "Intoweb," Intoweb Business (PTY) LTD, 01 January 2018. [Online]. Available: http://intoweb.com/hr/module_employees.php. [Accessed 15 July 2018].

[4] Intoweb Business (PTY) LTD, "Intoweb," Intoweb Business (PTY) LTD, 01 January 2018. [Online]. Available: http://www.intoweb.com/finances/module_payroll.php. [Accessed 15 July 2018].

[5] Intoweb Business (PTY) LTD, "Intoweb," Intoweb Business (PTY) LTD, 01 January 2018. [Online]. Available: http://intoweb.com/intranets/module_attendance.php. [Accessed 15 July 2018].