VISVESVARAYA TECHNOLOGICAL UNIVERSITY,
BELGAUM- 590014

A Minor Project Report

On

CBizTracker

Minor Project Report submitted in partial fulfillment of 6th semester requirement for

Bachelor of Engineering in

Computer Science and Engineering

Submitted By

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Under the guidance of

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B.V.B. COLLEGE OF ENGINEERING & TECHNOLOGY,
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Academic year 2015-16

K.L.E. SOCIETY'S

B.V. BHOOMARADDI COLLEGE OF ENGINEERING & TECHNOLOGY,

HUBLI -580031

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2015 - 2016

K.L.E. Society

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CREATING VALUE
LEVERAGING KNOWLEDGE

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that minor project entitled CBizTracker is a bonafied work carried out by the student team Mr. ADITYA K- 2BV13CS002, Ms. AISHWARYA B- 2BV13CS004, Ms. AMRATA R- 2BV13CS012, Mr. ASHIF M- 2BV13CS023, Mr. HEMANT B -2BV13CS039 in partial fulfillment of the award of degree of Bachelor Engineering in Computer science and Engineering during the year 2015 – 2016. The minor project report has been approved as it satisfies the academic requirement with respect to the project work prescribed for the above said programme.

Guide	H.O.D	Principal
Prof. V.P. Baligar	**Prof. Gopalkrishna Joshi**	**Dr. P.G. Tewari**

External Viva:

Name of the Examiners	Signature with date
1.	
2.	

ABSTRACT

Building an effective business network or team is a challenge for many organizations. When organization has multiple locations these challenges are magnified, whether all the branches are in same region or spread out around the globe. These challenges may include lack of communication between owner and the retailer and inconsistency.

Our product "CBIZTRACKER" facilitates the Owner in maintaining transaction details of all the branches of his/her organization. It stores the transactions that occur at different branches of a business organization onto cloud storage and compute transaction statistics, which can be accessed by the owner through his smart-phone. The domain of our project is CRM (Customer Relationship Management) referring to practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of improving business.

ACKNOWLEDGEMENT

We would like to express our profound gratitude to Prof. V.P. Baligar for his invaluable support, encouragement, supervision and useful suggestions throughout this project work. His moral support and continuous guidance enabled us to complete our work successfully.

We are grateful to our Minor Project Coordinators Prof. Sujata C. and Prof. Jayalaxmi , and to Prof. S.G Totad and Prof. Vijay Bhajantri for their aspiring guidance, invaluably constructive criticism and friendly advice during the project work. We are sincerely thankful to them for sharing their truthful and illuminating views on a number of issues related to the project. Their regular suggestions made our work easy and proficient.

Last but not the least, we are thankful and indebted to all those who helped us directly or indirectly in completion of this project and a big thanks to BVBCET Computer Science Department for providing us with a wonderful platform for doing this project.

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1. Introduction

An application that stores the transactions that occur at different branches of a business organization onto a cloud and compute transaction statistics, which can be accessed by the owner through his smart-phone. The domain of our project is CRM (Customer Relationship Management) referring to practices, strategies and technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of improving business. The application can be implemented by business organizations having multiple branches in a given area.

1.1 Literature Survey

CRM plays a key role in business, handling customer interactions with the company. There is extensive research in this field to provide efficient business solutions. This section gives a brief description about the existing solutions for business transactions.

1.1.1 Existing systems

- MARG Department Store
- FreshBooks

1.1.2 Comparative study of existing systems.

System	Features/Functionality	Drawbacks
MARG Department Store	Billing system along with printing facility is provided.	Stores all transaction details onto local machine. Only manager can access the details. Owner doesn't get the summary of transaction.
FreshBooks	Cloud storage available. Easy to generate invoices.	One way transaction. Transaction analysis not available. No graphical representation of the sales.

1.2 Overview

An application that stores the transactions that occur at different branches of a business organization onto a cloud and compute transaction statistics, which can be accessed by the owner through his smart-phone.

1.2.1 Proposed system

Proposed system provides cloud storage for all transactions occurring at different branches of organization. It also provides summary of transaction details at each and every branch to the owner. It also provides transaction statistics to the owner.

1.2.2 Purpose of project

- Main purpose of our project is to reduce the burden of branch manager to update day's sales/transactions to the owner.
- The transactions made by the Manager are updated onto the Cloud, as and when they occur.
- To facilitate the Owner in maintaining transaction details of all the branches of his/her organization.

1.2.3 Scope of project

- The proposed system can be implemented by business organization having three or more branches in a tier city.
- To reduce the burden of branch manager to update day's sales to the owner.
- The system also provides transaction statistics such as quarterly/monthly and yearly sales growth of the organization to keep track of the business.

1.2.4 Objective of the project

- To facilitate the Owner in maintaining transaction details of all the branches of his/her organization.

2. Software requirement specifications

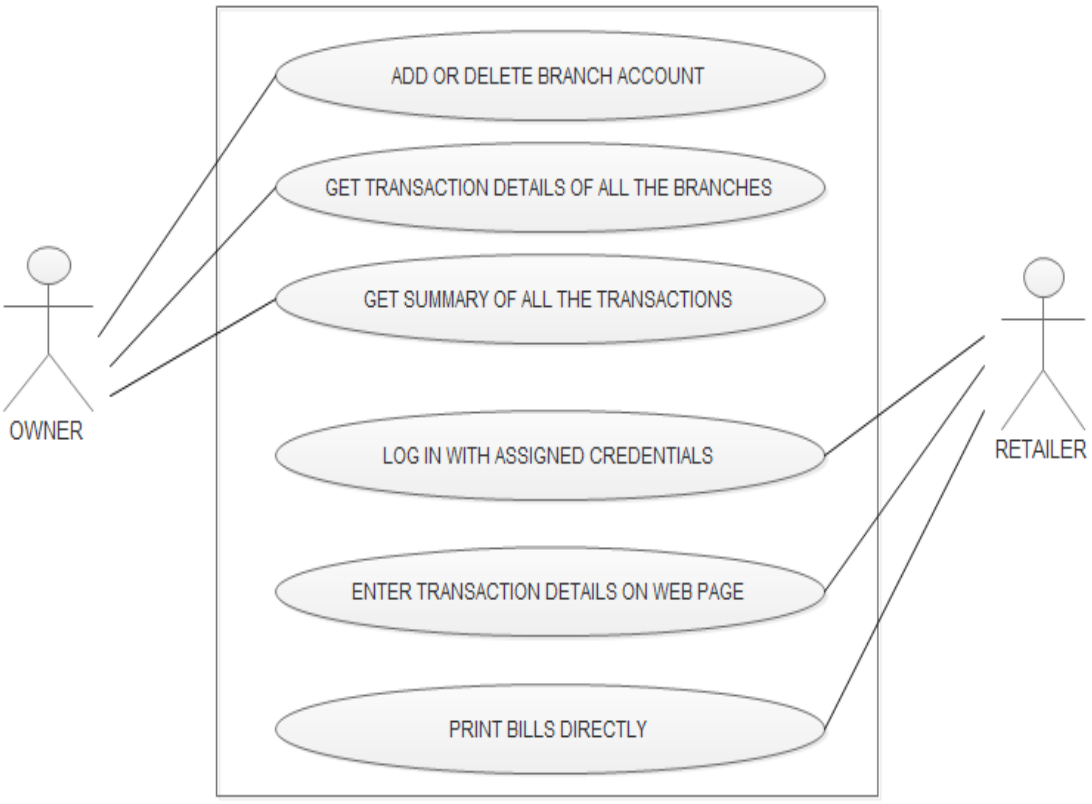
2.1 Functional requirements

2.1.1

Req. ID	Functional Requirement	Priority*
2.1.1.1	To add or delete branch account.	1
2.1.1.2	To get all the branch transaction details.	2
2.1.1.3	To get summary of all the details.	3
2.1.1.4	To log-in into webpage with assigned credentials.	1
2.1.1.5	To enter transaction details on webpage.	1
2.1.1.6	To print bills directly.	2

(* in priority column, 1: Essential, 2: Desired, 3: Extra)

2.1.2 Use case diagrams and Use case description



2.1.2.1: To ADD or DELETE branch account:

Goal: To add or delete branch account.

Actor: Owner

Pre condition: Owner should be Logged in.

Post conditions: New branch account can be added or existing account will be deleted.

Success scenarios:

a. Owner is provided with two options: To ADD and DELETE branch account.
b. To add a new branch account, select ADD BRANCH option and provide details of the branch. A new branch account is added instantly.
c. To delete a branch account, select DELETE BRANCH option and select branch to be deleted. The selected account is deleted instantly.

Exception scenarios:

a. If branch ID is same as existing one, new account will not be created.
b. No account is deleted, if selected branch does not exist.

2.1.2.2: To get all the branch transaction details.

Goal: To get transaction details of all branches.

Actor: Owner

Pre condition: Owner should be Logged in.
Branch accounts must exist.

Post conditions: Transaction details of a selected branch must be displayed.

Success scenarios:

a. Owner will get a dropdown option where he should select a branch.
b. Click on “get details”.

Exception scenarios:

a. In case of poor internet connectivity, data (transaction details) may not be displayed.
b. In case of error in uploading transactions at given branch, details cannot be displayed.

2.1.2.3 To get Summary of all the Details.

Goal: To get the summary of the transactions happening in different branches.

Actor: Owner

Pre condition: Owner should be Logged in.

Post conditions: Summary will be displayed.

Success scenarios:

a. Owner will get a bar chart displaying the total transactions of all the branches.

Exception scenarios:

a. If not connected to Internet, summary would be wrong or old
b. If transaction fails then details might be in appropriate.

2.1.2.4 To log-in into webpage with assigned credentials.

Goal: To Login into webpage with essential credentials.

Actor: Retailer

Pre condition: branch account for that particular branch must exist.

Post condition: Retailer will be able to log-in to his/her branch account.

Success scenario:

a. Retailer will get a panel where he needs to provide his/her credentials to log-in.
b. Then click on 'Log-in'.

Exception scenario:

a. An error message saying "sign-in error" is popped up, when wrong credentials are entered.
b. Retailer may not be able to log-in because of poor connectivity.

2.1.2.5 To enter transaction details on Webpage

Goal: to enter transaction details on web page.

Actor: Retailer

Pre condition: Retailer should be logged in.

Post condition: Transaction details will be updated and stored into a cloud.

Success scenario:

a. Retailer will get a table where he will have to enter the transaction details.
b. Then click on 'save'.
c. Transaction details will be stored into a cloud.

Exception scenario:

a. In case of poor internet connectivity, data (transaction detail) might not get uploaded.

2.1.2.6 To print bills directly

Goal: to print bills directly.

Actor: Retailer

Pre condition: Retailer should be logged in.

Post condition: Retailer will be able to get the bills printed directly.

Success scenario:

a. Retailer will get a table where he will have to enter the transaction details.
b. Then click on 'print'.
c. Transaction details will get printed and the data will be stored into a cloud.

Exception scenario:

a. In case of poor internet connectivity, there might be problems in printing bills and updating data.

2.2 Non-Functional Requirements

2.2.1 Reliability: The system needs good internet connection for the functioning.

2.2.2 Portability: Portable on any windows and Linux platforms. Measure of portability is up to 95%.

2.2.3 Availability: Once the user downloads the software he can use it anytime.

2.2.4 Supportability: The application is mainly html based, so it is supported by all browsers on all systems and the application will be available only on android smart-phones.

2.2.5 Security: only the authorized persons can access the data using their log in credentials hence high security is given

2.3 External Interface Requirements

2.3.1 User Interfaces

- The system shall provide a uniform look and feel between all the web pages.
- The system shall provide use of icons and toolbars.
- The system shall provide easy mechanism for printing bills directly.

2.3.2 Hardware Interfaces (PC Specification)

- Customer relation management application requires an android platform. Hardware devices like mobile or pc with an android platform can run this application. It needs internet access which uses TCP agent and FTP traffic source.

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2.3.3 Software Requirements

- The Operating system must be windows or linux for the computers and android for the smart-phone.
- The system must have a browser that supports JSP, HTML and CSS, JavaScript.
- Google app engine is used for the storage (cloud).
- Eclipse kepler IDE is used for coding and deployment.
- Android SDK to create and deploy Android Applications.

2.3.4 Communications Interfaces

The proposed system requires web-browser as communication function. Communication standard such as HTTP and cloud are mandatory requirements.

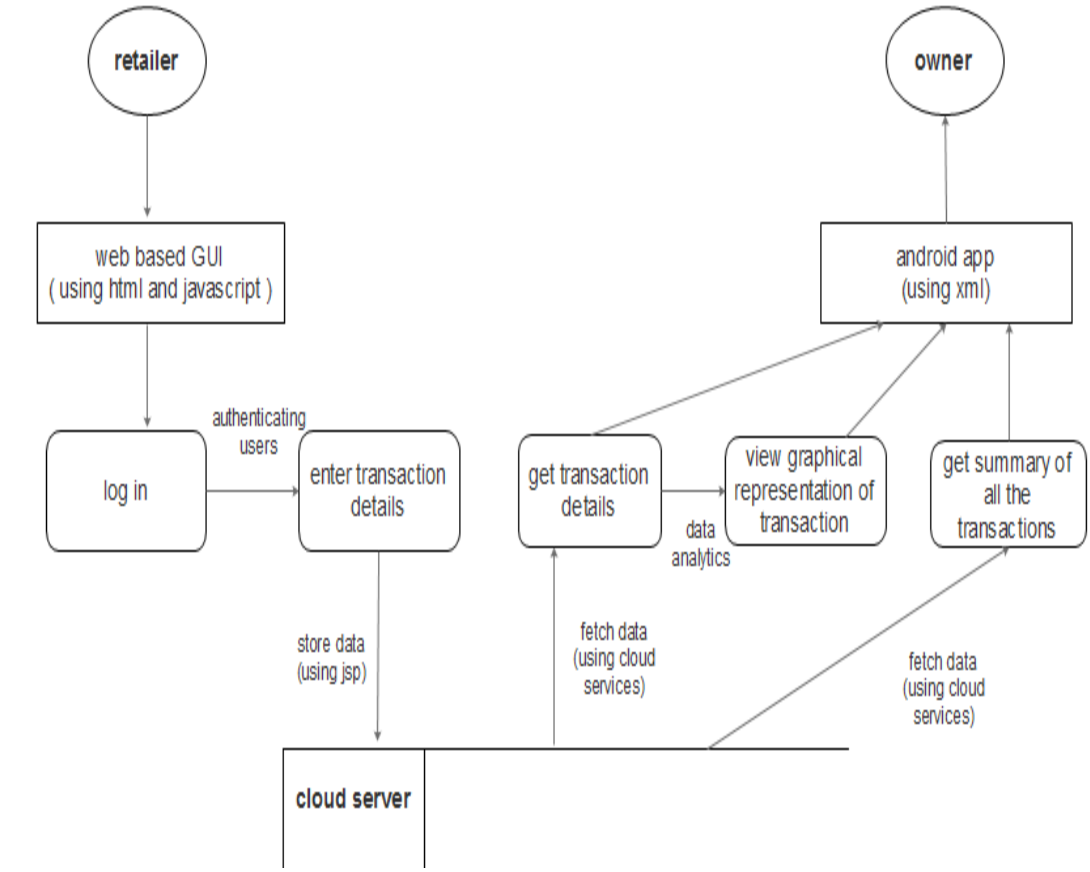
2.4 Acceptance Test Plan

Test ID	Requirement ID	Input Description	Expected output	Actual Output
2.4.1	2.1.1.1	To add or delete branch account.	Branch created or deleted.	Branch created or deleted.
2.4.2	2.1.1.2	To get all the branch transaction details.	Display branch transactions	Display branch transactions
2.4.3	2.1.1.3	To get summary of all the details.	Display summary of all the branches	Display summary of all the branches
2.4.4	2.1.1.4	To log-in into webpage with assigned credentials.	Successful log in	Successful log in
2.4.5	2.1.1.5	To enter transaction details on webpage.	Valid transaction details entered.	Valid transaction details entered.
2.4.6	2.1.1.6	To print bills directly.	Invoice gets printed	Invoice gets printed

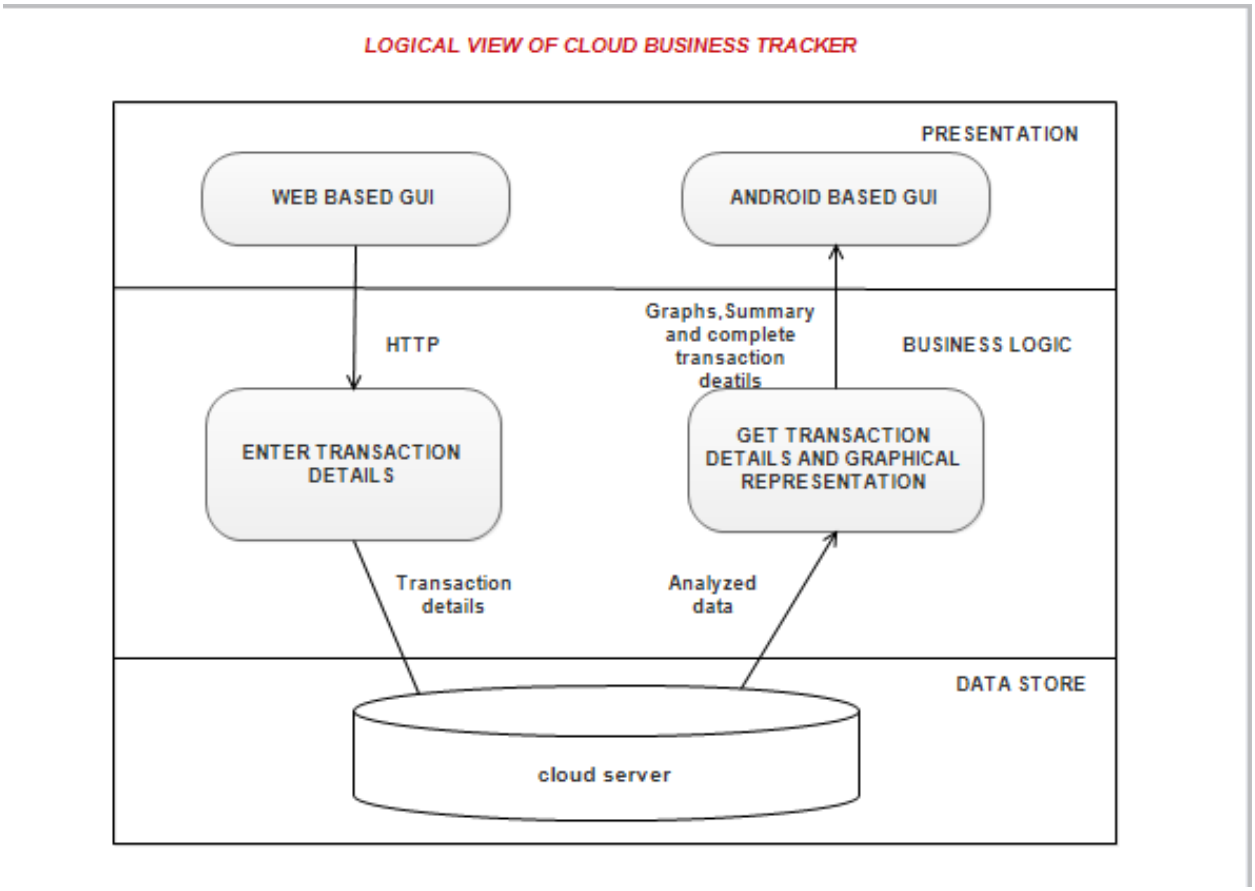
3. Software Design

3.1 High level Design

3.2 3.1.1 Architectural Design



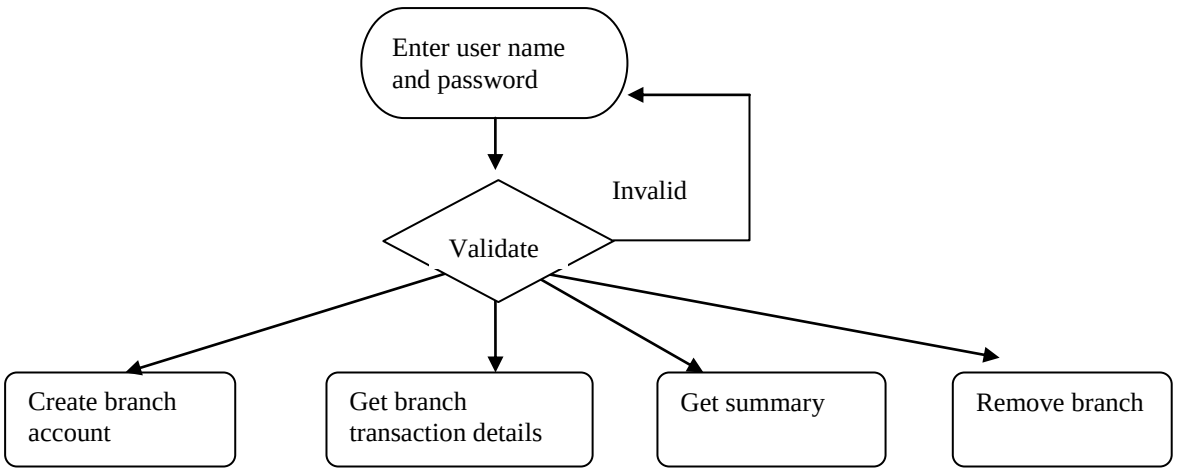
3.1.2 Logical View



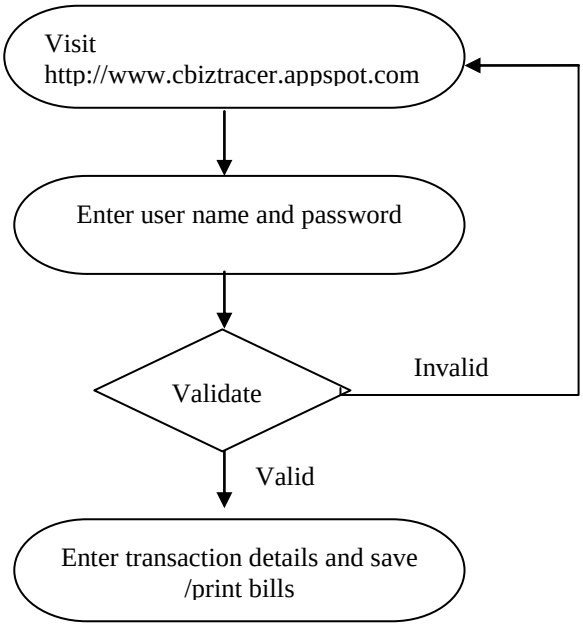
3.2 Detailed Design

3.2.1 Data flow diagram

Owner side android application:

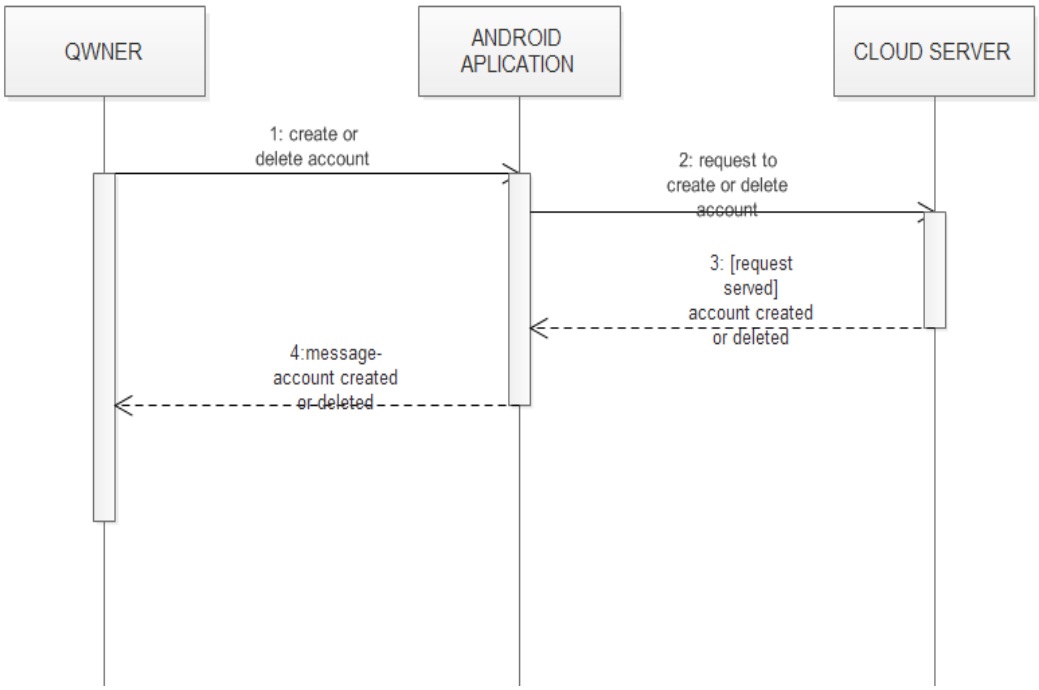


Retailer side web page:

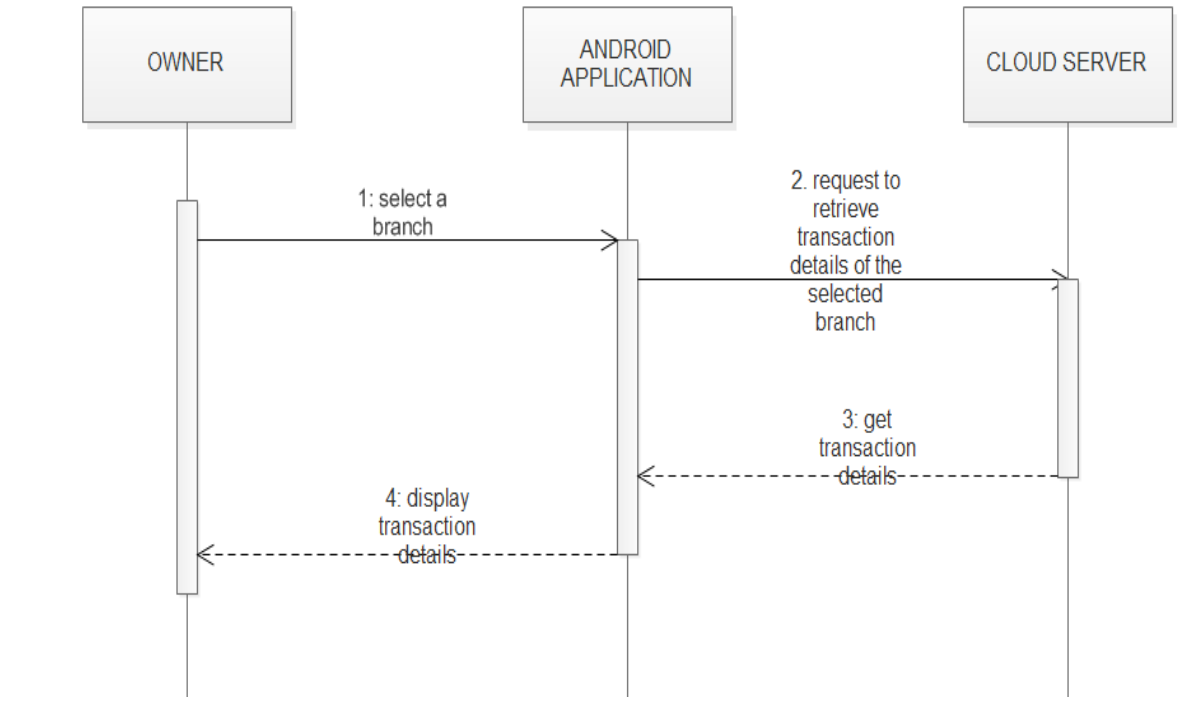


3.2.2 Sequence Diagram

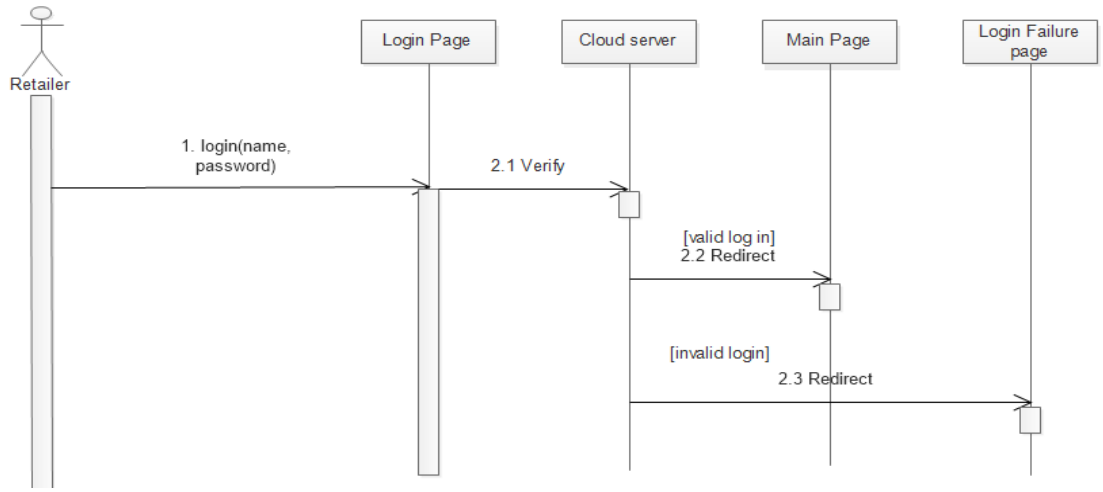
OWNER SHALL BE ABLE TO CREATE OR DELETE BRANCH ACCOUNT



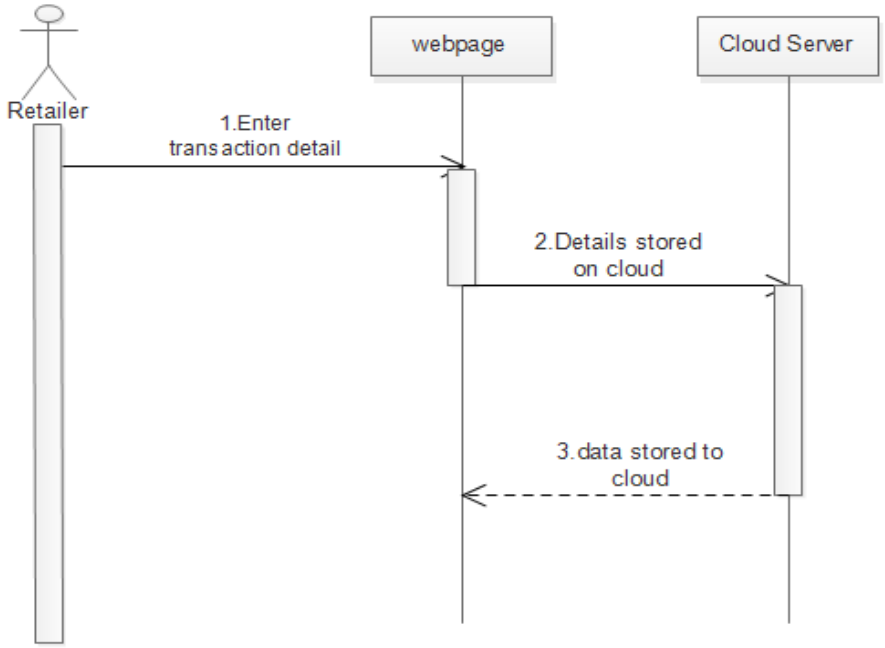
OWNER SHALL BE ABLE TO GET TRANSACTION DETAILS FROM DIFFERENT BRANCHES



Retailer shall be able to log in with the assigned credentials

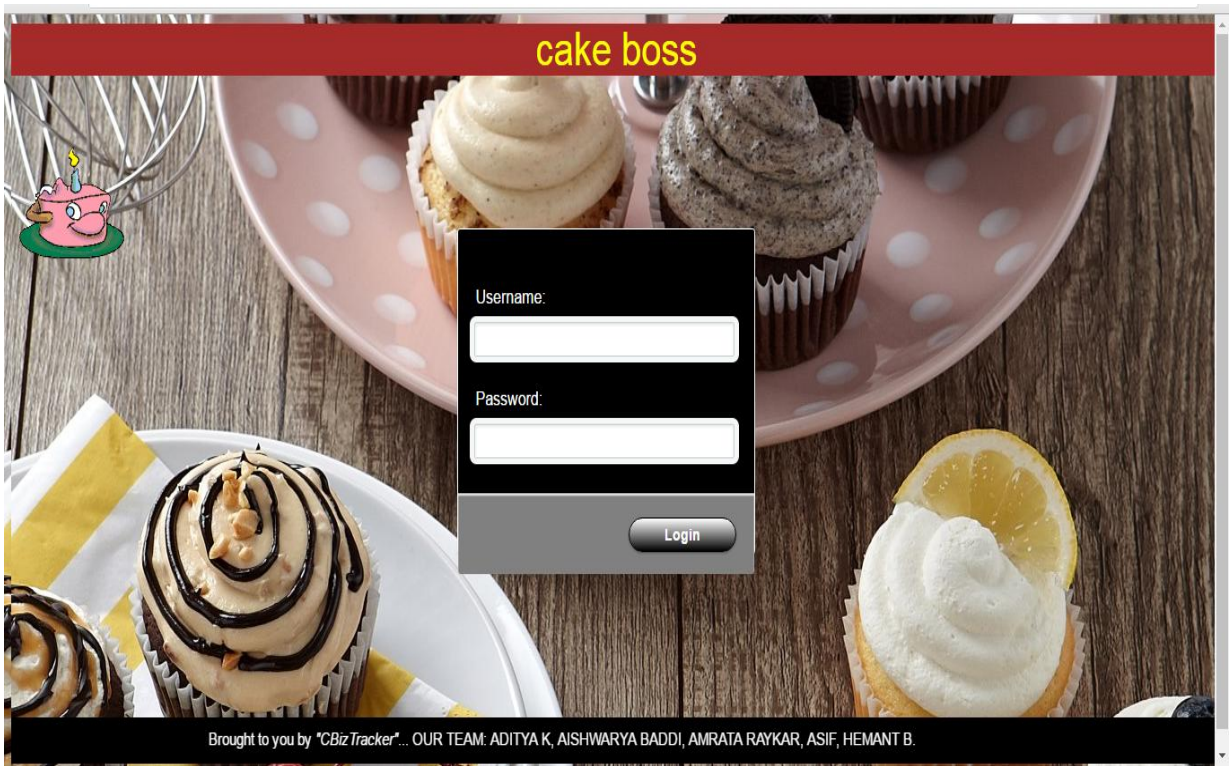


Retailer shall be able to enter the transaction details on web page



3.3 User Interface Design

3.3.1 User interface overview

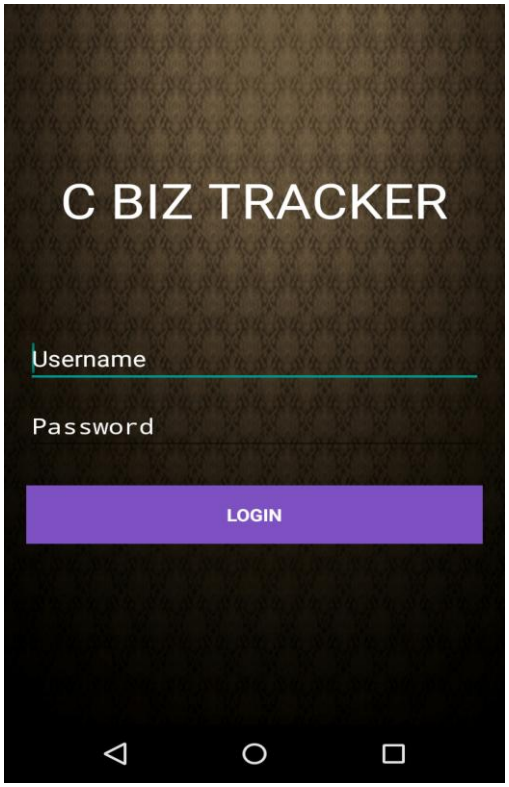


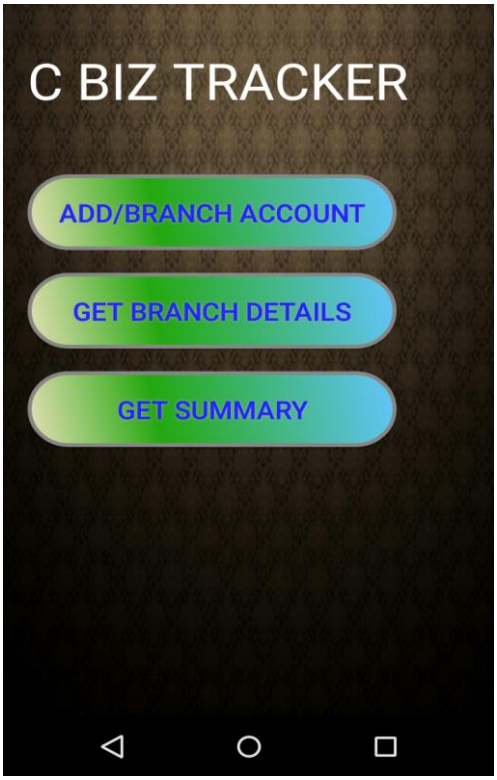
CAKE BOSS

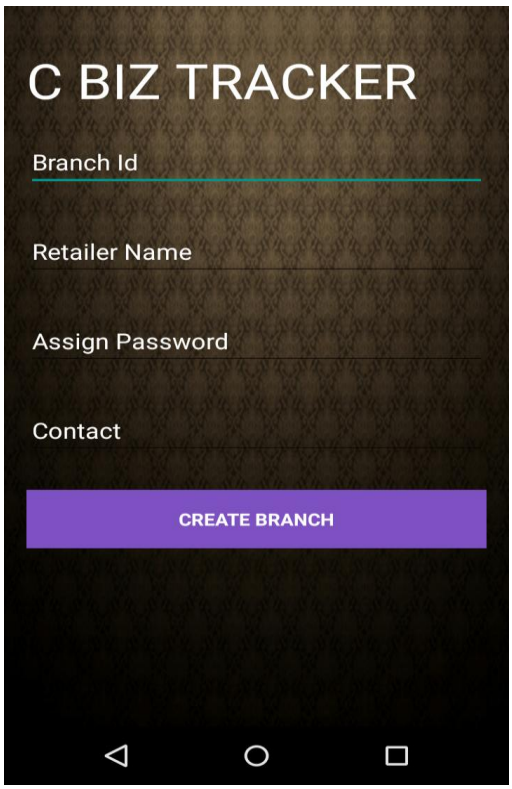
CUSTOMER YUVRAJ
DATE 2016-04-28

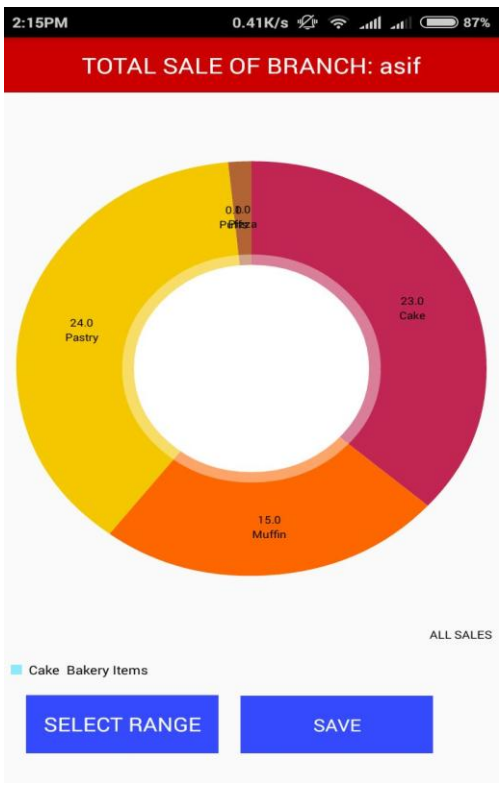
INVOICE NO. 58
Vidyanagar
580031 Hubli.
TIN NO.1234567890
cakeboss@cbiztracker.com

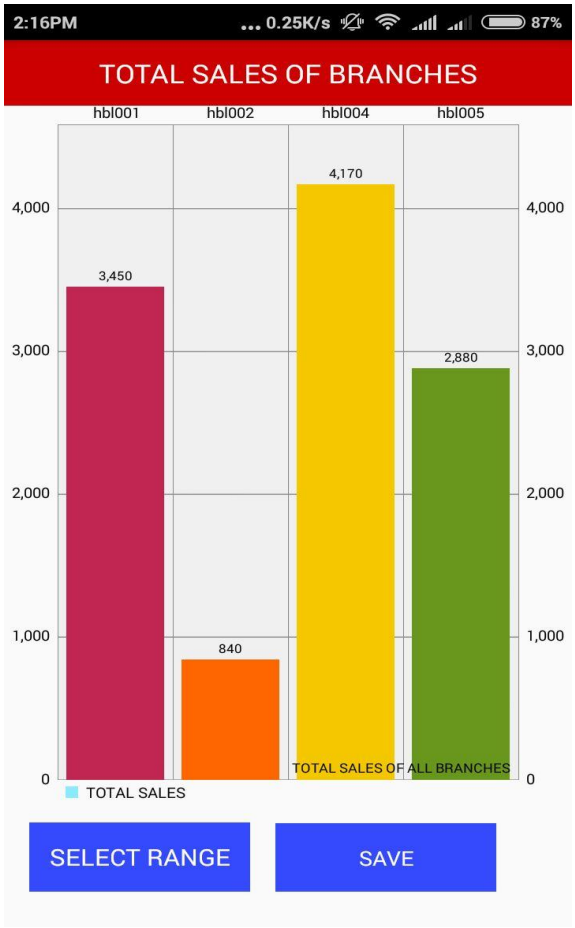
ITEM ID	DESCRIPTION	PRICE	QTY	TOTAL
01	CAKE	₹ 150.00	4	₹ 600.00
02	MUFFIN	₹ 40.00	4	₹ 70.00
03	PASTRY	₹ 35.00	2	₹ 200.00
04	PUFFS	₹ 25.00	1	₹ 25.00
05	PIZZA	₹ 30.00	7	₹ 210.00
		GRAND TOTAL		₹ 1105.00


C BIZ TRACKER
Username
Password
LOGIN


C BIZ TRACKER
ADD/BRANCH ACCOUNT
GET BRANCH DETAILS
GET SUMMARY

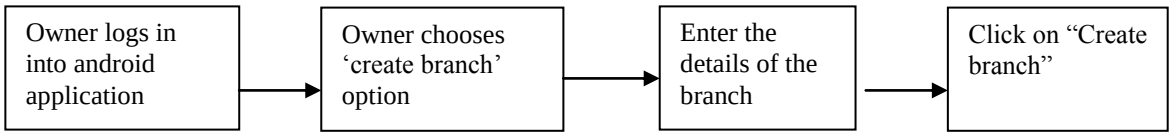

C BIZ TRACKER
Branch Id
Retailer Name
Assign Password
Contact
CREATE BRANCH


2:15PM
0.41K/s
87%
TOTAL SALE OF BRANCH: asif
23.0
Cake
24.0
Pastry
15.0
Muffin
ALL SALES
Cake Bakery Items
SELECT RANGE
SAVE

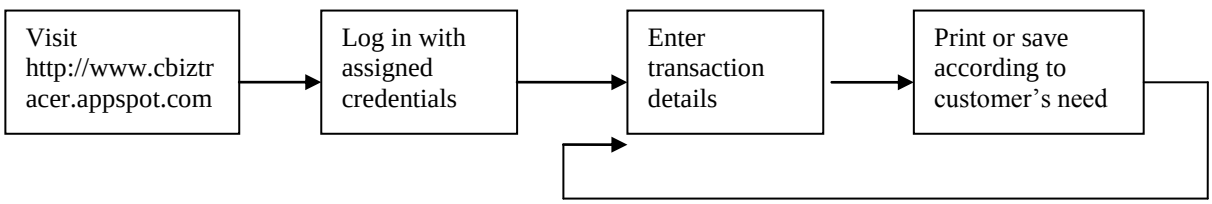


3.3.2 User interface navigation hierarchy

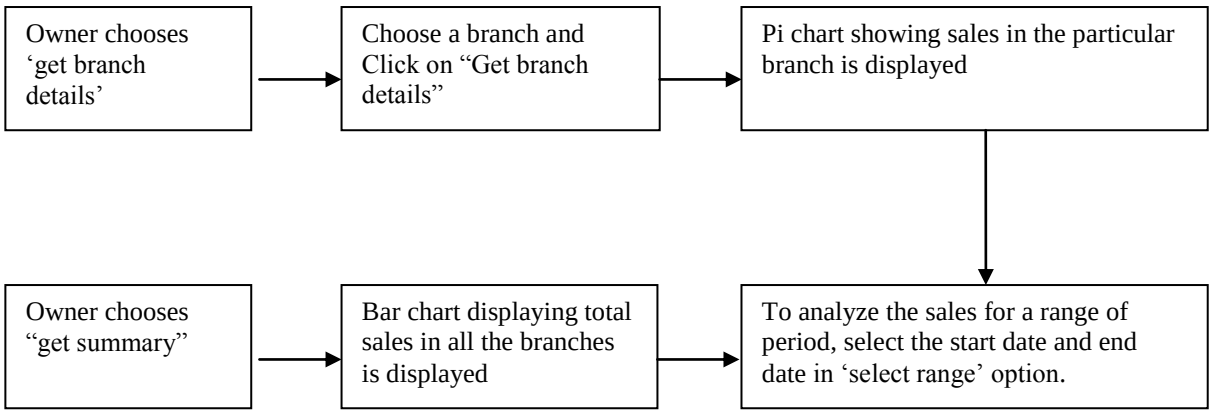
Initially for owner to create branch account:



Once the branch is created, retailer can log in using assigned user name and password:

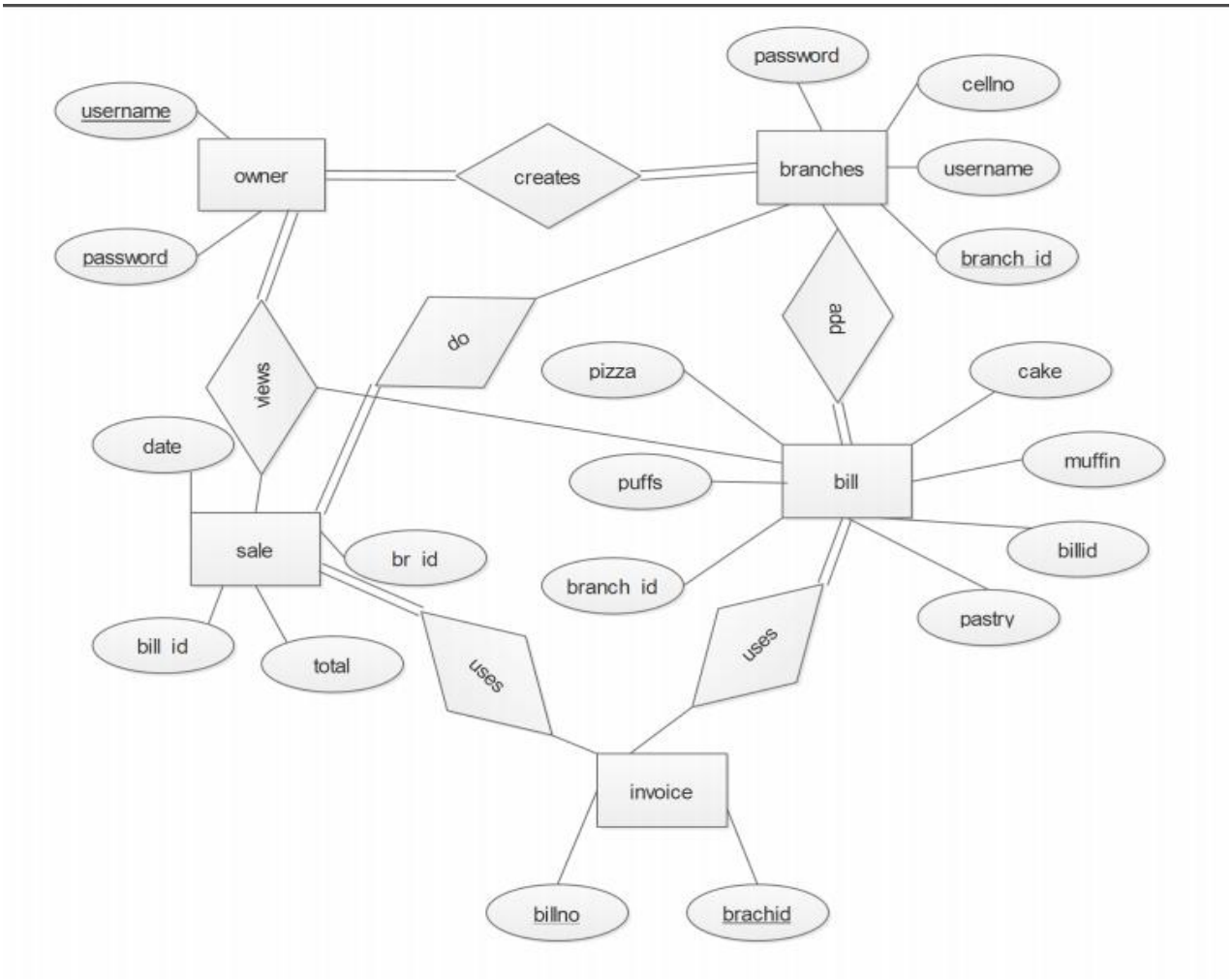


Owner can view the status of any of his branches:

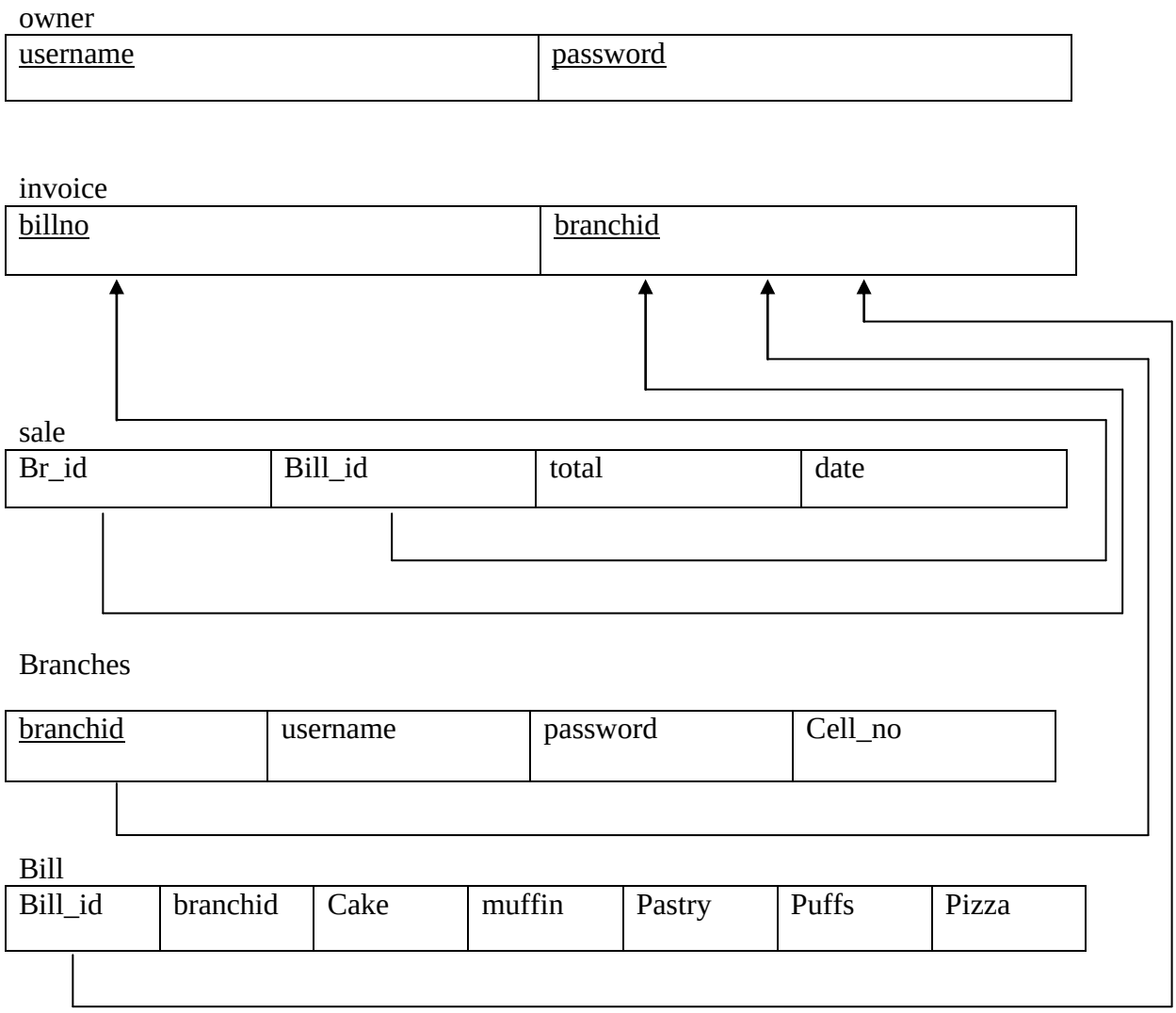


3.4 Data base Design

3.4.1 ER Diagram



3.4.2 Mapping of ER to Relational model



3.4.3 Normalization of the Database

The given relation (3.4.2) is normalized to 3NF normalized form.

4. Implementation

4.1 Module description:

4.1.1 Owner shall be able to add branch account.

Input: owner enters the username and password through his android application and selects add branch.

Output: A new branch is added.

Description: When the owner selects add branch account, he has to enter the details of the branch to be added. And click Create branch. A new branch is added.

4.1.2 Owner shall be able to get all the branch transaction details.

Input: Owner should select view transaction details

Output: A pie chart representing the total sales product wise is represented.

Description: The pie chart represents the overall sales of each product. The owner has an option to view the sales for a particular period by choosing the start and end date.

4.1.3 Owner shall be able to get summary of all the details.

Input: Owner should select get summary.

Output: A bar chart representing the sales of all branches is represented.

Description: The bar graph represents the overall sales at different branches. The owner has an option to view the sales for a particular period by choosing the start and end date.

4.1.4 Retailer shall be able to log in with the assigned credentials.

Input: The retailer uses the credentials assigned to him by the owner.

Output: If the username and password is valid the retailer gets the billing page where he can enter the transaction details.

Description: Each retailer is assigned the login credentials by the owner to avoid illegal access to the billing page.

4.1.5 Retailer shall be able to enter the transaction details on web page.

Input: The retailer uses the credentials assigned to him by the owner and enters the transaction details to the billing page.

Output: Billing page where the required values are successfully entered. .

Description: The retailer enters details like the customer name, items purchased, quantity etc that are stored to the database and can be accessed by owner

4.1.6 Retailer shall be able to print the bills directly.

Input: Retailer enters the transaction details and clicks on save and print

Output: The bill is printed.

Description: When save and print is clicked the transactions are stored to the database and the bill is printed.

5. Testing

5.1 Acceptance Test plan

To add or delete branch accounts

Test ID	Requirement ID	Input description	Expected output	Actual Output
1	2.1.1.1. Create branch accounts (+ve test case)	Enter details of new branch. Click on add account.	Account successfully created..	Account successfully created..
	(-ve test case)	Enter details of a branch with an old branchID. Click on add account.	Account already exist..	Account already exist..
	Delete account (+ve test case)	Select a particular branch. Click on delete button	Account deleted successfully.	Account deleted successfully.

To get transaction details of all the branches

Test ID	**Requirement ID**	**Input description**	**Expected output**	**Actual Output**
2	2.1.1.2. (+ve test case)	Owner can choose a particular branch and can choose option: View Transactions.	Details of Transactions of selected branch are displayed.	Details of Transactions of selected branch are displayed

To get summary of all the details

Test ID	**Requirement ID**	**Input description**	**Expected output**	**Actual Output**
3	2.1.1.3. (+ve test case)	Owner has to click on 'get summary'	A bar chart is displayed showing the transaction summary of all the branches.	A bar chart is displayed showing the transaction summary of all the branches.

To log-in with assigned credentials

Test ID	Requirement ID	Input description	Expected output	Actual Output
4	2.1.1.4 (+ve test case)	Retailer logs in to the webpage with assigned user name and password.	Message- 'successfully logged in' is popped up. Billing page is displayed.	Message- 'successfully logged in' is popped up. Billing page is displayed.
	(-ve test case)	Retailer enters wrong user name or password	Message- 'Invalid password or user name' is popped up.	Message- 'Invalid password or user name' is popped up.

To enter transaction details on webpage.

Test ID	Requirement ID	Input description	Expected output	Actual Output
5	2.1.1.5 (+ve test case)	Retailer enters valid price and quantity in the bill page.	The values are successfully entered.	The values are successfully entered.
	(-ve test case)	Retailer enters invalid price or quantity.	Message- 'please enter valid price or quantity' is popped up.	Message- 'please enter valid price or quantity' is popped up.

To print bills directly.

Test ID	Requirement ID	Input description	Expected output	Actual Output
6	2.1.1.6. (+ve test case)	Retailer clicks on 'print and save' after entering the required details in the bill page.	Confirmation page for printing the bill will appear. On confirming, bill will be printed.	Confirmation page for printing the bill will appear. On confirming, bill will be printed.

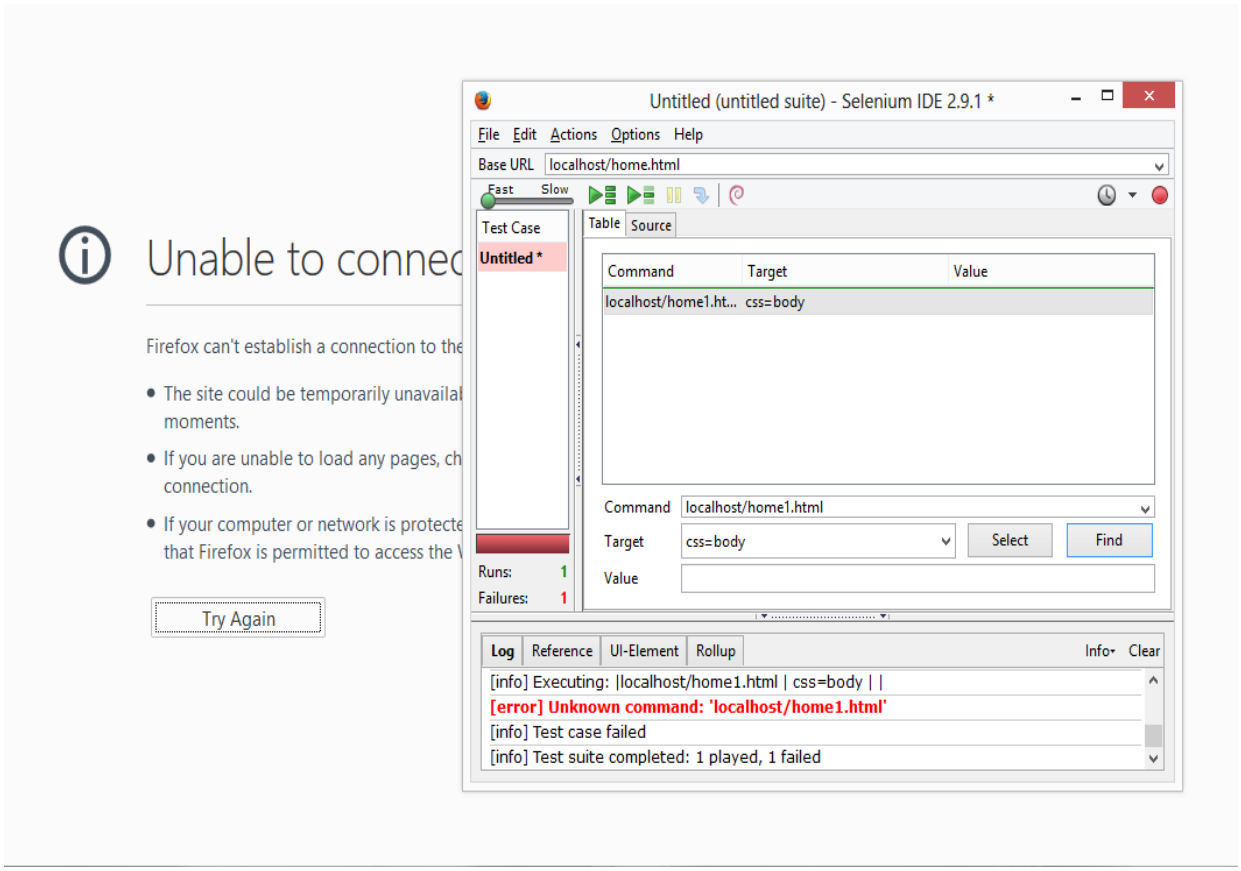
5.3 Performance testing

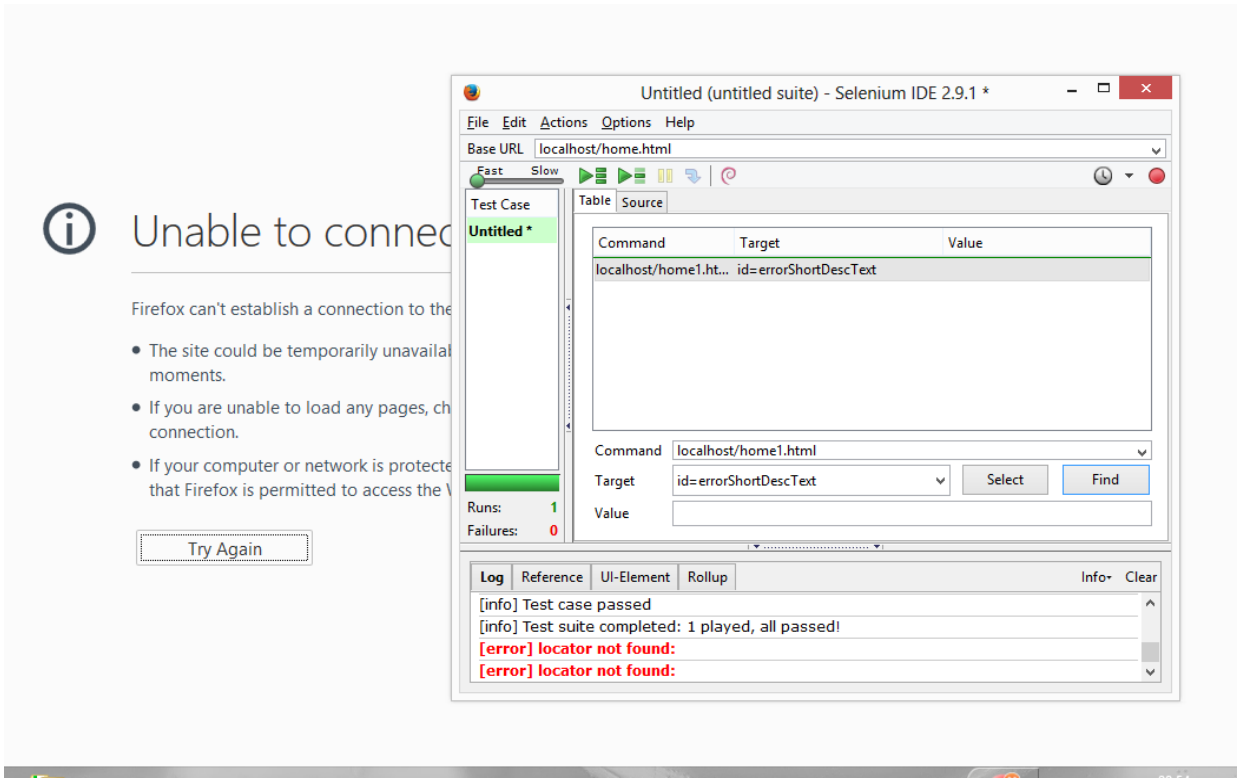
Using Selenium:

Selenium is portable software testing framework for web applications. Selenium provides a record/playback tool for authoring testing without learning a test scripting language. It provides a test domain-specific language, including java, C#, Perl, PHP, Python and Ruby. The tests can be then run against most modern web browsers.

Screenshots of testing:

(unsuccessful and successful case)

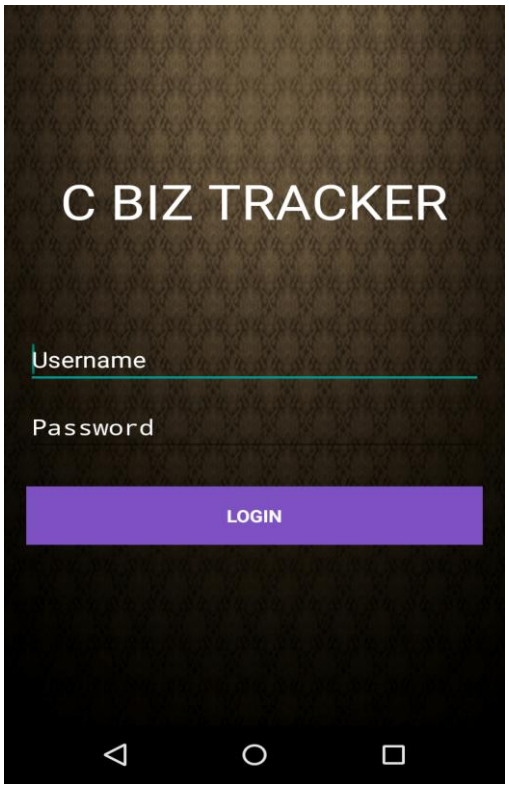

Unable to connec
Firefox can't establish a connection to the
The site could be temporarily unavailal
moments.
If you are unable to load any pages, ch
connection.
If your computer or network is protecte
that Firefox is permitted to access the
Try Again
Untitled (untitled suite) - Selenium IDE 2.9.1 *
File Edit Actions Options Help
Base URL localhost/home.html
Fast Slow
Test Case
Untitled *
Table Source
Command Target Value
localhost/home1.ht... css=body
Command localhost/home1.html
Target css=body
Select
Find
Value
Runs: 1
Failures: 1
Log Reference UI-Element Rollup
Info Clear
[info] Executing: |localhost/home1.html | css=body | |
[error] Unknown command: 'localhost/home1.html'
[info] Test case failed
[info] Test suite completed: 1 played, 1 failed


Unable to connec
Firefox can't establish a connection to the
The site could be temporarily unavailal
moments.
If you are unable to load any pages, ch
connection.
If your computer or network is protecte
that Firefox is permitted to access the
Try Again
Untitled (untitled suite) - Selenium IDE 2.9.1 *
File Edit Actions Options Help
Base URL localhost/home.html
Fast Slow
Test Case
Untitled *
Table Source
Command Target Value
localhost/home1.ht... id=errorShortDescText
Command localhost/home1.html
Target id=errorShortDescText
Select
Find
Value
Runs: 1
Failures: 0
Log Reference UI-Element Rollup
Info Clear
[info] Test case passed
[info] Test suite completed: 1 played, all passed!
[error] locator not found:
[error] locator not found:

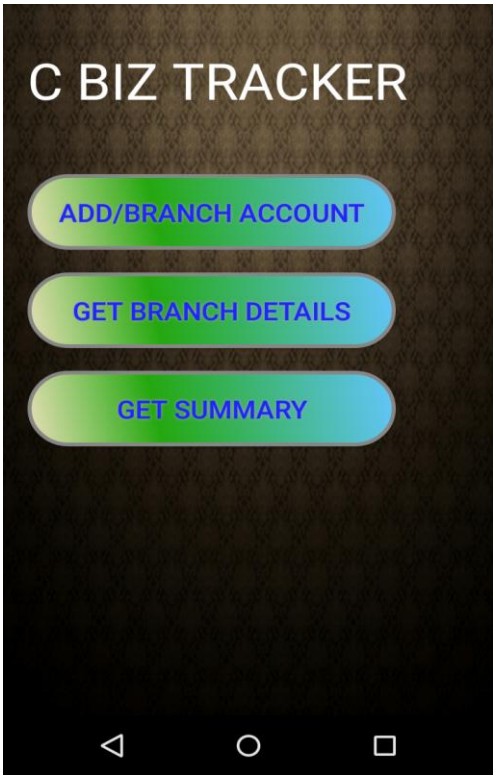
6. Results

6.1 Snapshots of results

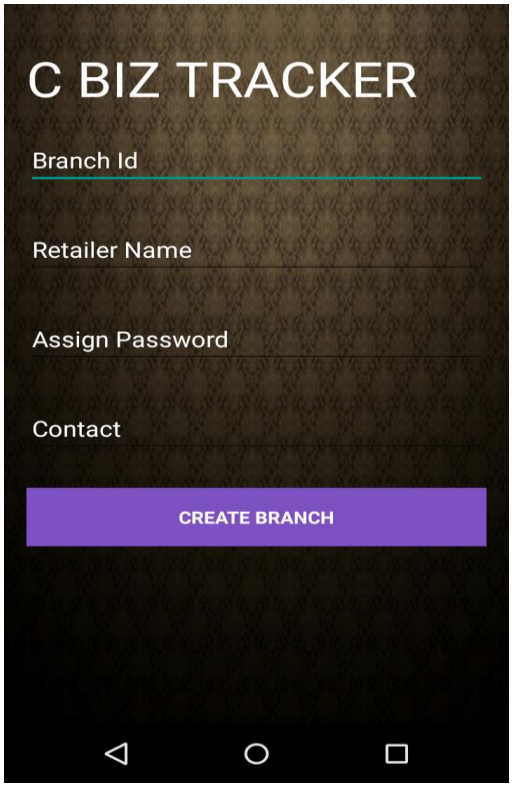
Owner side android application:



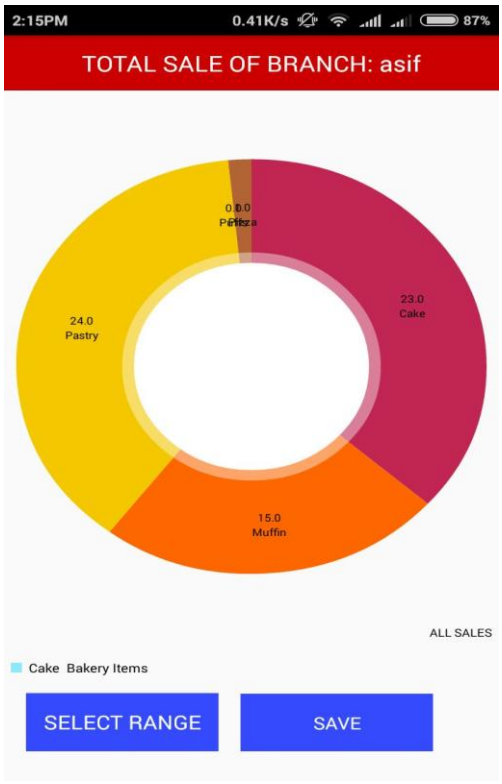
Log in for owner



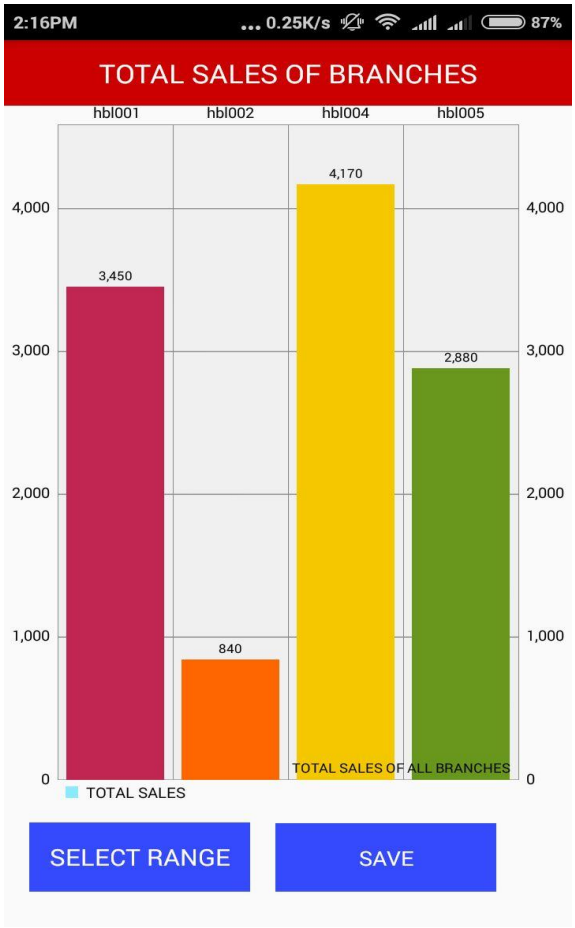
Menu page



For owner to create new branch

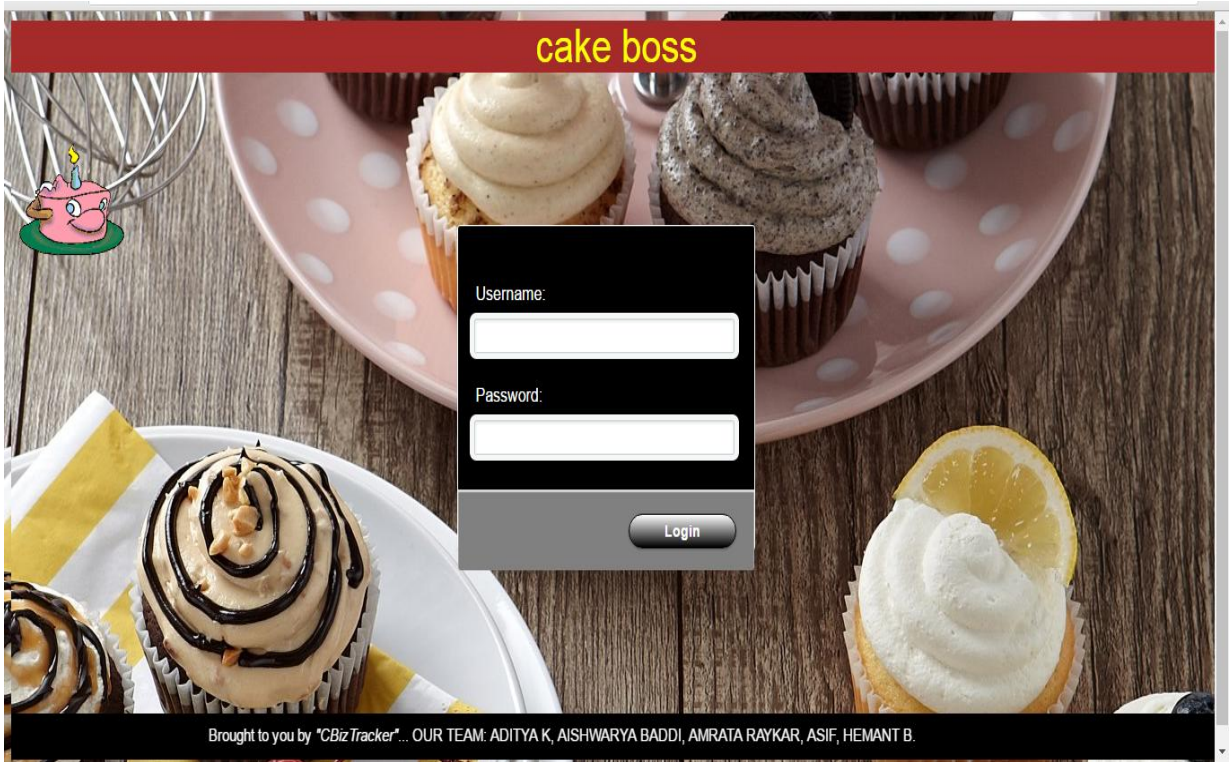


Pi chart to display sales in a branch



Bar chart to display summary of sales in all the branches

Retailer side web page:



Log in page for retailer

CAKE BOSS

CUSTOMER YUVRAJ
DATE 2016-04-28

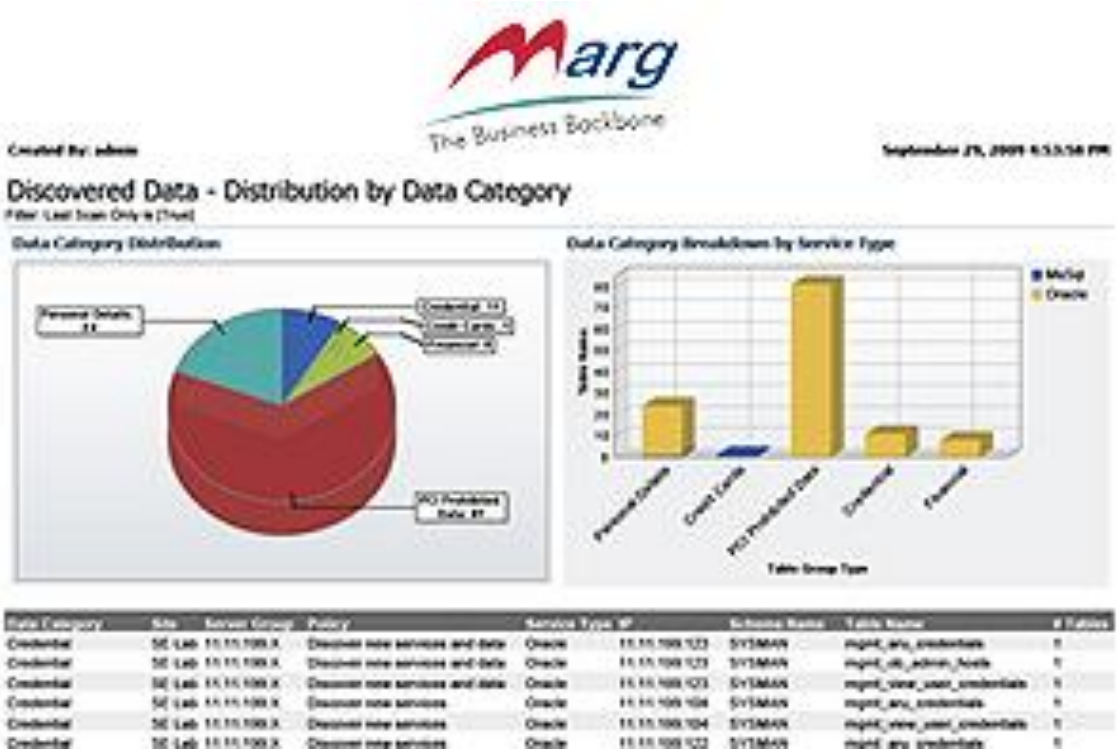
INVOICE NO. 58
Vidyanagar
580031 Hubli.
TIN NO.1234567890
cakeboss@cbiztracker.com

ITEM ID	DESCRIPTION	PRICE	QTY	TOTAL
01	CAKE	₹ 150.00	4	₹ 600.00
02	MUFFIN	₹ 40.00	4	₹ 70.00
03	PASTRY	₹ 35.00	2	₹ 200.00
04	PUFFS	₹ 25.00	1	₹ 25.00
05	PIZZA	₹ 30.00	7	₹ 210.00
			GRAND TOTAL	₹ 1105.00

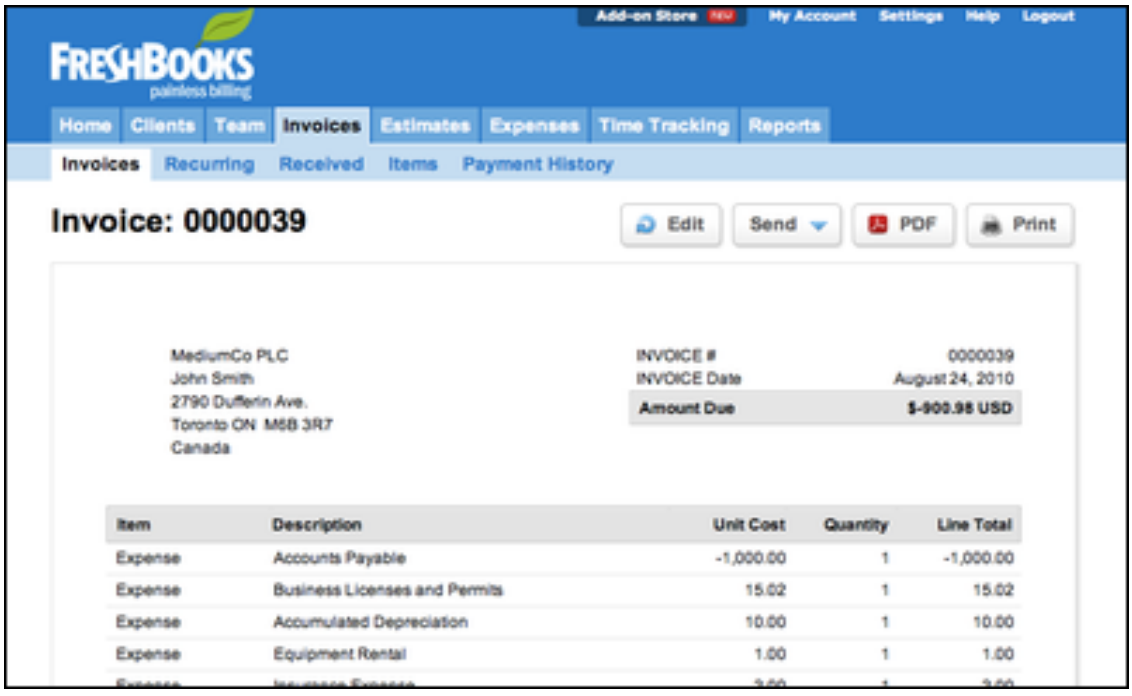
Bill page for printing

6.2 Comparison of proposed system results with existing system results

MARG Department Store:



Freshbooks:



7. Conclusion and future scope

The proposed system consists of a Webpage (for retailer) and an Android App(for Owner). Webpage was built using HTML5 and CSS3, JavaScript, JSP and was launched via Google cloud engine. SQL Google cloud platform was used for cloud storage. Android app was developed using Eclipse-Kepler IDE with Android Development plug-ins.

Proposed system facilitates the Owner in maintaining transaction details of all the branches of his/her organization. It shall also play a pivotal role in tracking business and overall sales/ growth of the organization. As our project provides statistics and analysis of transactions of the organization, it will be crucial in assisting Owner to take important decisions related to business. The decisions like to close a branch because of low sales, strategies to improve sales of a particular branch etc. The system shall also reduce the task of retailer to update sales/transactions to the owner, as the details are updated onto cloud storage.

The proposed system can be implemented by organizations having multiple branches in a tier-city. Since, our system provides an android app, it will be a useful tool for Owner as he can keep a track of his business at any place and at any point of time.

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https://www.freshbooks.com/

Appendix

A. Glossary

CRM - Customer Relationship Management

JSP - java server pages

CSS3 - cascaded style sheet

B. Tools description

Eclipse Kepler IDE:

Eclipse is an integrated development environment (IDE) used in computer programming. It contains a base workspace and an extensible plug-in system for customizing the environment. The Eclipse software development kit(SDK), which includes the Java development tools, is meant for Java developers. Users can extend its abilities by installing plug-ins written for the Eclipse Platform, such as development toolkits for other programming languages, and can write and contribute their own plug-in modules.

Kepler is a version of Eclipse released on 26th june 2013 for kepler projects.

Google app engine:

Google App Engine is a platform as a service cloud computing platform for developing and hosting web applications in Google-managed data centers. Applications are sandboxed and run across multiple servers. App Engine offers automatic scaling for web applications—as the number of requests increases for an application, App Engine automatically allocates more resources for the web application to handle the additional demand.

C. Certificate of paper presentation.