



Online Financial Accounting Management System

Submitted By

A.H.M Mosiur Rahman

ID: 143-35-784

This project report has been submitted in fulfillment of the requirements
for the Degree
of Bachelor of Science in Software Engineering.

Department of Software Engineering
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Acknowledgment

All the praise to Almighty God for bestowing us with the courage, knowledge, health, and wisdom to carry out this project. We are greatly indebted to our parents, without their endless financial & moral support, patience and prayers this effort will be impossible.

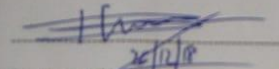
We would like to take this opportunity to express our gratitude to the following professionals of whom contributed to this project.

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APPROVAL

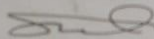
This Project/Thesis titled "Online Financial Accounting Management System", submitted by A.H.M Mosiur Rahman, 143-35-784 to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc in Software Engineering and approved as to its style and contents.

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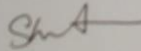
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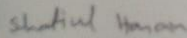
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Assistant Professor
Department of Software Engineering
Faculty of Science and Information Technology
Daffodil International University

Internal Examiner 1



Md. Shohel Arman
Lecturer
Department of Software Engineering
Faculty of Science and Information Technology
Daffodil International University

Internal Examiner 2



Mr. Shafiqul Hasan
Managing Director
Vivacom Solution, Dhaka

External Examiner

DECLARATION

It hereby declare that this thesis has been done by me under the supervision of **Mr. Md. Mushfiqur Rahman, Lecturer, Department of Software Engineering, Daffodil International University**. It is also declare that neither this thesis nor any part of this has been submitted elsewhere for award of any degree.

Mosieur Rahman

A.H.M Mosiur Rahman

Student id: 143-35-784

Batch: 15th

Department of Software Engineering

Faculty of Science & Information Technology

Daffodil International University

Certified by:



Mr. Md. Mushfiqur Raman

Lecturer

Department of Software Engineering

Faculty of Science & Information Technology

Daffodil International University

Dedication

We dedicated this project to all of those humble beings who have aided us in any way to become what we are today. Whose sacrifices seeded our success; especially our parents & family members who have felt our pain beyond us and showered us with never-ending prayers and support. We love them and deem them as a divine source of inspirations.

Abstract

The accounting system is very popular nowadays. In every government or private sector, there must be some financial transaction between company to company or company to the client. An accounting system is a collection of interrelated processes designed to accumulate, organize, and report on an organization's transactions.

Most important part is to keep this data in an efficient way and track those transactions. The traditional way is, the accountant of a company keep these transactions in accounting notebook then calculate the whole transaction after a certain period. To err is human. Sometimes there may have some mistake. But when we will design an accounting system if our logic is correct system will absolutely show the correct calculation.

In a traditional way, creating a report is so much hard and also time killer for a company. But in an accounting system, It is a matter of one click only sometimes. That is why the accounting system is going to be more popular day by day. In this accounting system, an owner can create a company and can add manager and accountant for his company. an accountant can add journal transaction also Chart Of Account. The manager can see all the transaction. and track all accounting activities .an owner admin can have all the power to see all these activities and have the ability to update and delete anything even can delete a member of his/her company. Admin has full control of this company. Accountant of this company sees Chart of Account, create chart of account, delete chart of account,can sees individual Journal report, Trial balance and general ledger. I have a big future plan for it To make a complete accounting system with so many features and generated report is my ultimate goal.

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Chapter 1

Introduction

An accounting system is a collection of interrelated processes designed to accumulate, organize, and report on an organization's transactions. The ultimate goal of an accounting system is to generate reports based on this information to support management decision making.

1.1 Project Overview

Accounting system provides the functionality of adding transaction for a company in a certain financial year. It will generate some report called trial balance, journal report and ledger report. Depending on this report the authority of the company can make their valuable decision. Ultimately it helps them in decision making.

1.2 Background

In Bangladesh, many companies use accounting system on their own. It is very costly. That's why I thought to make a product which will be easily accessed by any company.

1.3 Benefits

- Projects user will get so many benefits, some of those are:
- Get an efficient transaction process
- Get various report based on the transaction.

- Can make the various crucial decision based on reports.
- Reduce cost for the extra employee.
- Get Trial Balance report.
- Get general ledger report.

1.4 Stakeholder

There are 3 types of stakeholder. They are:

- Owner/Admin
- Manager
- Accountant

Chapter 2

Software Requirement Specification

A software requirement specification(SRS) is a comprehensive description of the intended purpose and environment for software under development. The SRS fully describes what the software will do and how it will be expected to perform.

2.1 Functional Requirement

Req ID	Description	Priority
FR1	The company owner can register as an Admin.	H
FR2	An Admin can create a company.	H
FR3	Admin can create Manager & Accountant for his/her company.	H
FR4	A manager can create a financial year for the company.	M
FR5	The manager can create an opening balance for the company.	M
FR6	An accountant can entry journal.	H
FR7	The accountant can create, update, show and delete	H

	Chart of Account.	
FR8	A manager can create a new project.	L
FR9	A manager can create and show bank Information.	L
FR10	The accountant can create bank Account.	M
FR11	Manager & Accountant can see journal report.	H
FR12	A manager can see Ledger & Trial Balance.	H
FR13	Admin can see all of these.	H

Table 2.1 Functional Requirement

2.2 Performance requirements

Req ID	Description	Priority
PR1	The application should load the necessary data within 3 sec.	M
PR2	The application should load view pages as fast as possible.	M
PR3	The application must store accurate information.	H

Table 2.2 Performance Requirement

2.3 Security Requirements

Req ID	Description	Priority
SR1	The user of this application must be authenticated.	H
SR2	Request are handling via authorizing the user.	H
SR3	Users password must be encrypted.	H

Table 2.3 Security Requirement

2.4 Look and Feel Requirements

Req ID	Description	Priority
LFR1	The user interface must be user-friendly.	M
LFR2	The user interface must be interactive.	H

Table 2.4 Look & Feel Requirement

Chapter 3

System Analysis

System analysis is the process of observing system for troubleshooting and development purpose. It is basically required in the computer-based system where a system requires defined analysis to their makeup & design.

3.1 Use Case Diagram

The purpose of a use case diagram in UML is to demonstrate the different ways that a user might interact with a system. A use-case diagram can summarize the details of a project's users (known as actors) and their interaction with the system.

There is 3 Actor of this Accounting system.

- Admin/Company Owner
- Manager
- Accountant

Admin: In this project admin is basically the owner of a company. He can register in the system. And every registered user will be by default admin in the system. But admin has to create a company first. After creating a company admin can add an employee to his company. There are 2 types of employee one is the accountant and another one is the manager. Admin can add employee and set role to the employee. An employee doesn't need to register. He can easily access to the company by login after created by admin. An admin can update credential of an employee and also can remove any employee. All Of

the features of a company will be accessed by admin. Admin can see all the transaction report like trial balance and general ledger. These reports are accessed by admin.

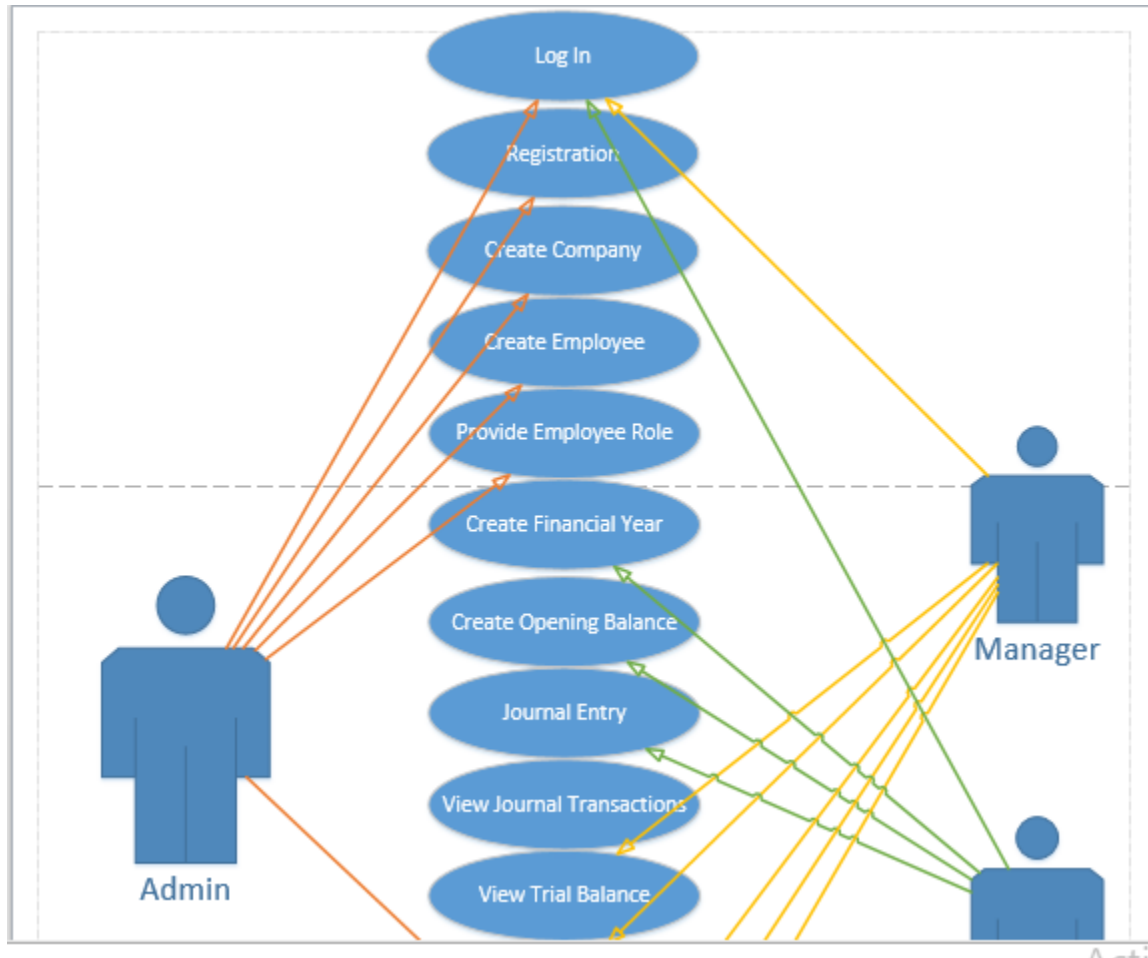


Figure 3.1.1 Use Case Diagram(Part 1)

Manager: A manager of a company always maintain managerial things and maintain & audit Accountants tasks. He can check accountant’s journal entry and verify all entry. He/she will approve accountants journal entry. Without his/her approval journal will not be published.

The manager can add Bank information. The manager can also create a project for the company. The manager will be able to see all the reports like Trial Balance, journal report, general ledger etc.

Accountant: Accountant is a very important employee of every company. He/She will do all the transaction related task. In our system, the accountant will create a journal transaction. and send it to the manager for approval. The accountant can create bank account information for the company. He/She will add the Financial year and opening balance at the beginning of a year. The accountant can create Chart Of Account for the company to run the efficient transaction.

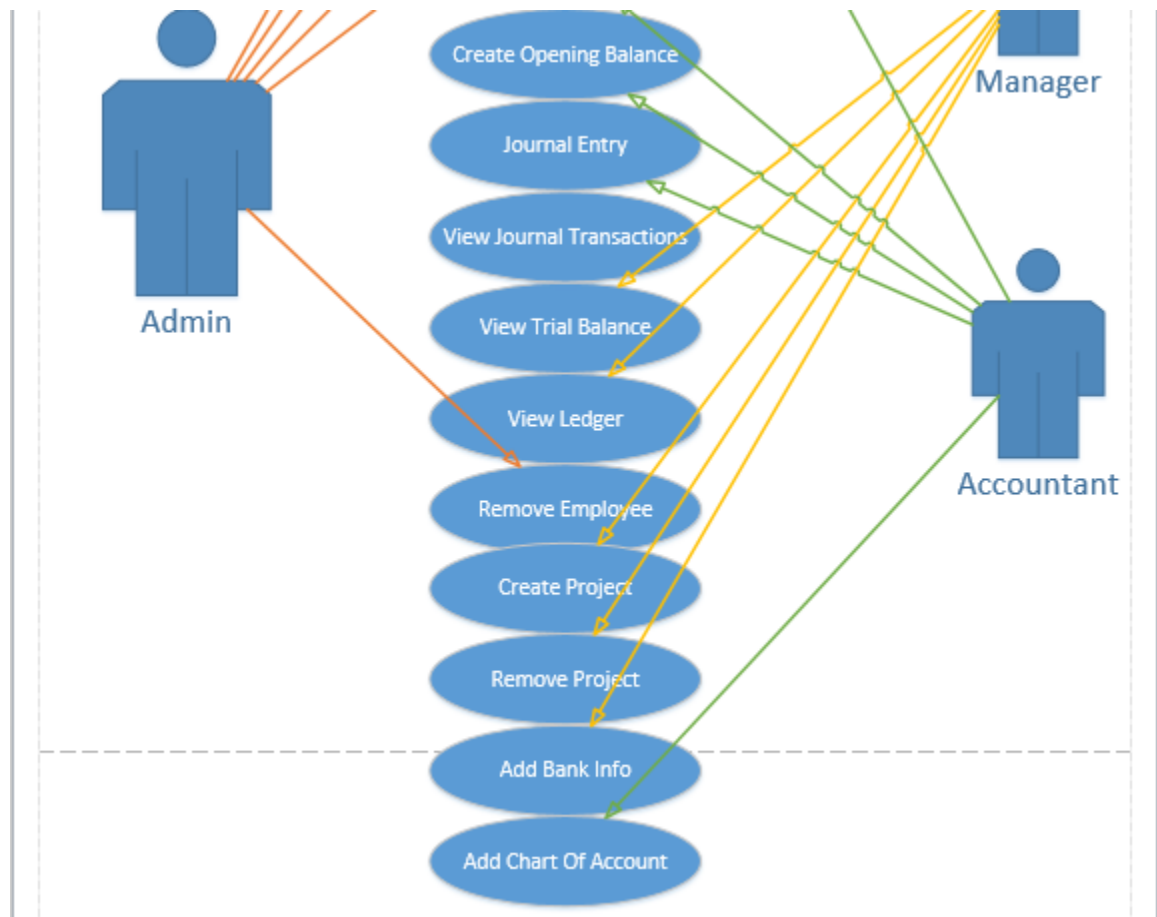


Figure 3.1.2 Use Case Diagram(Part 2)

3.2 Class Diagram

The class diagram is one kind of diagram that describes the structure of an application by showing the application's classes, their attributes and methods and the relationship between classes. The Class diagram is the main building block of object-oriented design principle.

In our system, there are about 15 classes with 50 plus methods. The classes are interrelated with each other also.

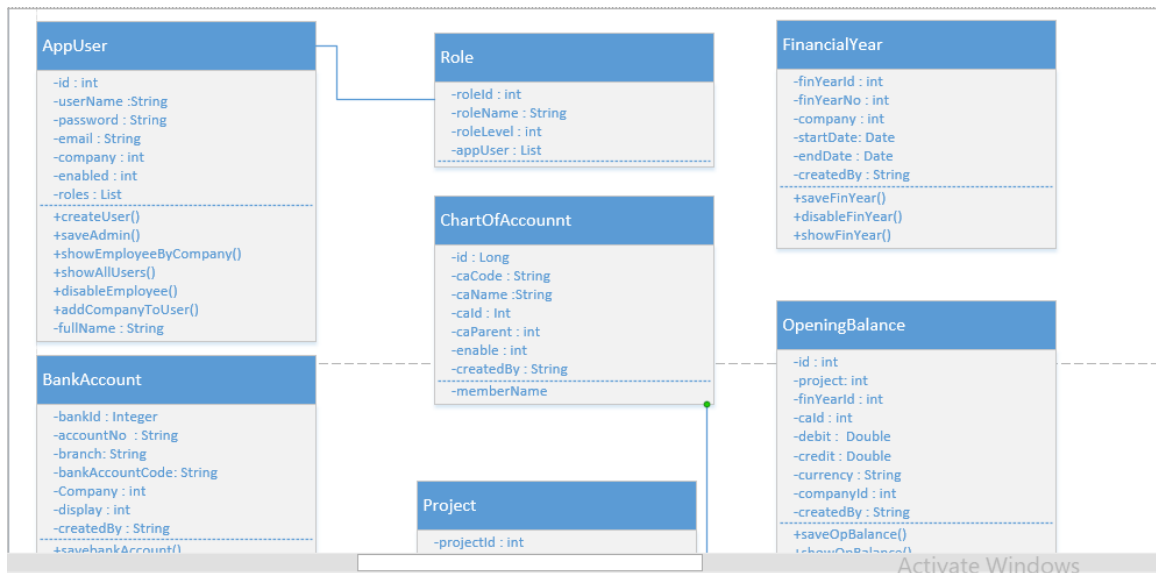


Figure 3.2.1 Class Diagram(Part 1)

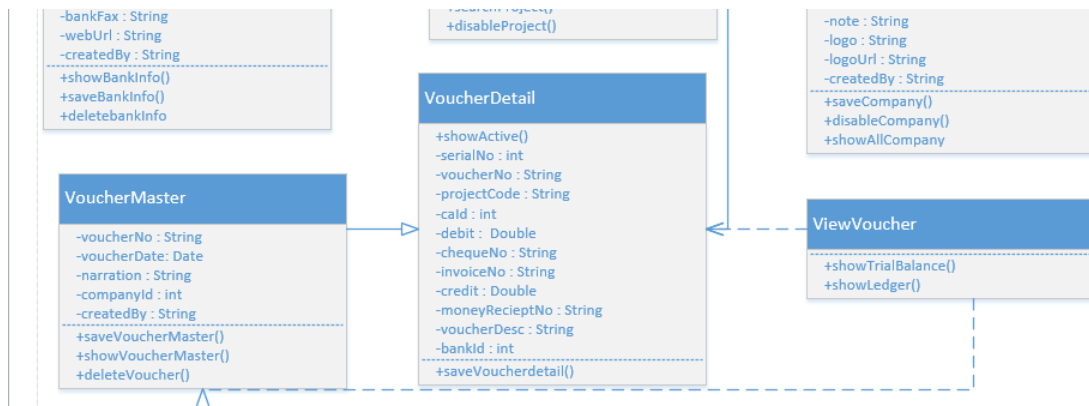


Figure 3.2.2 Class Diagram(Part 2)

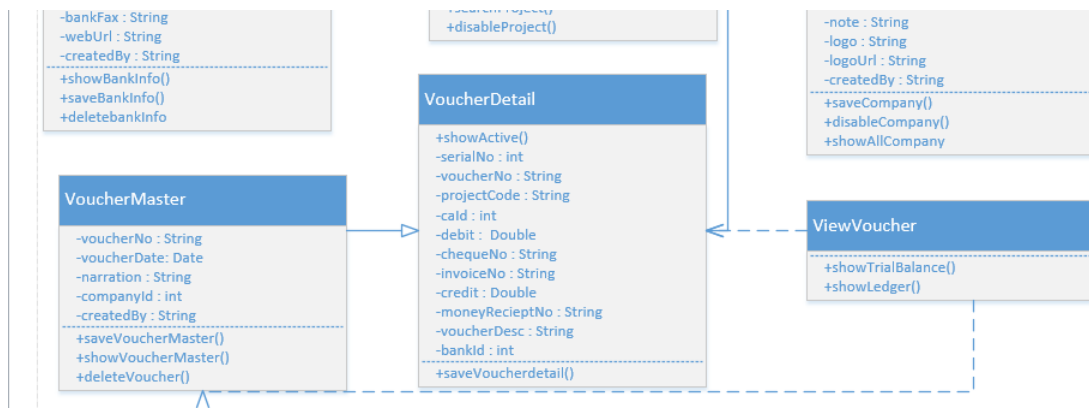


Figure 3.2.1 Class Diagram(Part 3)

3.3 Activity Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration, and concurrency. Activity diagrams are intended to model both computational and organizational processes

Registration Activity: In the registration process, An admin can register in a system to create a company. Only an admin has required to register to this system. There is no need to register for other employees. Because they can easily login after admin creates their credential. When admin sign-up to the system, he is required to create his/her company. Without creating the company he/she cannot access any admin privileges. After creating a company he/she can create the employee of his/her company.

Login Activity: An employee or admin must be logged in to access any privileges, When a user sign in to the system, first of all, system check the authentication. Authentication means system checks that are the user exists or valid. If user credential is not matched then it shows error msg and redirects to the login page. If user credential is valid then the system checks the authorization. In authorization, the system checks the users involved with which company and the role of the user. After checking all of these systems redirects the user to the specific dashboard.

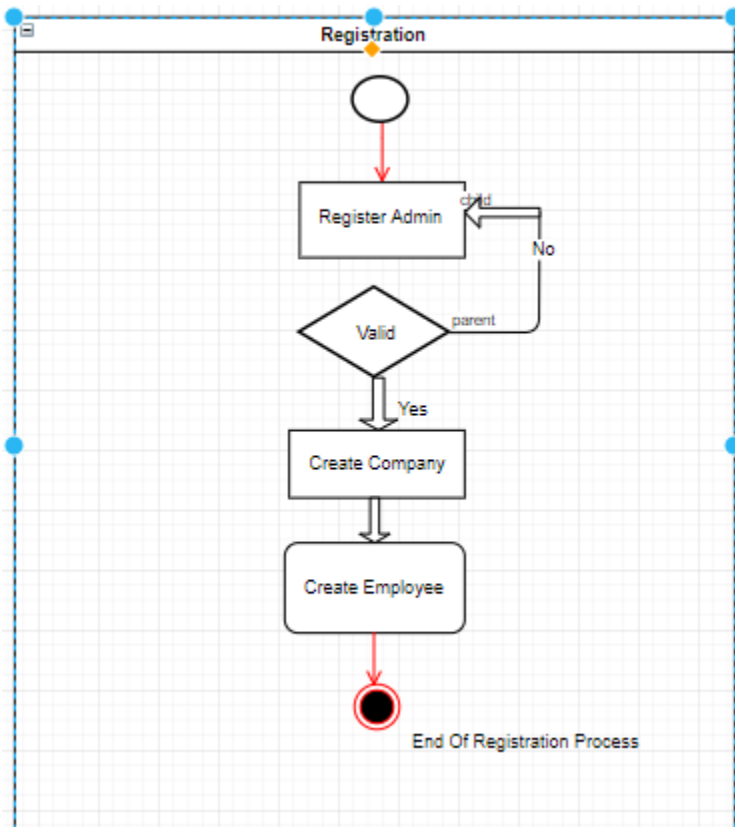


Figure 3.3.1 Activity Diagram(Registration)

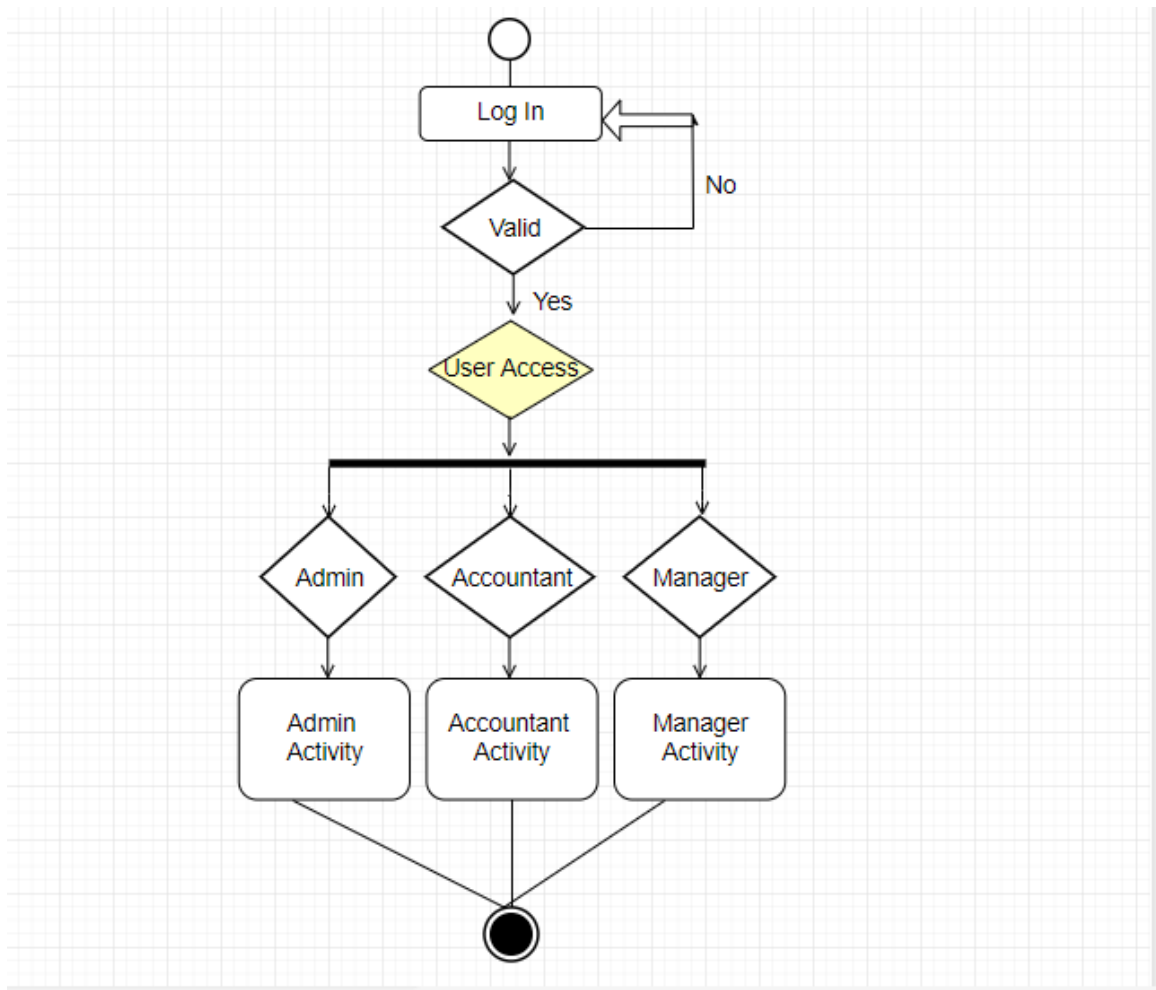


Figure 3.2.2 Activity Diagram(Log In)

Admin Activity: When an user successfully logged in as an admin. He/She can access some feature to the systems. These are given below:

- Create Company
- Create Employee
- Update Employee
- Remove Employee
- View All Employee

- View journal report
- view trial balance
- view general ledger

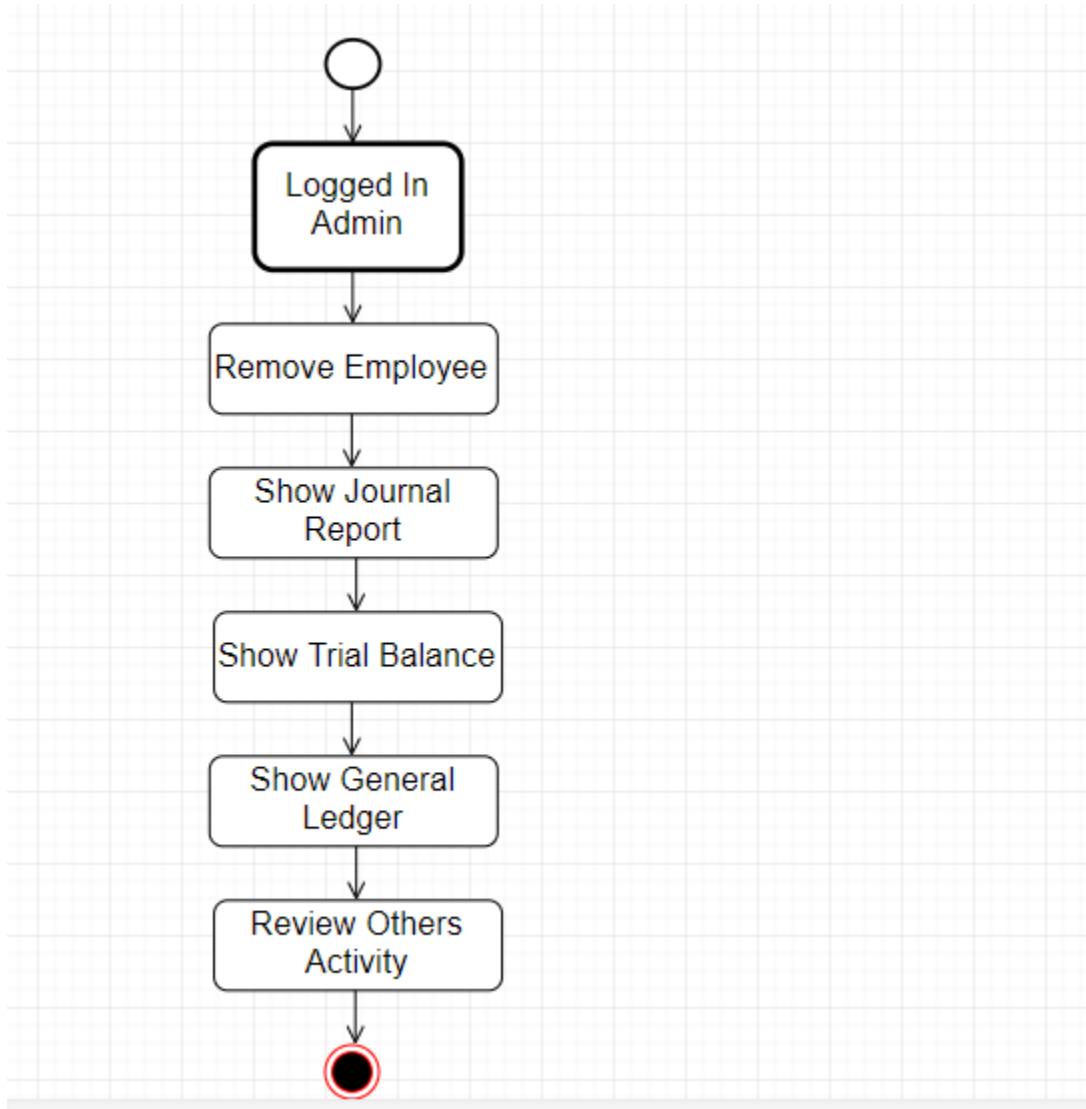


Figure 3.3.3 Activity Diagram(Admin)

Manager Activity: When a user successfully logged in as a manager. He/She can access some feature to the systems. These are given below:

- Create a project
- Update/delete a project
- create a bank account
- view trial balance
- view journal report
- view general ledger
- approve journal transaction

Accountant Activity: When a user successfully logged in as an accountant. He/She can access some feature to the systems. These are given below:

- Create a Chart Of Account
- Update a Chart Of Account
- delete a Chart Of Account
- view all Chart of Account
- create financial year
- Create opening balance
- Create journal entry

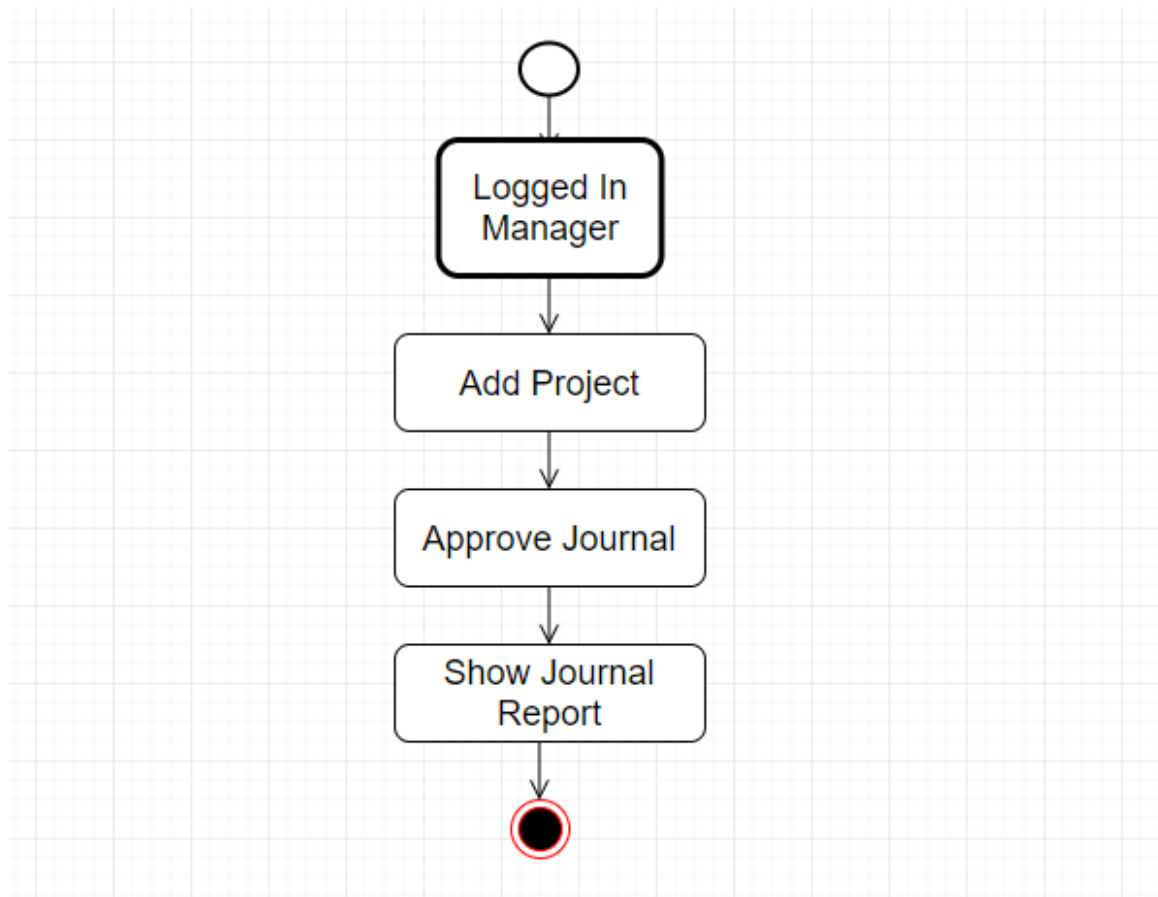


Figure 3.3.4 Activity Diagram(Manager)

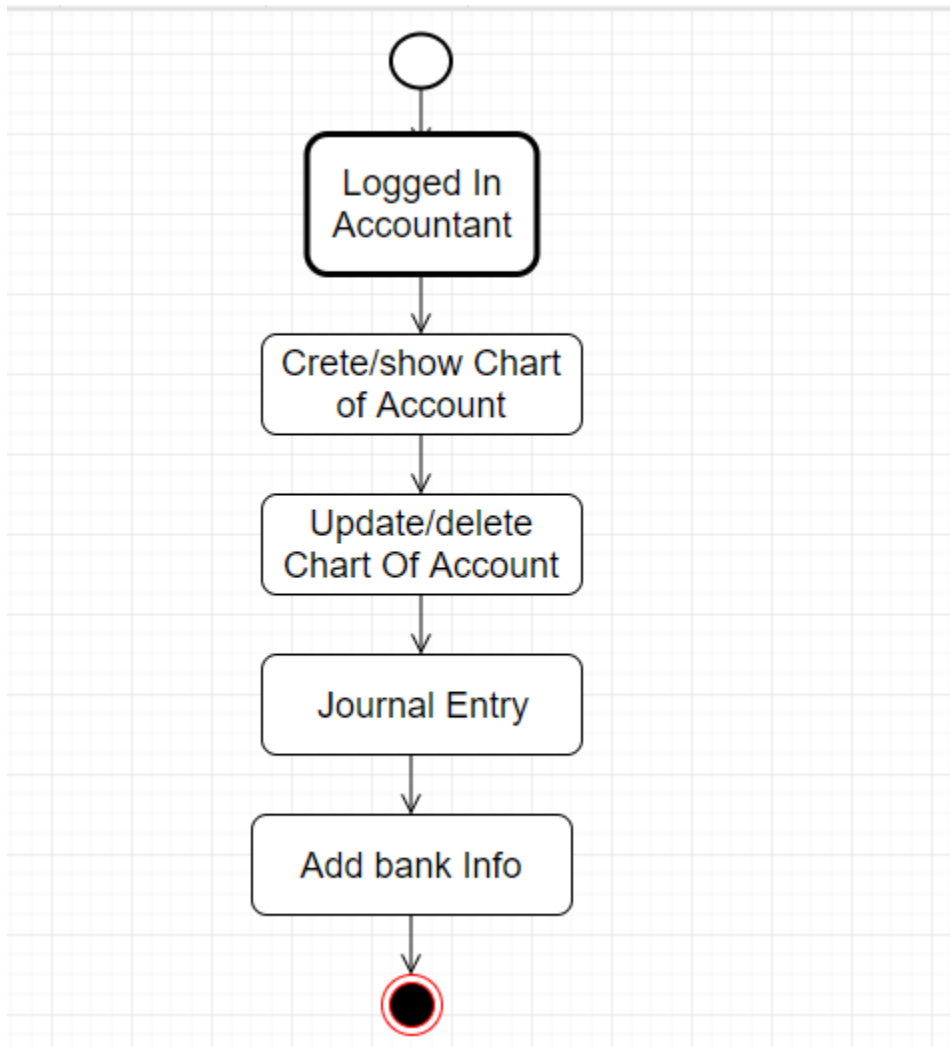


Figure 3.3.5 Activity Diagram(Accountant)

3.4 Sequence Diagram

Sequence Diagrams are interaction diagrams that detail how operations are carried out. They capture the interaction between objects in the context of a collaboration. A sequence diagram shows object interactions arranged in time sequence.

A sequence diagram shows, as parallel vertical lines, different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur.

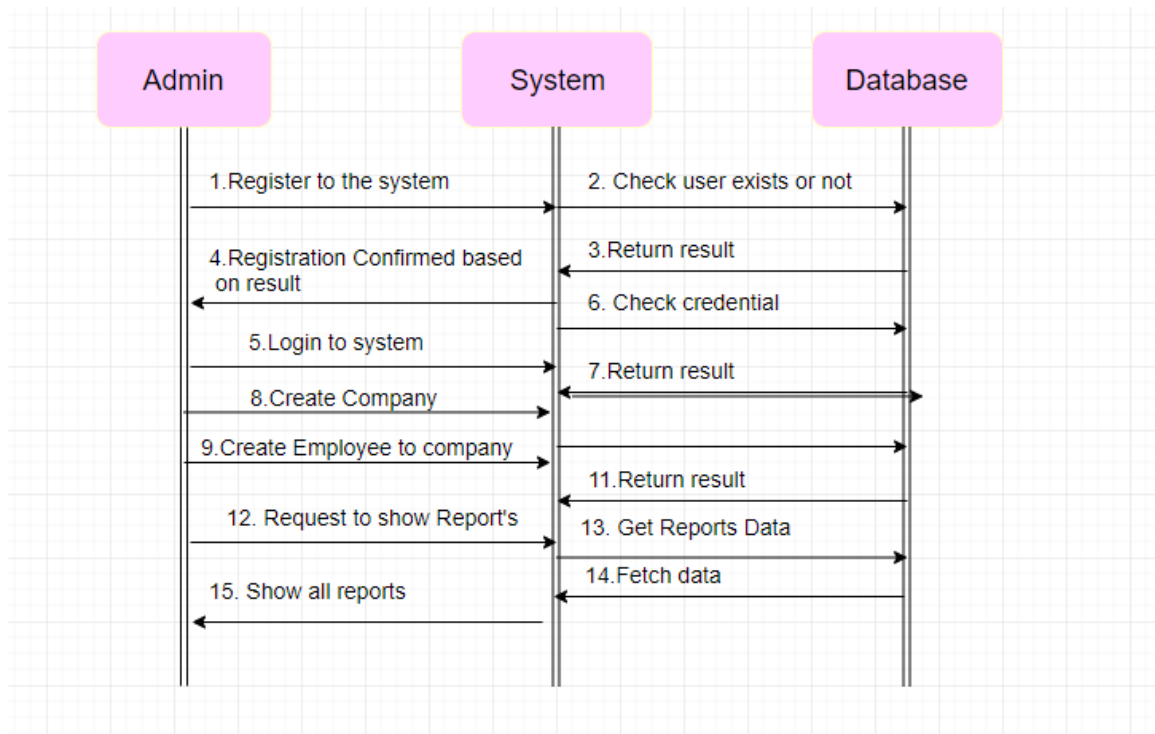


Figure 3.4.1 Sequence Diagram(Admin)

Admin workflow :

First of all, an admin will register to the system. The system will receive the information and send it to the database to check if there is any existing user available with the same username. After checking if the username already exists then system shows error msg to change username. If no username exists then admin will be created and admin can log in now. When admin will input his/her credential system will check it with the database. If inputted credential matched then admin will redirect to dashboard otherwise system shows an error message. After a successful login admin has to create a company. Without creating a company he cannot get any other access. after creating a company he can create employment for his/her company And their role as accountant or manager. In the meantime system also checks is there any user already exists in the system with the same username. Admin can show all the reports belongs with the company. when admin

request for any reports system will contact with database and get all specific report from the database and display it to the admin.

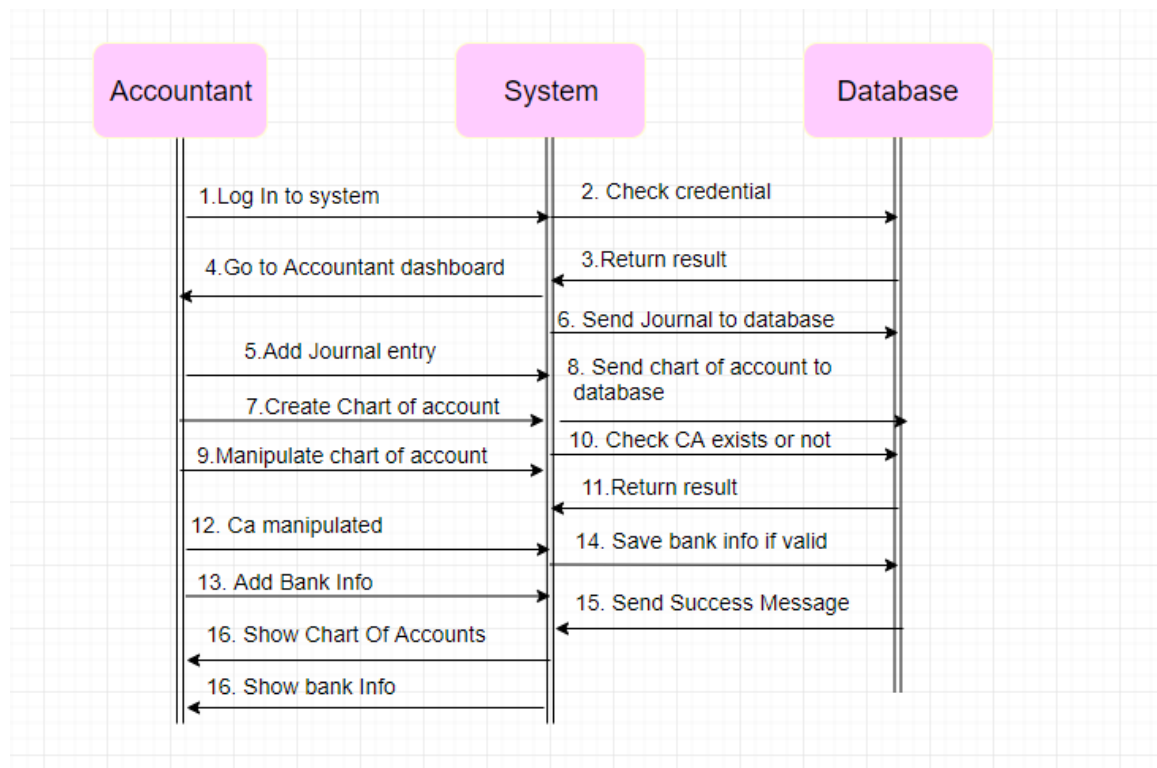


Figure 3.4.2 Sequence Diagram(Accountant)

Accountant workflow:

An accountant doesn't need to register in the system. only the admin will register in the system. When the accountant will input his/her credential system will check it with the database. If inputted credential matched then accountant will redirect to accountant dashboard otherwise system shows an error message. The accountant can entry journal to

the system. He can add Chart of Account for the company. Chart of account is important for any company. the accountant can manipulate the chart of account also. The accountant can create bank information for the company. He/she can also update or delete the company. Accountant also can add the financial year for the company.

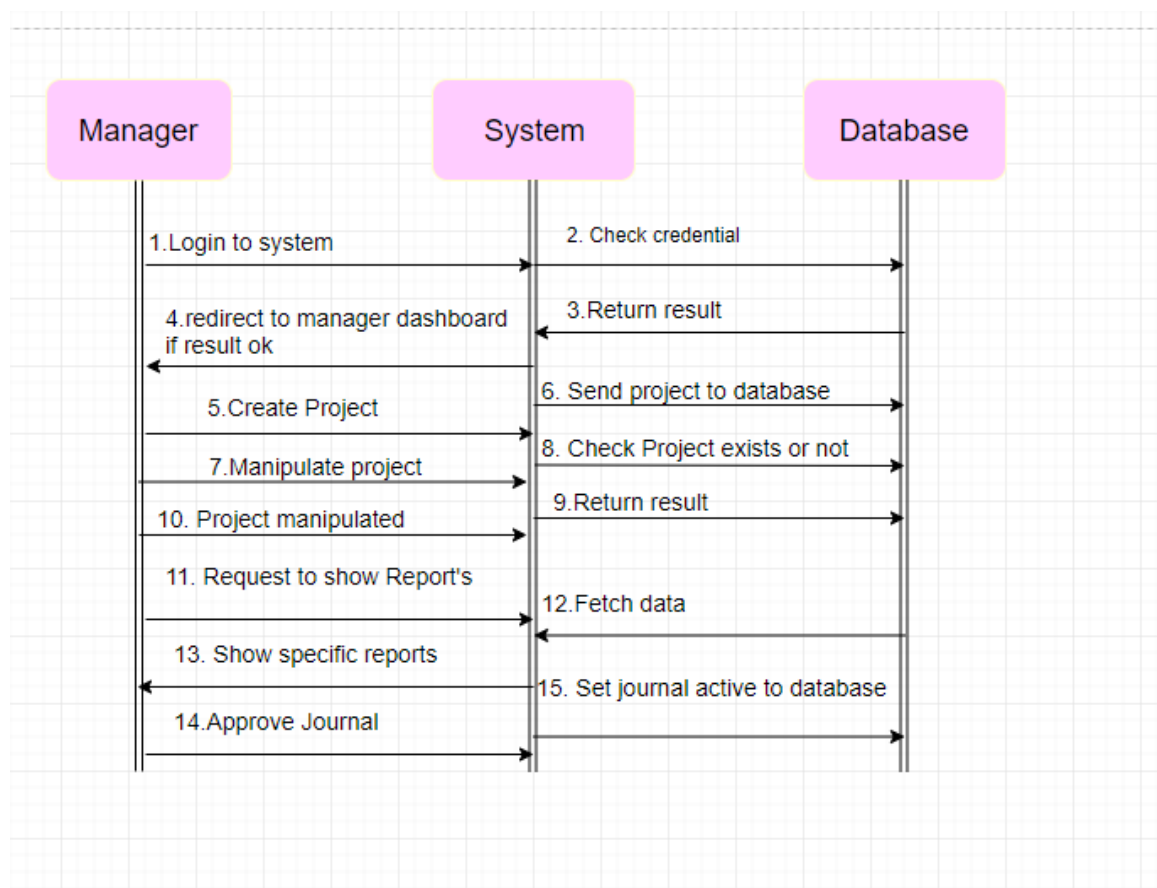


Figure 3.43 Sequence Diagram(Manager)

Manager workflow:

A manager doesn't need to register in the system. only the admin will register in the system. When the manager will input his/her credential system will check it with the database. If inputted credential matched then the manager will redirect to manager dashboard otherwise system shows an error message. The manager can create projects for

their company. Then the system will check project already exists or not. The manager will approve all the journal added by the accountant. Without managers approval, no journal will be added to companies store. The manager can also request for some specific reports like journal report or trial balance. When the manager request for some specific reports system will interact with the database to get data. The database will return a result to the system. Then the system converts result to a specific report.

3.5 Entity Relationship Diagram

A database is absolutely an integral part of a software system. To fully utilize ER Diagram in database engineering guarantee you to produce high-quality database design to use in database creation, management, and maintenance. An ER model also provides a means for communication.

In my project, I used the MySQL database. In the database, we had 12 tables and 1 MySQL view. There is also some relation between the tables . some of are:

- User => Role (One to many)
- Company => User (One to Many)
- Voucher Master => Voucher Detail (One to Many)

There are lots of relationships between all of those tables.

The table list is given below :

1. users
2. role
3. authorities
4. bank_account
5. bank_info
6. chartofaccount
7. finyear
8. opening_balance
9. company
10. project

- 11. voucher_master
- 12. voucher_detail
- 13. view_voucher

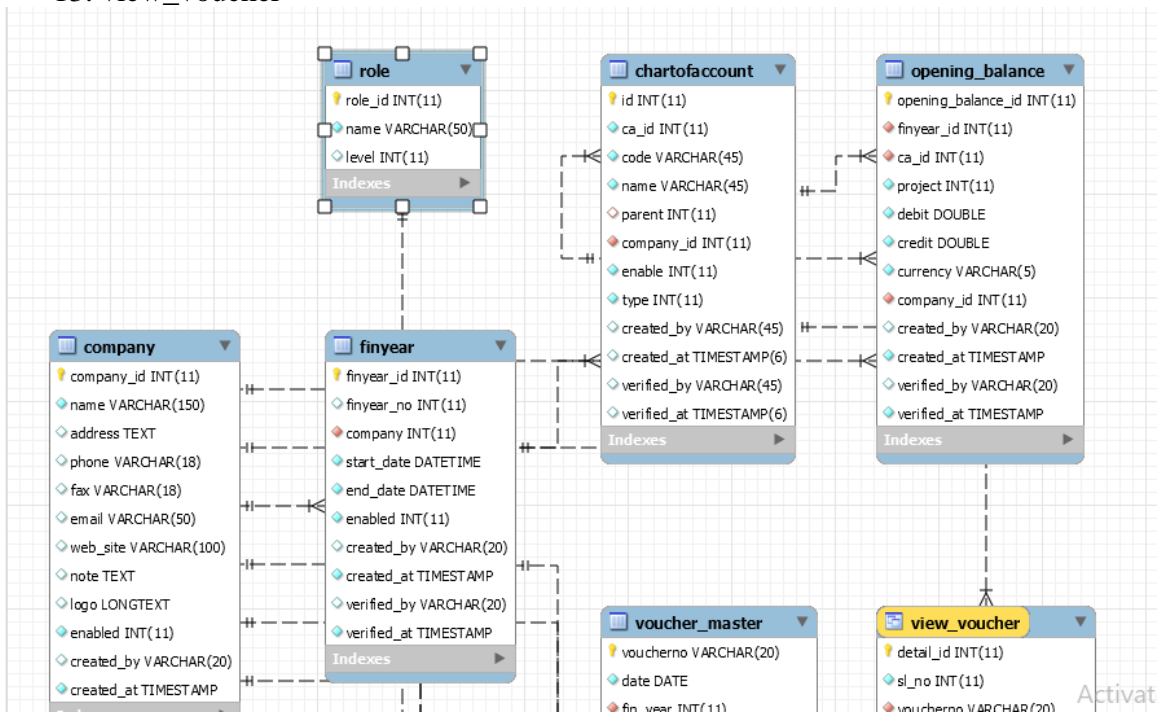


Figure 3.5.1 Entity Relationship Diagram(Part 1)

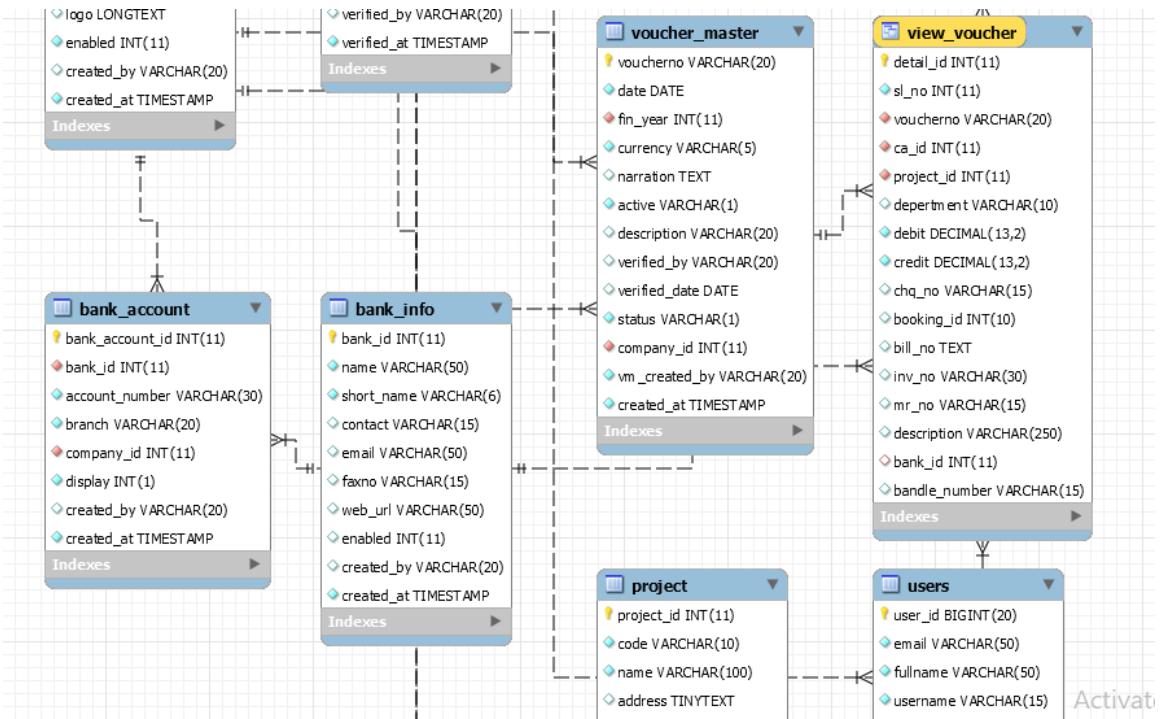


Figure 3.5.1 Entity Relationship Diagram(Part 2)

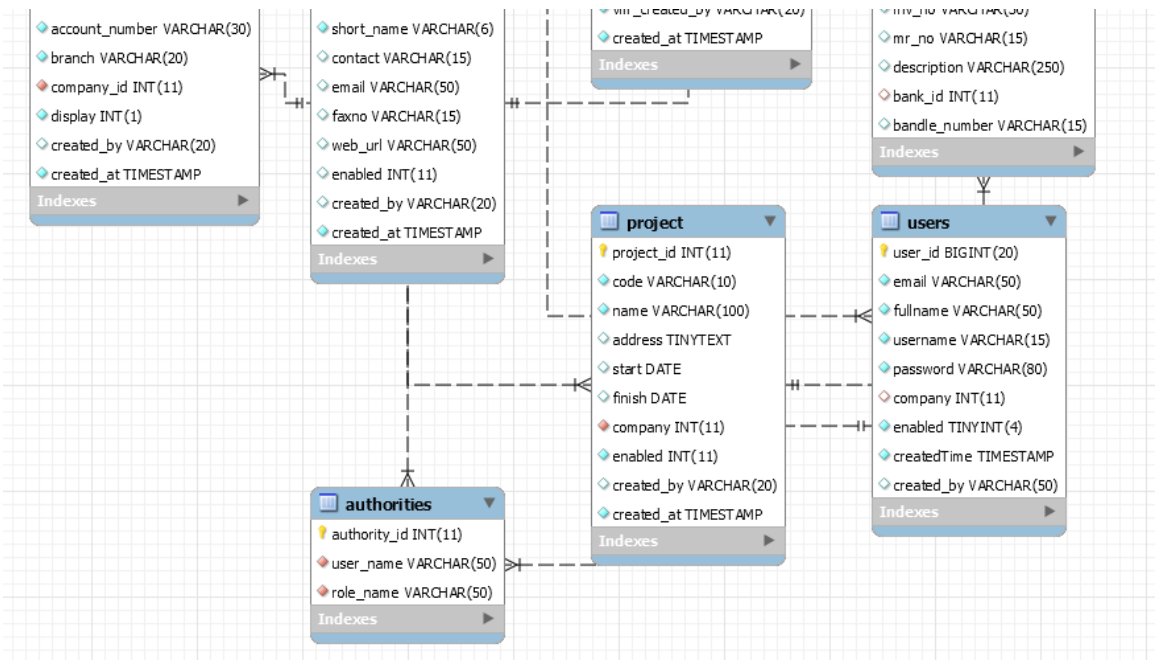


Figure 3.5.1 Entity Relationship Diagram(Part 3)

Chapter 4

Development tool & Technology

4.1 Spring Boot, MVC, Security

Spring framework is the most popular Java web framework in the world. I have created this application using the Spring Framework. MVC, security are core module of spring framework.

4.2 Bootstrap

Bootstrap is the most popular CSS framework in the world. My basic design is based on HTML and CSS. Bootstrap is added for design simplicity and makes an efficient design.

4.3 jQuery & AJAX

Javascript is the best choice to makes a user interactive web application. javascript has so many libraries. jQuery is one of the popular library of javascript. I used this in my project, especially for validation. AJAX is basically used for efficient crud operation in real time.

4.4 MySQL Database

I used the MySQL database for my project. MySQL is the world's most popular open source database. Also, I used MySQL view for easily generate some report.

4.5 IntelliJ IDEA

There is so many IDE for developing Spring application. These are STS, Netbeans, IntelliJ IDEA. Among them, I have got IntelliJ IDEA as the best IDE for developing spring application.

4.6 Postman

Postman is a Google Chrome app for interacting with HTTP APIs. It presents you with a friendly GUI for constructing requests and reading responses. The people behind Postman also offer an add-on package called Jetpacks, which includes some automation tools and, most crucially, a Javascript testing library.

Chapter 5

System Testing

5.1 Testing feature

5.1.1 Features to be tasted

No	Feature	Description	User
01	Save CA	Check insert Chart Of Account worked or not.	Accountant
02	Delete CA	Check delete Chart Of Account worked or not.	Accountant
03	Update CA	Check Chart Of Account updated correctly.	Accountant
04	Show CA	Check Chart Of Account show correctly.	Accountant
05	Pdf generate	Generate pdf in exact portion we want.	System
06	Show Trial Balance	Admin can see trial balance.	Admin
07	Login	The user can log in to the system.	System

08	User authorization	The user should be authorized and authenticated as well.	System
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Table 5.1.1 Feature to be tested

5.1.2 Features not to be tested

No	Feature	Description	User
01	Bank Info stored in the system.	Check Bank Information stored or not.	System Admin
02	Employee Added	An employee must be added to the specific company.	Admin

Table 5.1.1 Feature not to be tested

5.2 Testing Approach

5.2.1 Test Approach

A test approach is the test strategy implementation of a project, defines how testing would be carried out. Test approach has two techniques:

- Proactive - An approach in which the test design process is initiated as early as possible in order to find and fix the defects before the build is created.
- Reactive - An approach in which the testing is not started until after design and coding is completed.

5.2 Testing Strategies

A test strategy is an outline that describes the testing approach of the software development lifecycle. This includes the testing objective, testing method, required time, total time, the resource needed for the project and testing environment.

5.3 Testing Environment

There are so many options to test web applications. There is some given below:

- Chrome developer Tool (Front-end data test)
- Firebug (Front-end data test)
- Database server(Check data manipulated or not in the server)
- JUnit (For testing controller & services)

Chapter 6

User Manual

Registration

An admin will sign up here with proper information. If everything is valid then registration confirmed. Admin will see a confirmation message and can log in to the system.

The image shows a registration form titled "Register here!" on a dark blue background. The form is centered and contains five input fields, each with a label above it: "Full Name", "Email", "Username", "Password", and "Confirm Password". Below the "Confirm Password" field is a light blue button labeled "Registration". The form is set against a light blue gradient background. In the bottom right corner of the page, there is a small, faint watermark that reads "Activate Windows Go to Settings to activate Windows."

Figure 6.1: Registration

Login Panel

This is the login panel. Any user will log in with valid credential here. If the user is valid then the user will be redirected to the specific dashboard. There are 3 types of users. Admin, Manager, and Accountant. They will show a different menu after logging in.

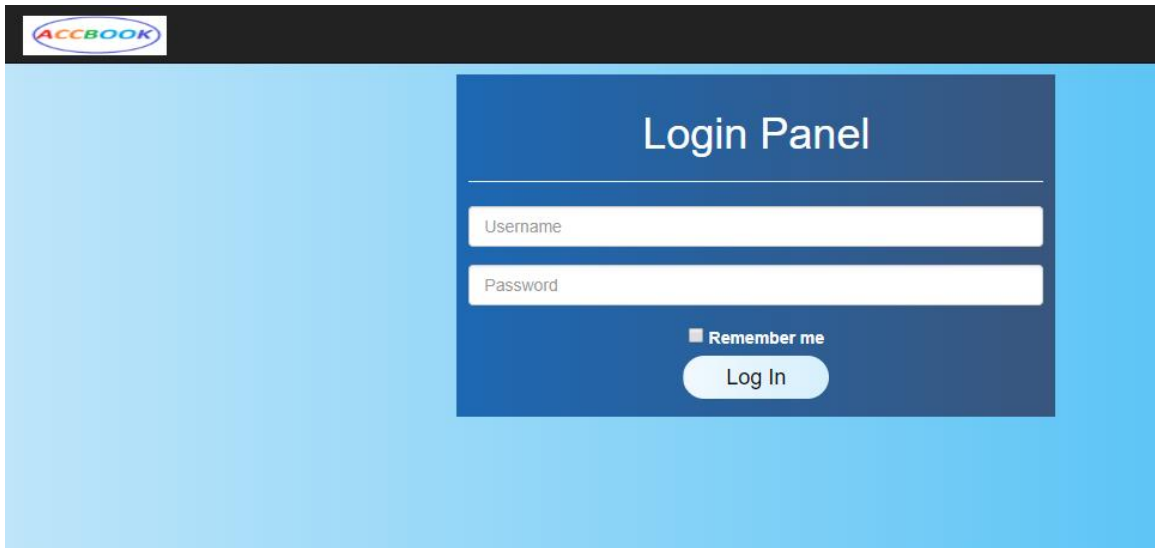


Figure 6.2: Login

Create Company

After successfully logged in, Only an admin can get an option to create company. He can create a company with companies information. If all inputs are valid company will be successfully created and admin will show a success message.

Create your Company

Company Name

Company Email

Company Address

Phone
Phone Number

Fax

Website

Create Company

Figure 6.3: Create Company

Create employee

An admin can create employee for his/her company. He/She can set Role of the employee for his/her company. Even he can disable any employee of his company.

ACCBOOK

Create Employee

Employee Name
Insert Employee Name

Employee Email
Insert Employee Email

Employee Username
Username

Password
Password

Role
 Admin Accountant Manager

Enable?

Create Employee

Employee Information

Search

Figure 6.4: Create an employee

Financial year

After login, an accountant can create financial year for the company. Normally there is some validation like is there any financial year already active or not. Is there any financial year already exists or not.



The screenshot shows a web form titled "Create financial year". The form is set against a dark blue background. It contains three input fields: "Financial Year No", "Start Date", and "End Date", each with a placeholder "mm/dd/yyyy". Below these fields is a "Create Financial Year" button.

Figure 6.5: Create financial year

Opening Balance

After creating a financial year the accountant can create an opening balance of a financial year for the company. The amount will be added to the original journal transaction. Adding an opening balance is optional for a company. If management will require to add opening balance at the beginning of the financial year the accountant can add it.

The screenshot shows a web interface for 'Create Opening Balance'. At the top left is the ACCBOOK logo, and at the top right is a 'Log in' link. The main content area is a dark blue box with the title 'Create Opening Balance' in white. Below the title are five input fields, each with a label above it: 'Financial Year Id', 'Account Head', 'Project', 'Balance', and 'Currency'. At the bottom of the box is a white button with the text 'Create Opening Balance'. In the bottom right corner of the page, there is a small link that says 'Go to the Windows'.

Figure 6.6: Create an opening balance

Chart Of Account

Create a Chart of Account is one of the major and important tasks of an accountant. Without a chart of account/Account head accountant cannot add a journal to the system. He/She can specify the chart of account name, type and parent head of a chart of account.

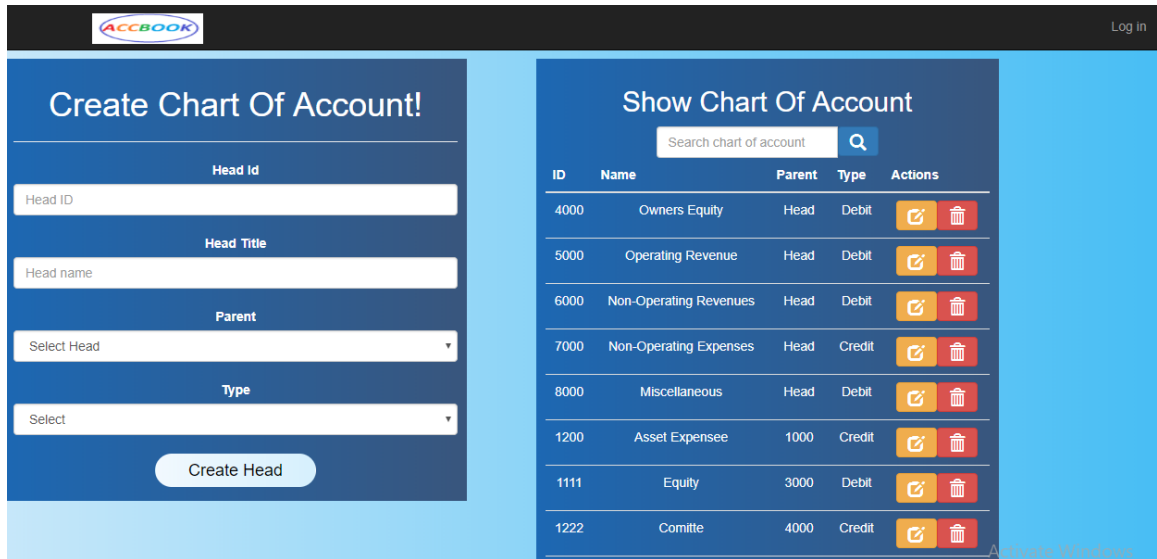


Figure 6.7: Chart of Account

Journal Entry

An accountant can entry journal to the system. He/She can add any transaction to the system but it must be approved by a manager.

ACCBOOK Log In

Create Journal

Cash Bank

voucher No: Voucher Date:

Account Head: Project:

Department: Bank Name:

Cheque No: Receipt No:

Amount:

Narration:

Account Head	Project	Department	Debit	Credit
<input type="button" value="Submit to Journal"/>				

Activate Windows
 Go to Settings to activate Windows.

Figure 6.8: Create a Journal

Chapter 7

Project Summary

7.1 Github Link

I always updated my code's on GitHub. My projects Github link is :

https://github.com/moshiurse/ac_boot

7.2 Obstacles & Achievements

In the time of starting this project in Spring Boot, I guess I had only 2/10 knowledge on Spring Boot framework. By starting this project I had to learn a lot which makes me better in my own way.

At the end of the day, I learned a lot of thing for this project.

7.3 Future Scope

The accounting system is huge. I worked ed on some of the modules only. I have a plan to make this product as bigger as I can. So then I can add so many advance feature on this product and will make this more efficient and user-friendly.