INSTITUTE FOR ADVANCED COMPUTING AND SOFTWARE DEVELOPMENT AKURDI, PUNE

Documentation On

"Online Banking Application"

PG-DAC SEPT 22

Submitted By:

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Table of Contents

List of Figures

1. INTRODUCTION.

Introduction:

The “Online Banking Application” project is a model Internet Banking Site. This site enables the customers to perform the basic banking transactions by sitting at their office or at homes through PC or laptop. The system provides the access to the customer to create an account, deposit/withdraw the cash from his account, also to view reports of all accounts present. The customers can access the banks website for viewing their Account details and perform the transactions on account as per their requirements. With Internet Banking, the brick and mortar structure of the traditional banking gets converted into a click and portal model, thereby giving a concept of virtual banking a real shape. Thus today's banking is no longer confined to branches. Online Banking Application facilitates banking transactions by customers round the clock globally.

The primary aim of this “Online Banking Application” is to provide an improved design methodology, which envisages the future expansion, and modification, which is necessary for a core sector like banking. This necessitates the design to be expandable and modifiable and so a modular approach is used in developing the application software. Anybody who is an Account holder in this bank can become a member of Online Banking Application. He has to fill a form with his personal details and Account Number.

Synopsis:

Online Banking Application keeps the day by day tally record as a complete banking system. It can keep the information of Account type, account opening form, Deposit fund, Withdrawal, and Searching the transaction, Transaction reports, Individual account opening form, Group Account. The existing part of this project is; it displays Transaction reports, Statistical Summary of Account type and Interest Information.

AIM of this project:

The main aim of designing and developing this “Online Banking Application” primarily based Engineering project is to provide secure and efficient net banking facilities to the banking customers over the internet. MYSQL database is used to develop this bank application where all banking customers can login through the secured web page by their account login id and password. Users will have all options and features in that application like get money from other banks, money transfer to others, and send cash or money to inter banking as well as other banking customers by simply adding them as payees.

Objectives:

The Traditional way of maintaining details of a user in a bank was to enter the details and record them. Every time the user needs to perform some transactions he has to go to bank and perform the necessary actions, which may not be so feasible all the time. It may be a hard hitting task for the users and the bankers too. The project gives real life understanding of Online Banking Application and activities performed by various roles in the supply chain. Here, we provide automation for banking system through Internet. Online Banking Application project captures activities performed by different roles in real life banking which provides enhanced techniques for maintaining the required information up-to-date, which results in efficiency. The project gives real life understanding of Online Banking Application and activities performed by various roles in the supply chain.

2. OVERALL DESCRIPTION.

Proposed Methodology:

The application will be extremely beneficial for the Customers intending to use and operate their bank account and will get various benefits in the field of management of accounts on a clean and user-friendly platform. “Online Banking Application”, is a simple application and is based on user name and ID protected as well. It creates a user friendly environment, where a normal user can access through all the benefits of the system. It provides security from unauthorized access, only admin or authorized users are access granted to the system. It increases efficiency and saves the time. No any danger and obstacles from external entities. Easy access of saved data inside the system. Complex banking operations and transaction operations are efficiently handled by the application. It has ease of use along with complete reference. It is highly secured and less time consuming, hence time wastage can be avoided. Up to date records of the customers are maintained by the authority.

Operating Environment:

Server Side:

Processor: Intel® processor 3500 series

HDD: Minimum 500GB Disk Space

RAM: Minimum 8GB

OS: Windows 10 or later

Database: MySQL 8.0.30

Client Side (minimum requirement):

Processor: Intel Dual Core

HDD: Minimum 80GB Disk Space

RAM: Minimum 8GB

OS: Windows 10 or later

Design and Implementation Constraints:

The application will use Spring-Boot and React as main web technologies.

HTTP and FTP protocols are used as communication protocols. FTP is used to upload the web application in live domain and the client can access it via HTTP protocol.

Several types of validations make this web application a secured one and SQL Injections can also be prevented.

Since Online Banking Application is a web-based application, internet connection must be established.

The Online Banking Application will be used on PCs and will function via internet in any web browser.

3. Requirements Specification.

External Interface Requirements:

User Interfaces:

- All the users will see the same page when they enter in this website. This page asks the users a username and a password.
- After being authenticated by correct username and password, user will be redirect to their corresponding profile where they can do various activities.
- The user interface will be simple and consistence, using terminology commonly understood by intended users of the system. The system will have simple interface, consistence with standard interface, to eliminate need for user training of infrequent users.

Hardware Interfaces:

- No extra hardware interfaces are needed.
- The system will use the standard hardware and data communication resources.

This includes, but not limited to, general network connection at the server/hosting site, network server and network management tools.

Application Interfaces:

Web Browser:

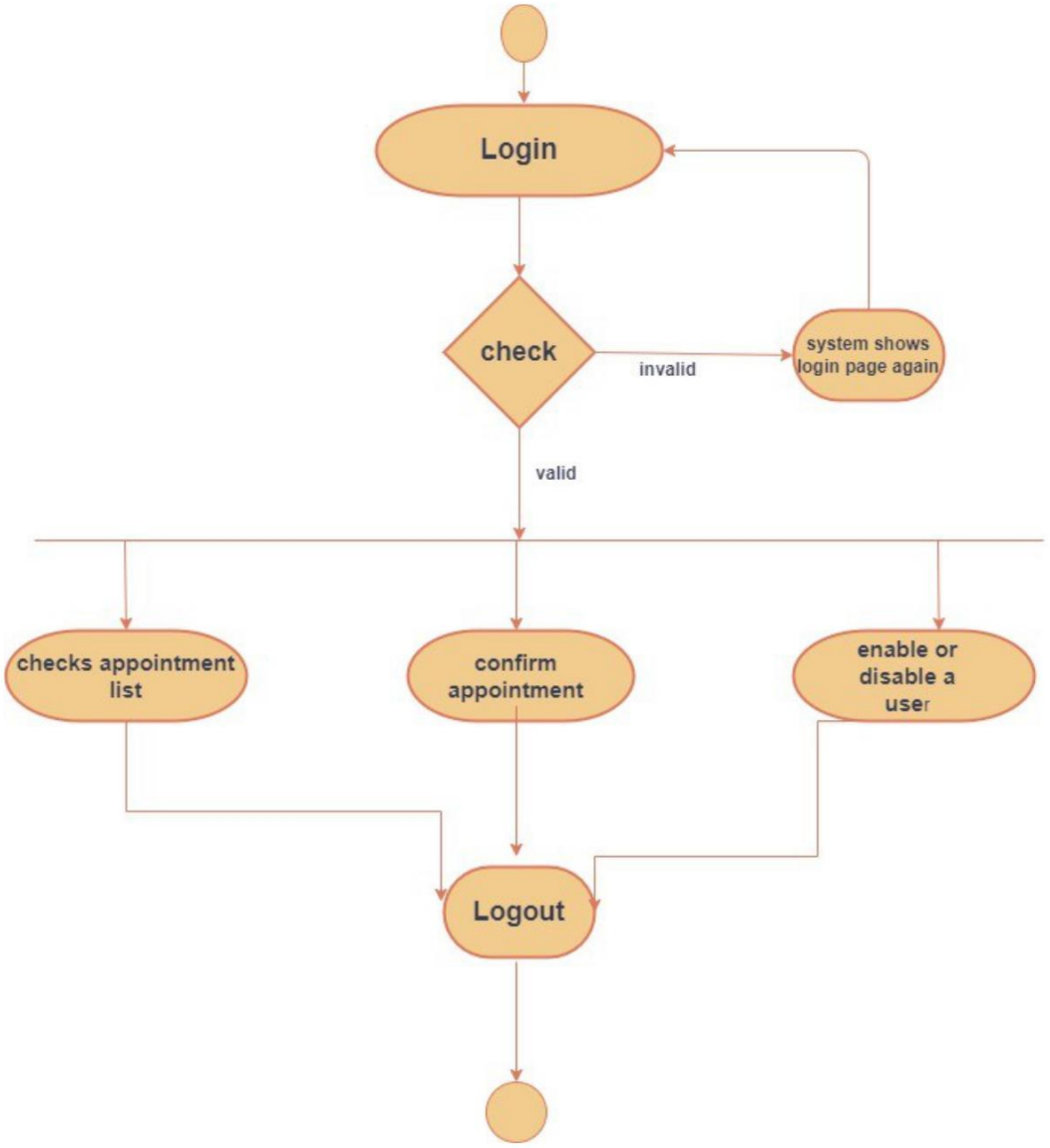
The system is a web-based application; clients need a modern web browser such as Mozilla Firebox, Internet Explorer, Opera, and Chrome. The computer must have an Internet connection in order to be able to access the system.

Communications Interfaces:

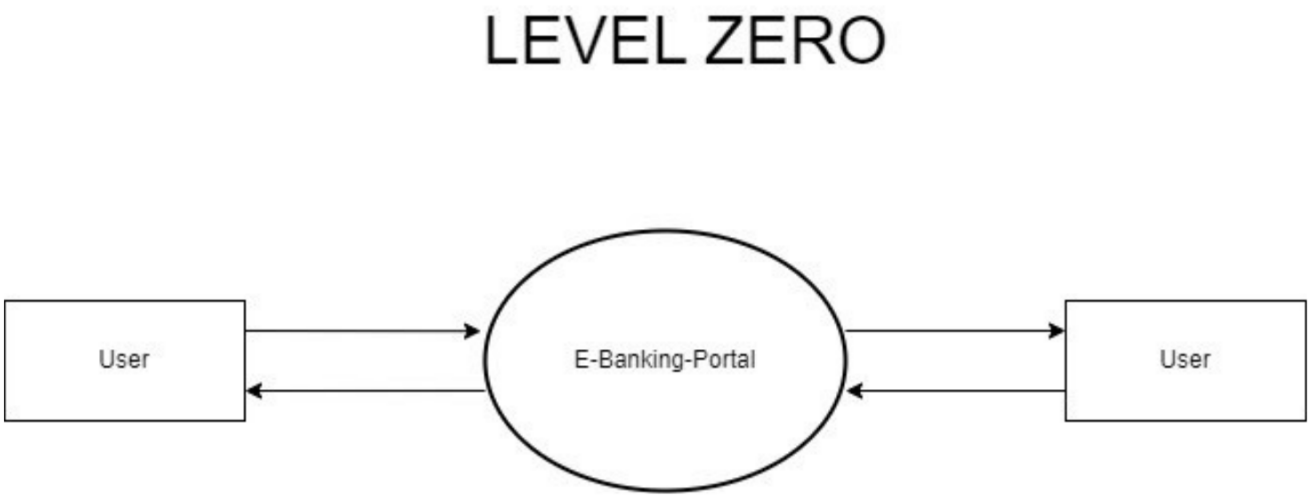
- This system uses communication resources which includes but not limited to, HTTP protocol for communication with the web browser and web server and TCP/IP network protocol with HTTP protocol.
- This application will communicate with the database that holds all the booking information. Users can contact with server side through HTTP protocol by means of a function that is called HTTP Service. This function allows the application to use the data retrieved by server to fulfill the request fired by the user.

4. System Diagrams.

- **Activity Diagram:**
  - Admin Activity:



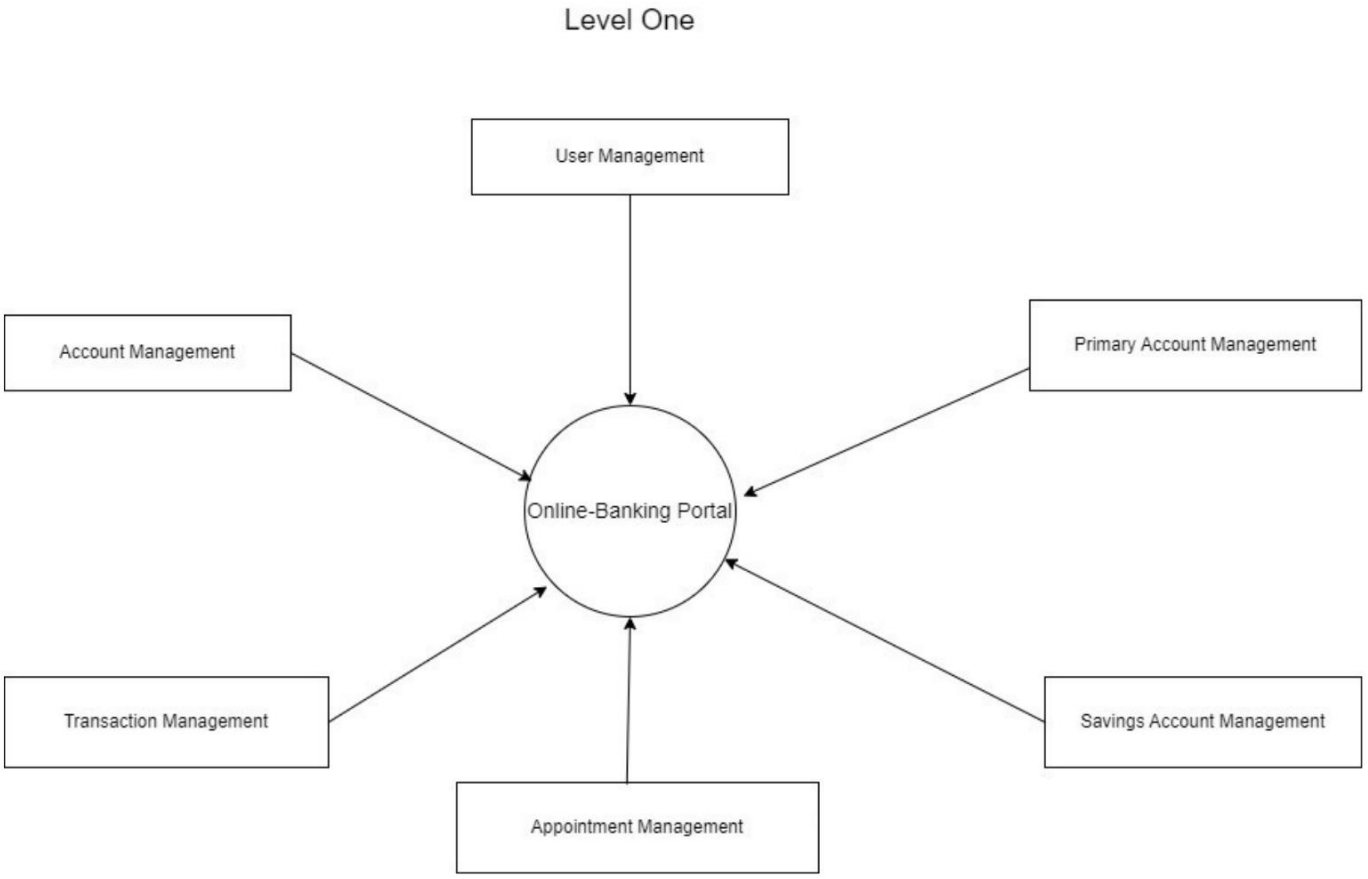
- Data Flow Diagram



Data Flow Diagram: The data flow diagram is also known as “bubble chart” and has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design so it is the starting point of specification down to the lowest level of detail. A DFD consists of a series if bubbles joined by lines. The bubbles represent data transformation and the lines represent the data flow in the system. This Data Flow Diagram shows the basic structure of this “Online Banking Application”. As we can see that we will have a user at the client side and server for the E-banking portal.

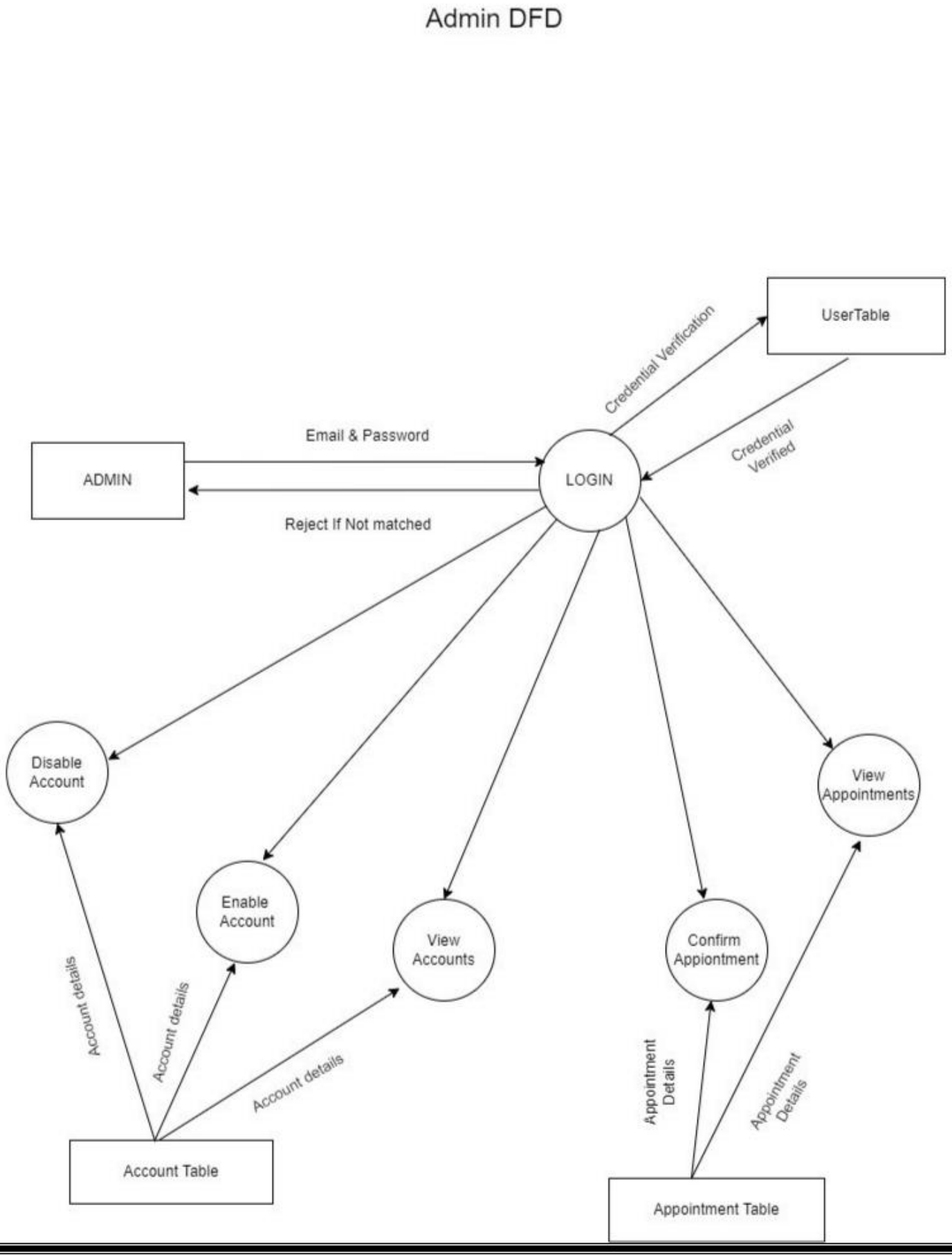
The project intends to introduce more user friendliness in the various activities such as record updation, maintenance, and searching. The searching of record has been made quite simple as all the details of the customer can be obtained by simply keying in the identification or account number of that customer. Similarly, record maintenance and updation can also be accomplised by using the account number with all the details being automatically generated. These details are also being promptly automatically updated in the master file, thus keeping the record absolutely up-to-date.

- Data Flow Diagram

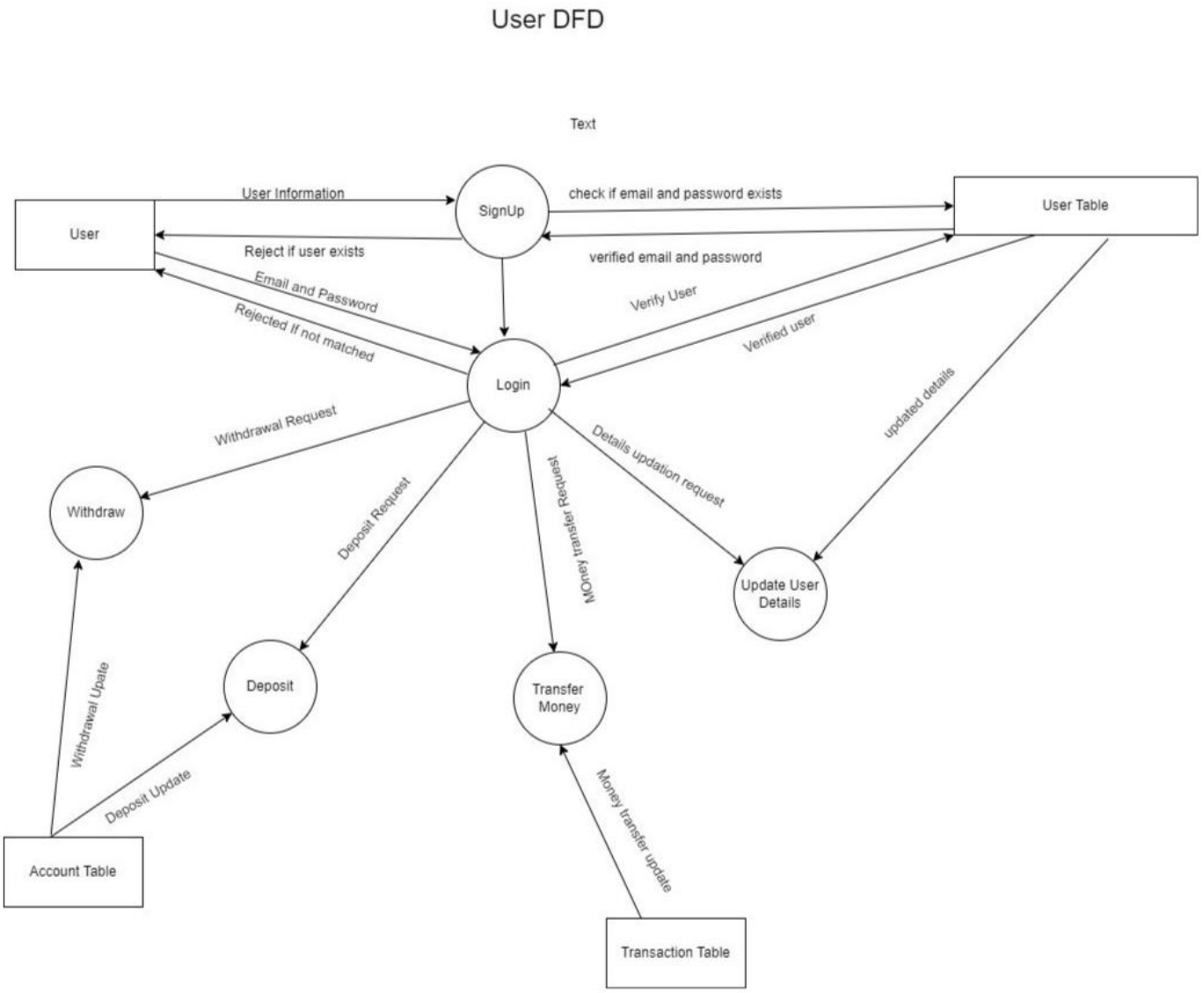


This DFD represents the online banking application with all the basic functionalities. We can see we will have a user management system. In the user management system, we will divide the users in two categories: customer and admin. We will have the account management system, where we will have the accounts of the users under check. We will have mainly few account management system like: primary account management system, savings account management, etc. We also will basically have the functionality like appointment management system for the user, where the user will be able to setup an appointment for bank visit for documentation. We will also have functionality for funds transfer where the user will be able the recipients, whom user wants to transfer the fund and can deposit the amount.

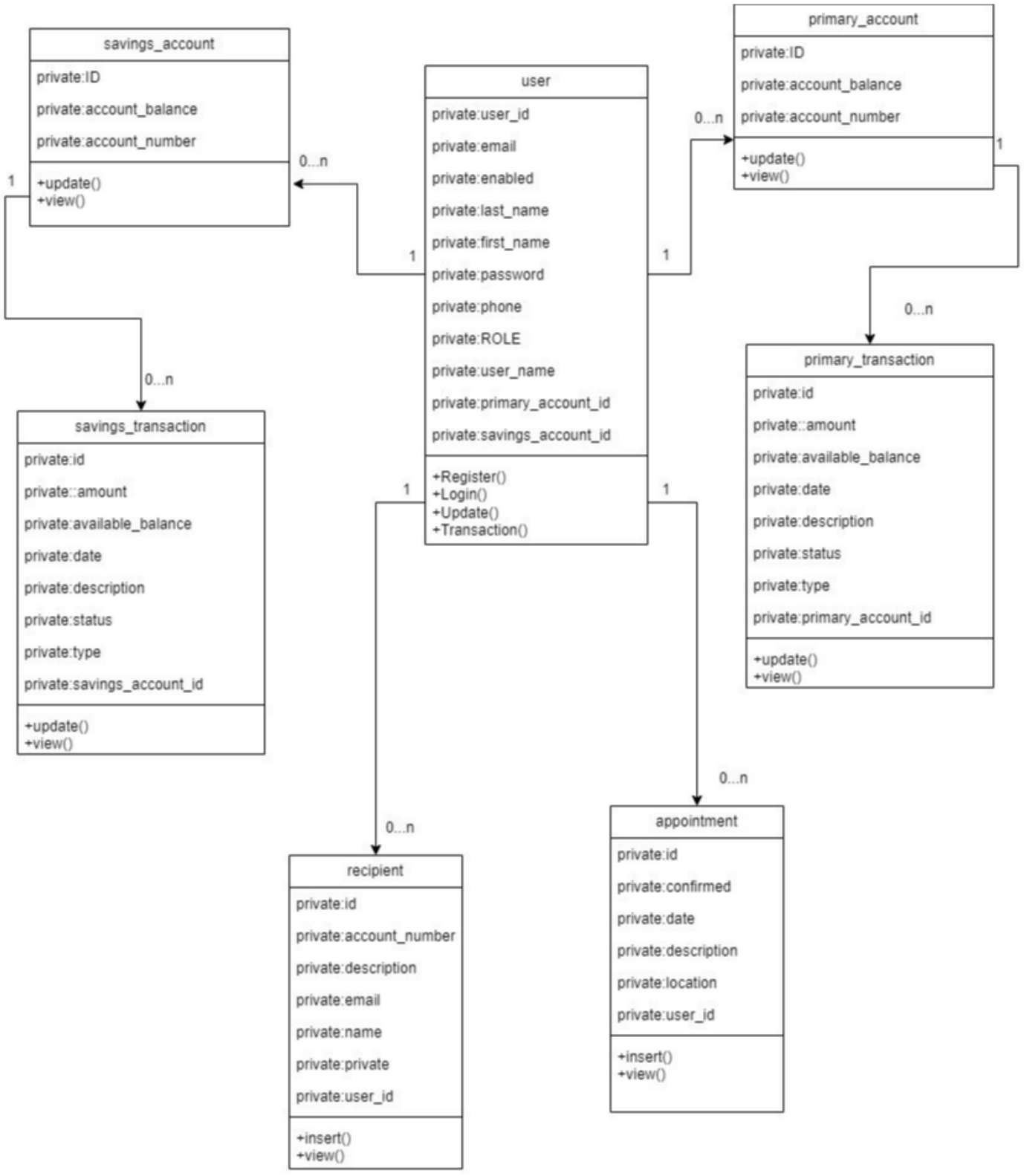
- **Admin Data Flow Diagram:**



User Data Flow Diagram:

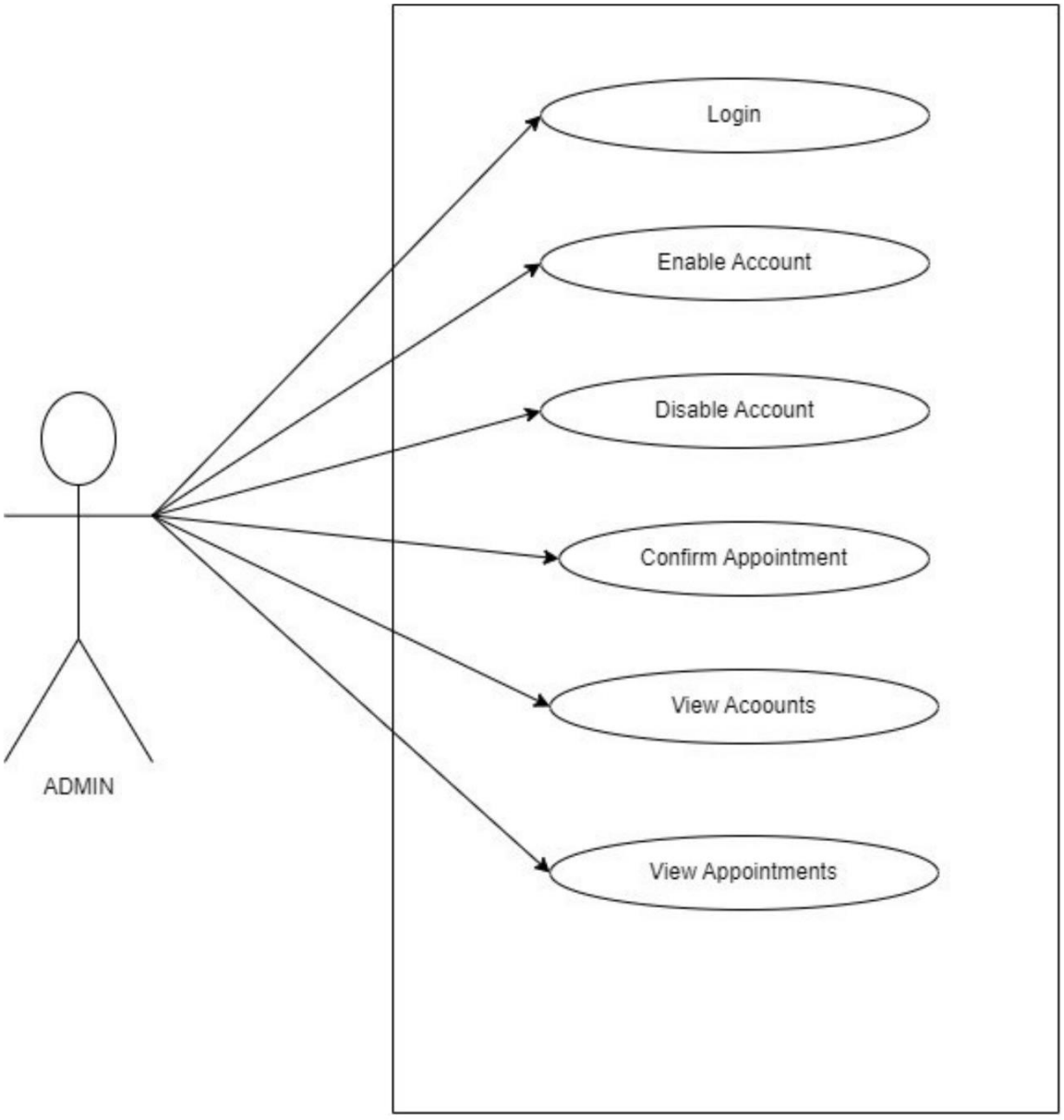


Class Diagram:



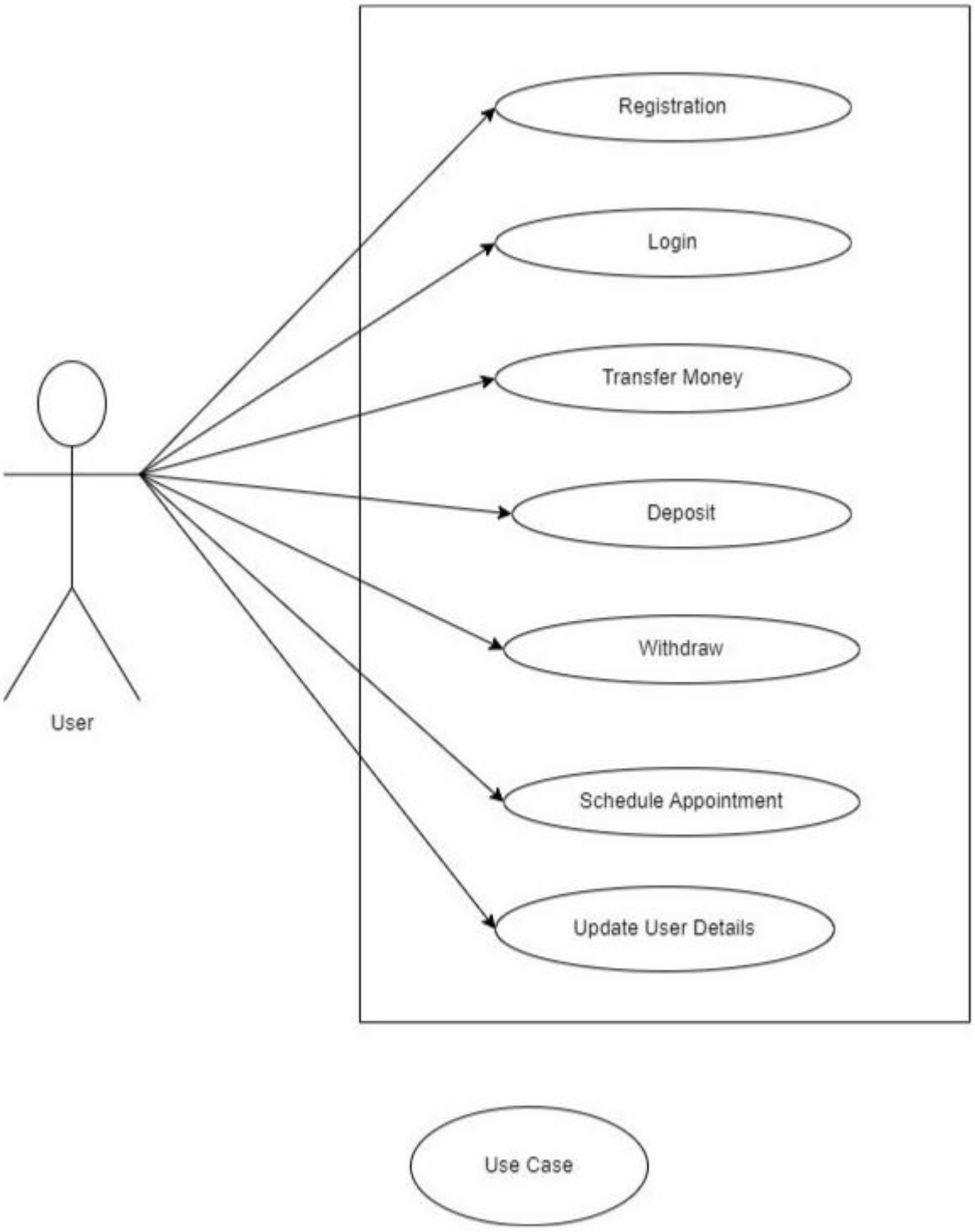
- **Use Case Diagram:**

Admin Use-case:

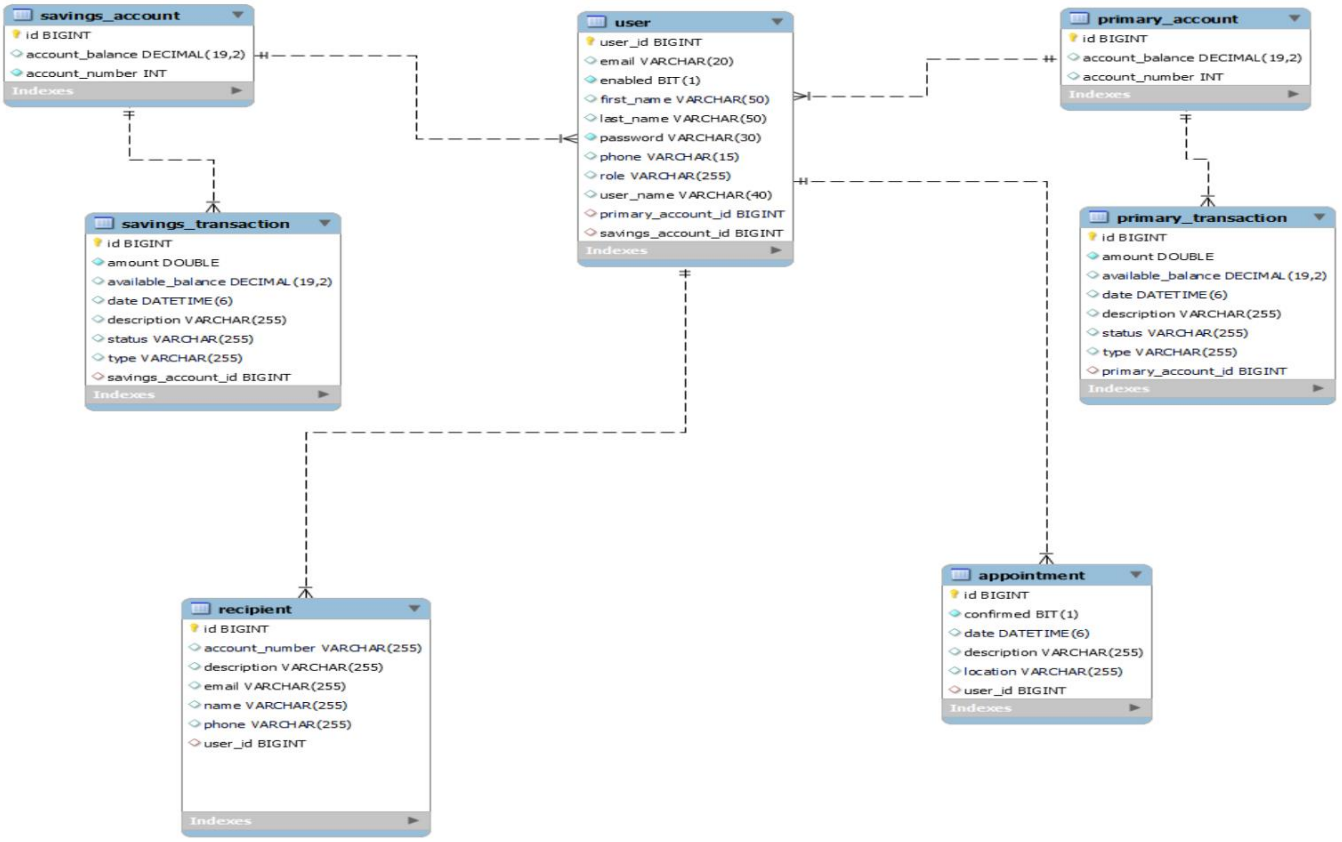


- **Use Case Diagram:**

  - User Use-case:



ER Diagram:


savings_account
id BIGINT
account_balance DECIMAL(19,2)
account_number INT
Indexes
user
user_id BIGINT
email VARCHAR(20)
enabled BIT(1)
first_name VARCHAR(50)
last_name VARCHAR(50)
password VARCHAR(30)
phone VARCHAR(15)
role VARCHAR(255)
user_name VARCHAR(40)
primary_account_id BIGINT
savings_account_id BIGINT
Indexes
primary_account
id BIGINT
account_balance DECIMAL(19,2)
account_number INT
Indexes
savings_transaction
id BIGINT
amount DOUBLE
available_balance DECIMAL(19,2)
date DATETIME(6)
description VARCHAR(255)
status VARCHAR(255)
type VARCHAR(255)
savings_account_id BIGINT
Indexes
primary_transaction
id BIGINT
amount DOUBLE
available_balance DECIMAL(19,2)
date DATETIME(6)
description VARCHAR(255)
status VARCHAR(255)
type VARCHAR(255)
primary_account_id BIGINT
Indexes
recipient
id BIGINT
account_number VARCHAR(255)
description VARCHAR(255)
email VARCHAR(255)
name VARCHAR(255)
phone VARCHAR(255)
user_id BIGINT
Indexes
appointment
id BIGINT
confirmed BIT(1)
date DATETIME(6)
description VARCHAR(255)
location VARCHAR(255)
user_id BIGINT
Indexes

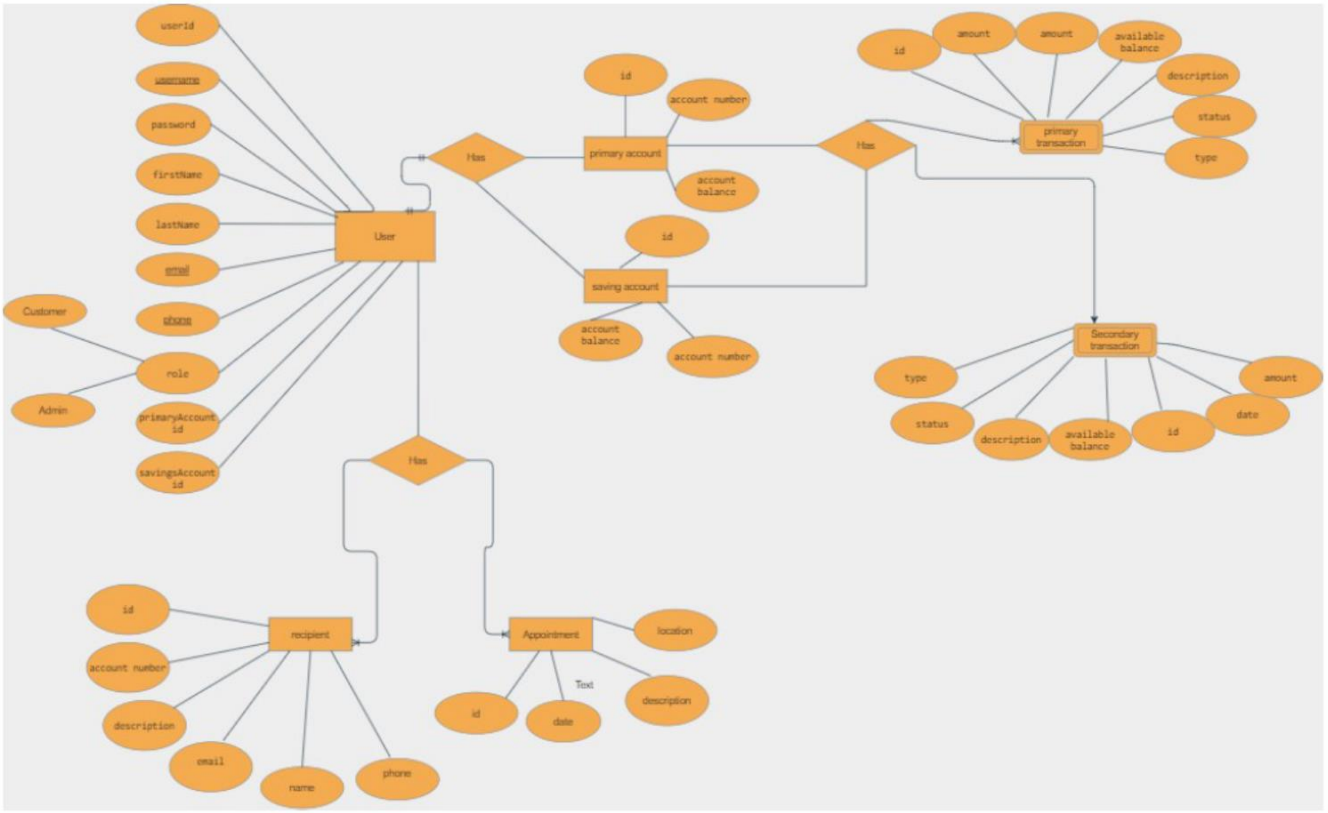

userId
username
password
firstName
lastName
email
phone
role
primaryAccount id
savingsAccount id
User
Has
primary account
id
account number
account balance
saving account
Customer
Admin
Has
id
amount
amount
available balance
description
status
type
primary transaction
Has
Secondary transaction
type
status
description
available balance
id
date
amount
Has
recipient
id
account number
description
email
name
phone
Appointment
location
Text
id
date
description

Table Structure

Table created for the user after signing up for a new account:

Field	Type	Null	Key	Default	Extra
user_id	bigint	NO	PRI	NULL	auto_increment
email	varchar(20)	YES	UNI	NULL	
enabled	bit(1)	NO		NULL	
first_name	varchar(50)	YES		NULL	
last_name	varchar(50)	YES		NULL	
password	varchar(30)	NO		NULL	
phone	varchar(15)	YES	UNI	NULL	
role	varchar(255)	YES		NULL	
user_name	varchar(40)	YES		NULL	
primary_account_id	bigint	YES	MUL	NULL	
savings_account_id	bigint	YES	MUL	NULL	

This is the table created in the database for the user. In this tables we have defined the following columns: user_id, email, first_name, last_name, password, phone, role, user_name, primary_account_id,
savings_account_id.

Table created for the user primary account:

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
account_balance	decimal(19,2)	YES		NULL	
account_number	int	YES		NULL	

This is the table created automatically for the user when signs for the new account. It has following columns in the table: id, account_balance, account_number.

Table created for the user savings account:

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
account_balance	decimal(19,2)	YES		NULL	
account_number	int	NO		NULL	

This is the table created automatically for the user when user signs for the new account. It has following columns in the table: id, account_balance and account_number.

Table created for the user appointment:

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
confirmed	bit(1)	NO		NULL	
date	datetime(6)	YES		NULL	
description	varchar(255)	YES		NULL	
location	varchar(255)	YES		NULL	
user_id	bigint	YES	MUL	NULL	

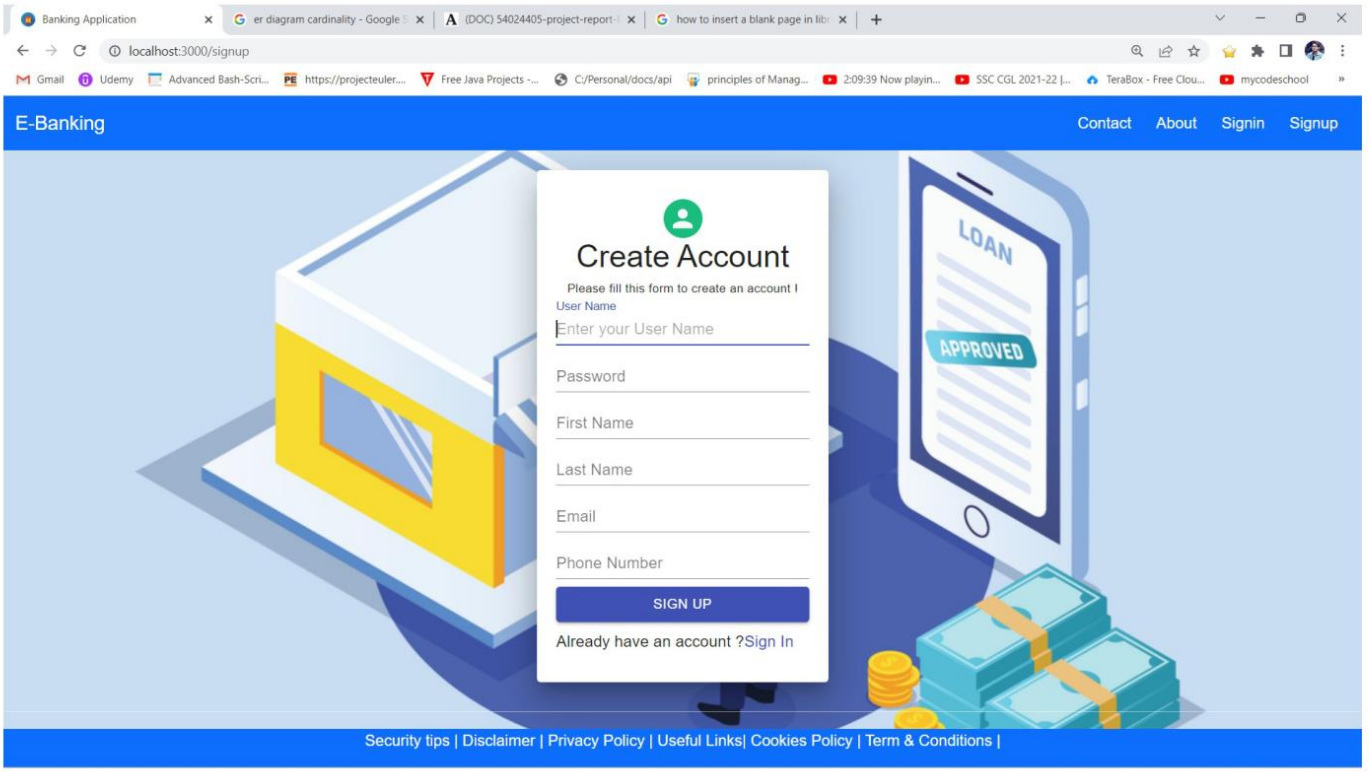
This is the table filled by the user when he schedules an appointment. It has the following columns in the table: id, date, description, location and user_id.

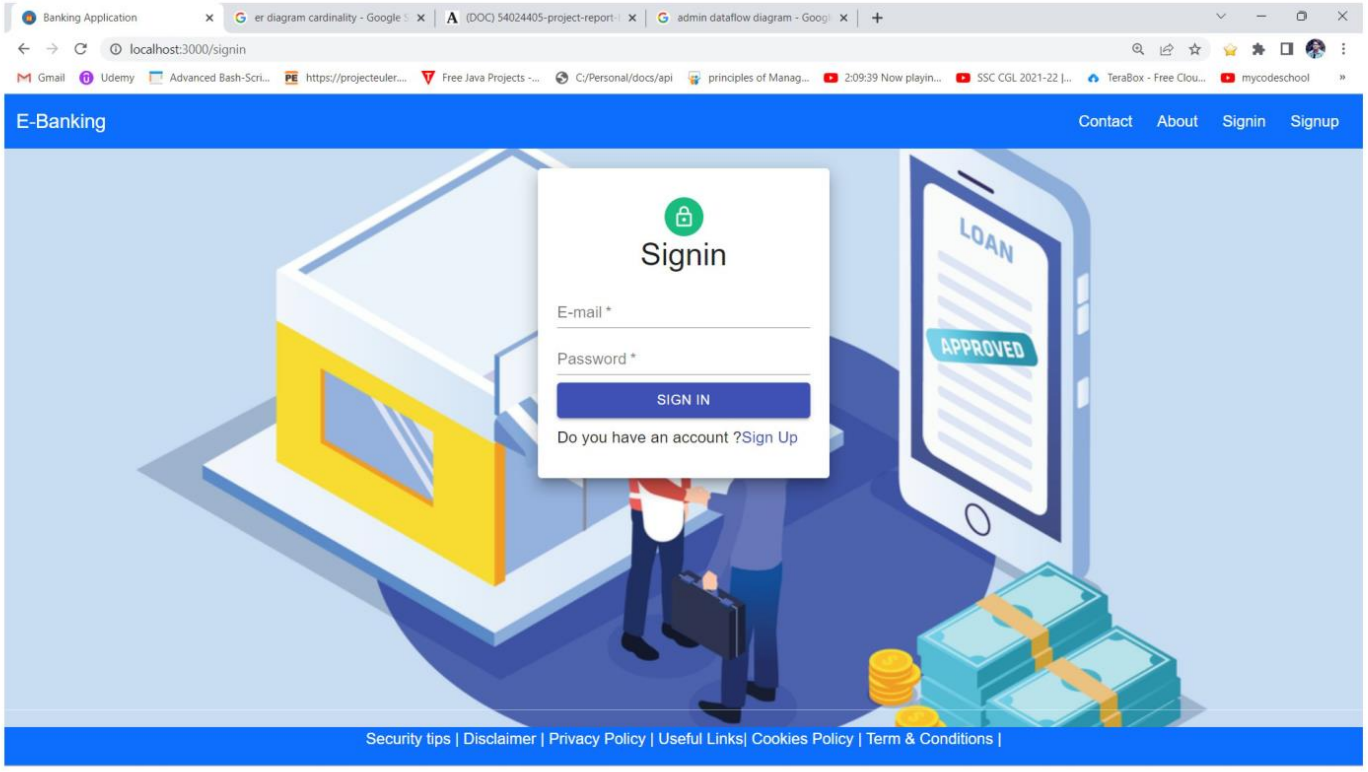
Table created for the user to add recipients:

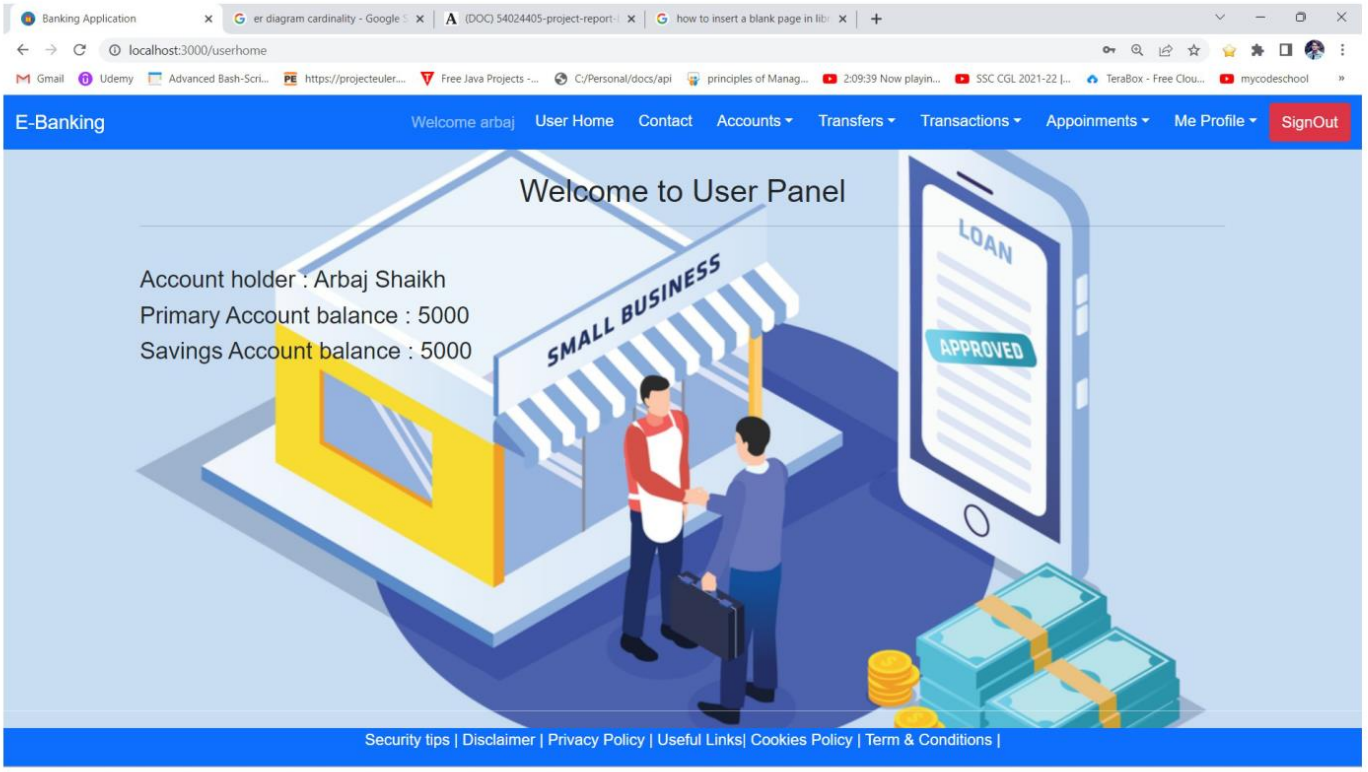
Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
account_number	varchar(255)	YES		NULL	
description	varchar(255)	YES		NULL	
email	varchar(255)	YES		NULL	
name	varchar(255)	YES		NULL	
phone	varchar(255)	YES		NULL	
user_id	bigint	YES	MUL	NULL	

This is the table created for the user when he wants to add people to whom the user wants to transfer the money. It has following columns: id, account number, description, email, name, phone and user_id.

Screenshots






Banking Application
localhost:3000/userhome
E-Banking
Welcome arbaj
User Home
Contact
Accounts
Transfers
Transactions
Appointments
Me Profile
SignOut
Welcome to User Panel
Account holder : Arbaj Shaikh
Primary Account balance : 5000
Savings Account balance : 5000
SMALL BUSINESS
LOAN
APPROVED
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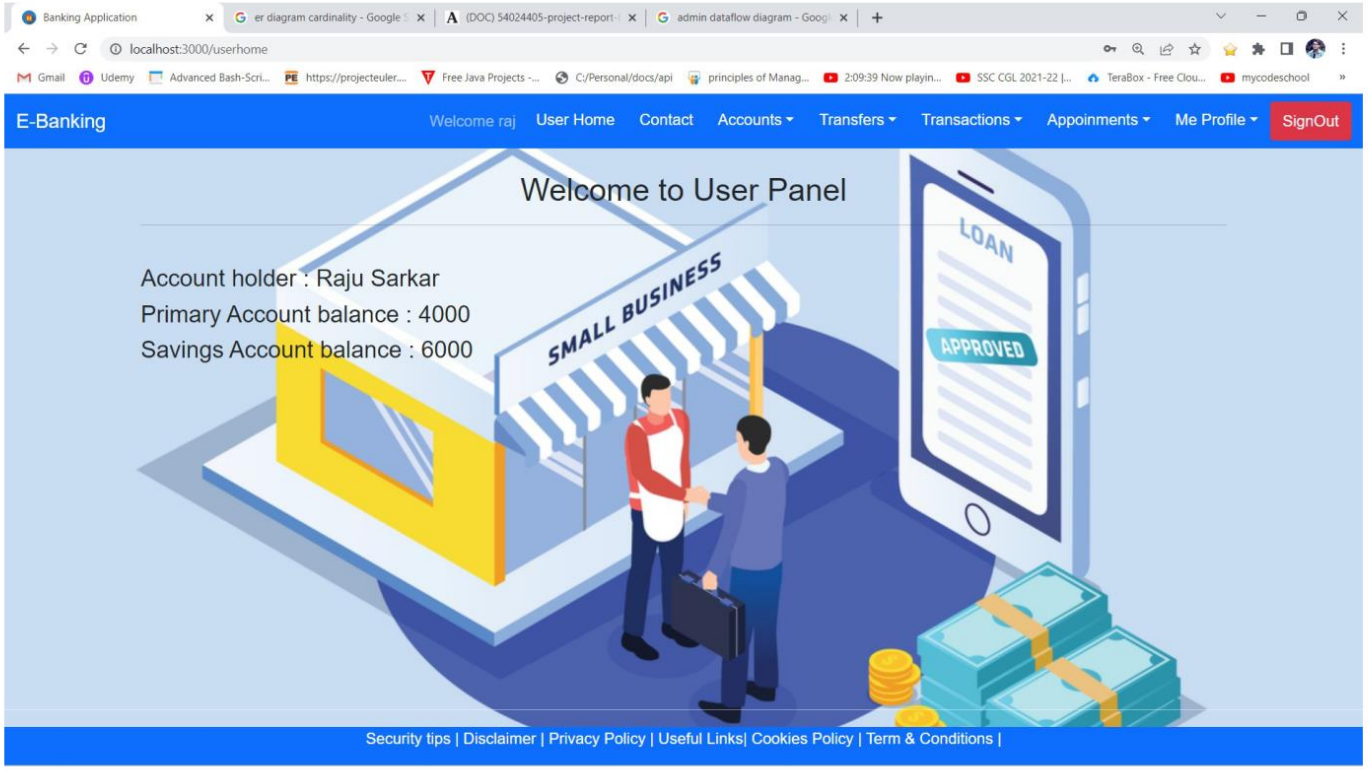
Banking Application
localhost:3000/userhome
E-Banking
Welcome raj
User Home
Contact
Accounts
Transfers
Transactions
Appointments
Me Profile
SignOut
Welcome to User Panel
Account holder : Raju Sarkar
Primary Account balance : 4000
Savings Account balance : 6000
SMALL BUSINESS
LOAN
APPROVED
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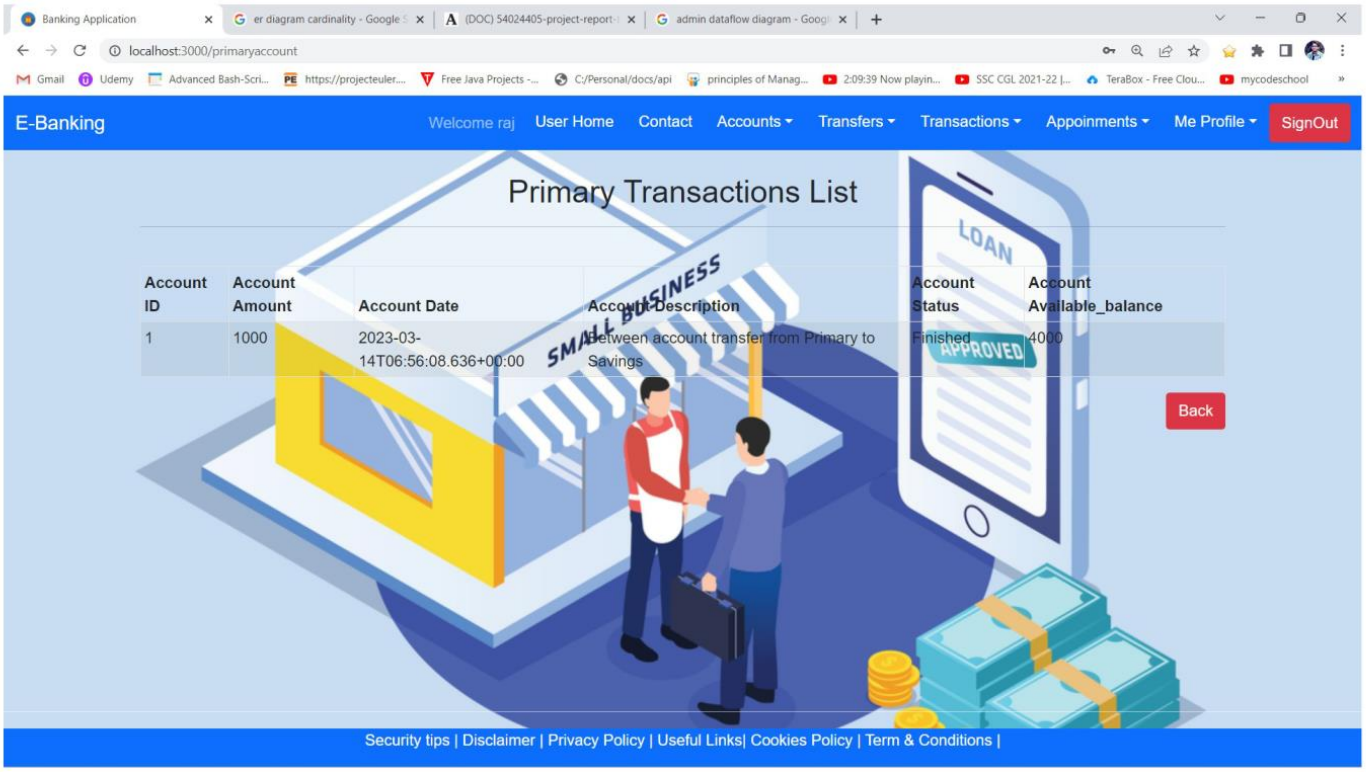
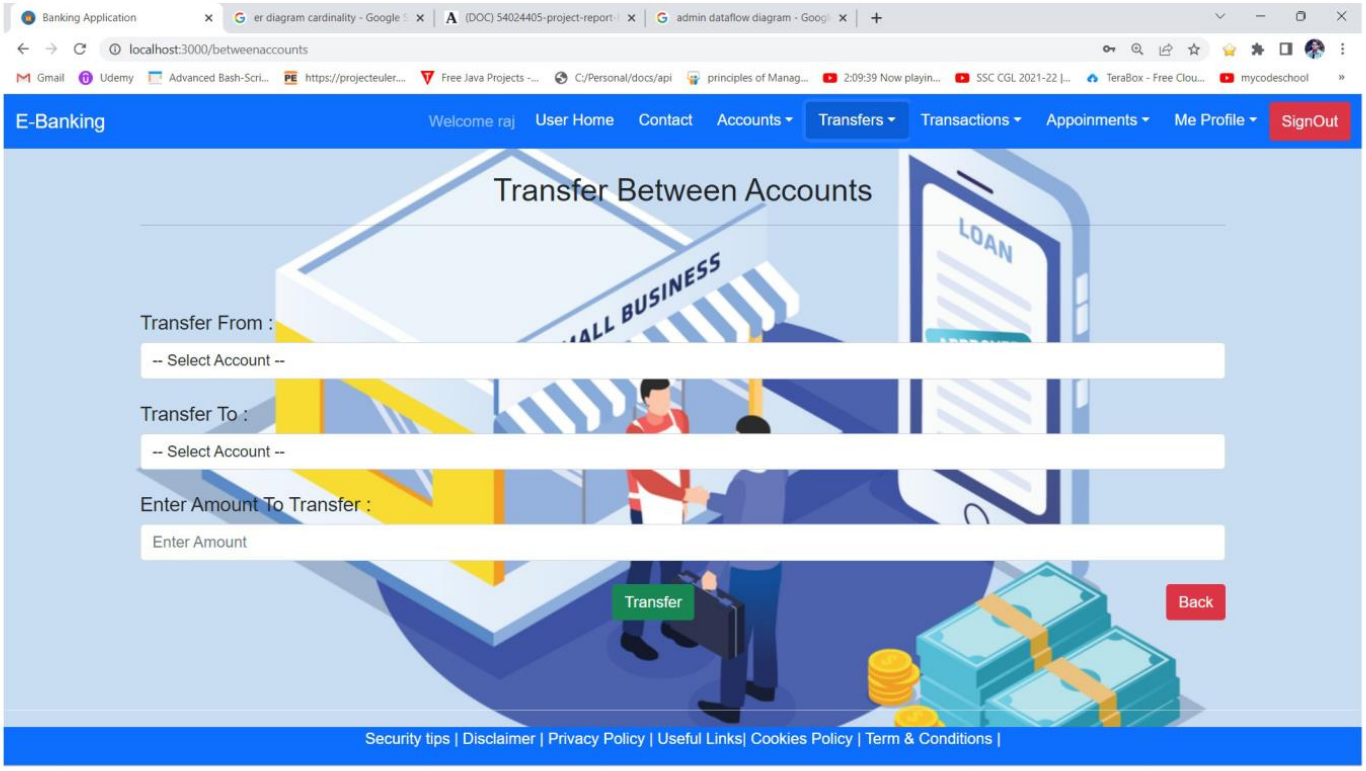
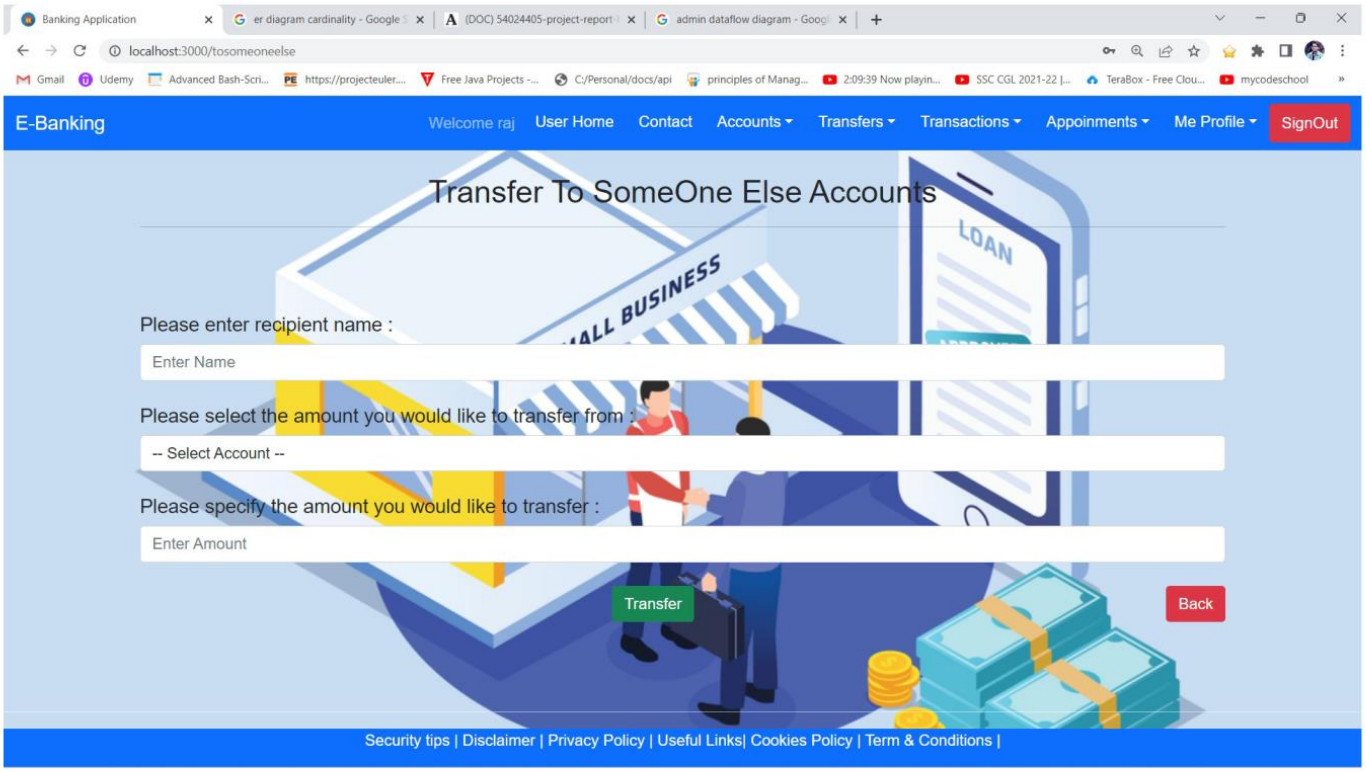
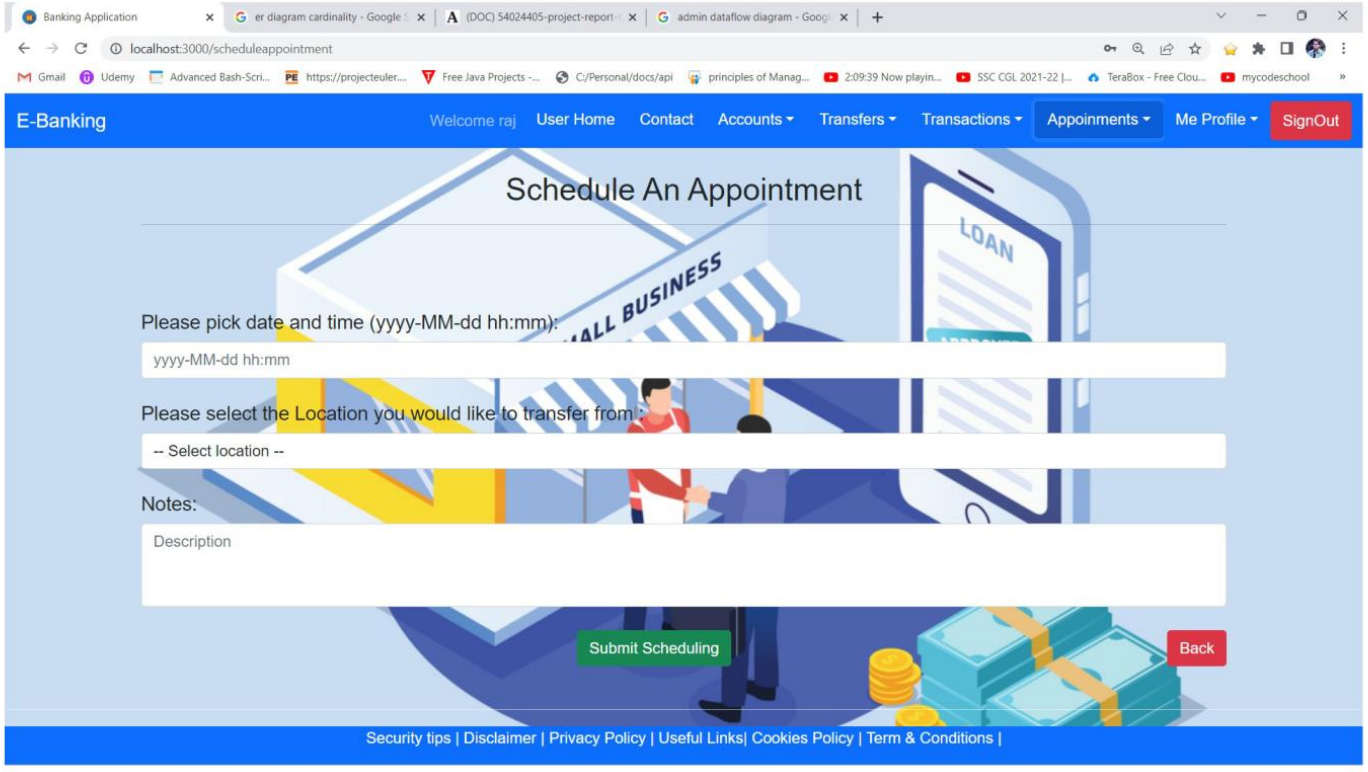
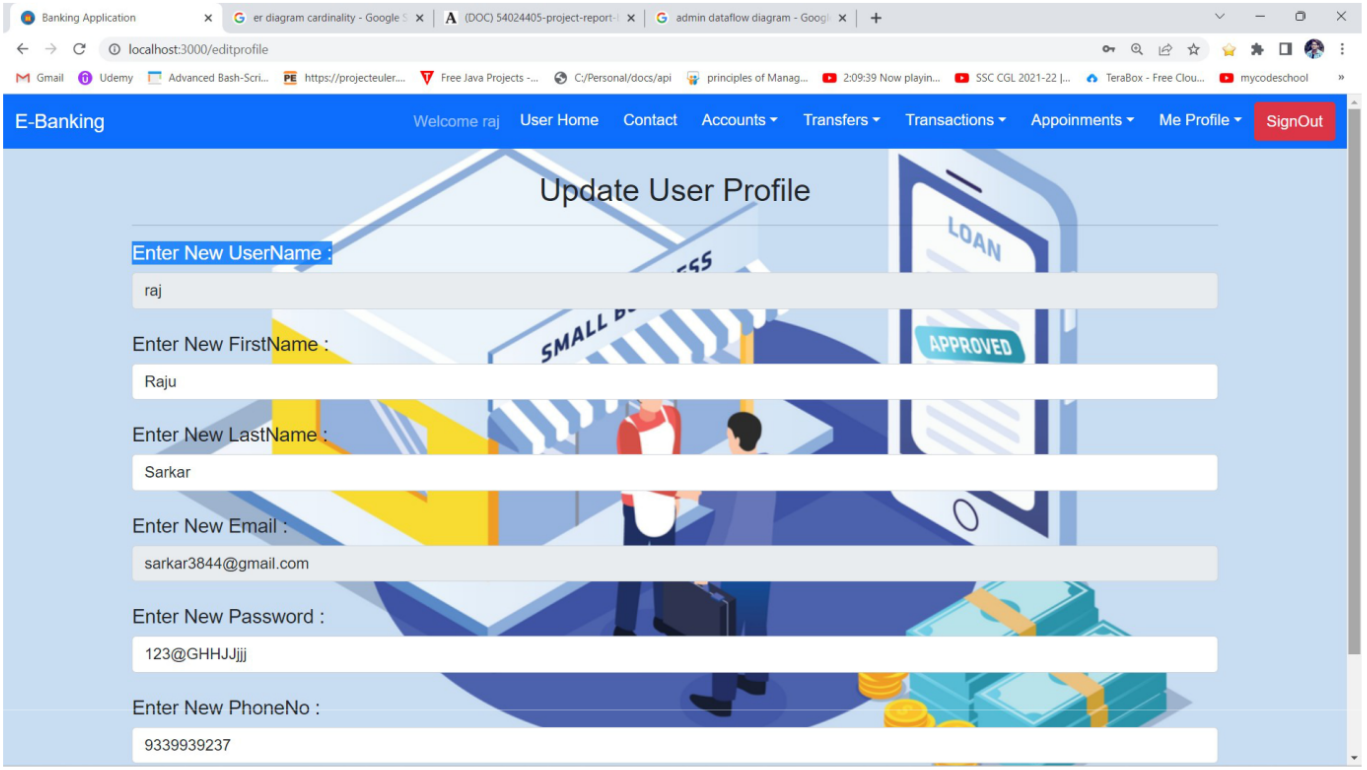

Banking Application
localhost:3000/primaryaccount
E-Banking
Welcome raj
User Home
Contact
Accounts
Transfers
Transactions
Appoinments
Me Profile
SignOut
Primary Transactions List
Account ID
Account Amount
Account Date
Account Description
Account Status
Account Available_balance
1
1000
2023-03-14T06:56:08.636+00:00
Between account transfer from Primary to Savings
Finished
4000
Back
Security tips | Disclaimer | Privacy Policy | Useful Links| Cookies Policy | Term & Conditions |


Banking Application
localhost:3000/betweenaccounts
E-Banking
Welcome raj
User Home
Contact
Accounts
Transfers
Transactions
Appoinments
Me Profile
SignOut
Transfer Between Accounts
Transfer From :
-- Select Account --
Transfer To :
-- Select Account --
Enter Amount To Transfer :
Enter Amount
Transfer
Back
Security tips | Disclaimer | Privacy Policy | Useful Links| Cookies Policy | Term & Conditions |


Banking Application
localhost:3000/tosomeoneelse
E-Banking
Welcome raj
User Home
Contact
Accounts
Transfers
Transactions
Appoinments
Me Profile
SignOut
Transfer To SomeOne Else Accounts
Please enter recipient name :
Enter Name
Please select the amount you would like to transfer from :
-- Select Account --
Please specify the amount you would like to transfer :
Enter Amount
Transfer
Back
Security tips | Disclaimer | Privacy Policy | Useful Links| Cookies Policy | Term & Conditions |


Banking Application
localhost:3000/scheduleappointment
E-Banking
Welcome raj
User Home
Contact
Accounts
Transfers
Transactions
Appoinments
Me Profile
SignOut
Schedule An Appointment
Please pick date and time (yyyy-MM-dd hh:mm):
yyyy-MM-dd hh:mm
Please select the Location you would like to transfer from :
-- Select location --
Notes:
Description
Submit Scheduling
Back
Security tips | Disclaimer | Privacy Policy | Useful Links| Cookies Policy | Term & Conditions |


Banking Application
localhost:3000/editprofile
E-Banking
Welcome raj
User Home
Contact
Accounts
Transfers
Transactions
Appoinments
Me Profile
SignOut
Update User Profile
Enter New UserName :
raj
Enter New FirstName :
Raju
Enter New LastName :
Sarkar
Enter New Email :
sarkar3844@gmail.com
Enter New Password :
123@GHHJJjjj
Enter New PhoneNo :
9339939237
LOAN
APPROVED

Conclusion:

This project helps in automating the existing manual system. This is a paperless work. It can be monitored and guarded remotely. All years together huddled information can be saved and can be accessed at any time. For this reason, the data stored in the repository helps in taking decision by management. So, it is improved to have a Web Based system. All the users and authority can get the required information without delay. This system is crucial in the banking sector.

Future Scope:

This project can be enhanced further by adding branches and available help centers for account holders queries. We can add various payment gateways for shopping online for the users. The software is flexible enough to be modified and implemented as per future requirements. We have tried our best to present this free and user–friendly website.

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