

University of Dhaka

Computer Science and Engineering



CSE-2112: Object Oriented Programming Lab

Project Name: CSEDU BANKING MANAGEMENT SYSTEM

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ABSTRACT

This is a project report on **“CSEDU BANKING MANAGEMENT SYESTEM”**. During the making/developing of this project we explored new ideas and functionality behind the working of **JAVA, JAVA FX** and **MYSQL**.

We have learnt a lot during this project and liked the improvement in our testing skills and deep concept related to these kinds of projects.

Our project is **“CSEDU BANKING MANAGEMENT SYESTEM”**. This is an offline application which helps admin or owners of a bank to track all the details of a customer, loan and fixed deposit management in efficient way and helps customers of a bank for easy transaction like deposit, withdraw, transfer money, all accounts management, taking loan, fixed deposit and many more.

This report lays all the information and design about our project.

“CSEDU BANKING MANAGEMENT Empowering Your Financial Future “

INTRODUCTION

CSEDU BANKING MANAGEMENT is an object-oriented programming project using **JAVA** for structure of the code, **JAVAFX**, **CSS** for graphical interface design and **MYSQL** for data store and reuse them. As it is an object-oriented design, it is open for extension but closed for modification while adding new features.

Project Components and features

There are two types of users of our application -> Owner or Admin of a Bank and the customers of the Bank.

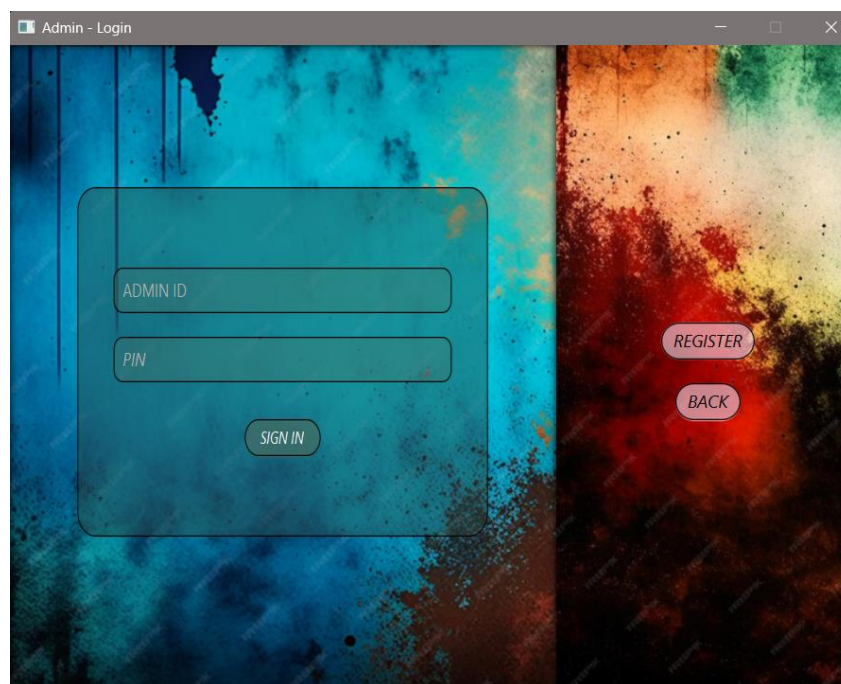
User components and features:

- src/openingPageController handle this feature. There are 3 options -> Admin login, Customer Login and Quit
- User can choice whether he is a customer or an admin and enter to his type.



Admin components and features:

- Admin login
 - src/AdminLoginController handle this feature. Admin can enter account with right password and username. If there is error in input or incorrect password or username it will show an error alert.



- Admin Registration
 - Admin can open new account.
src/AdminRegistrationController handle this page.
Admin will need to fill up all the boxes with some additional verification. They are-
 - Minimum 8 characters long password
 - Minimum 3 characters long username
 - Email address consist 3character+@gmail.com
 - Phone number must be 11 digits.

Data's will be added to the MySQL tables.

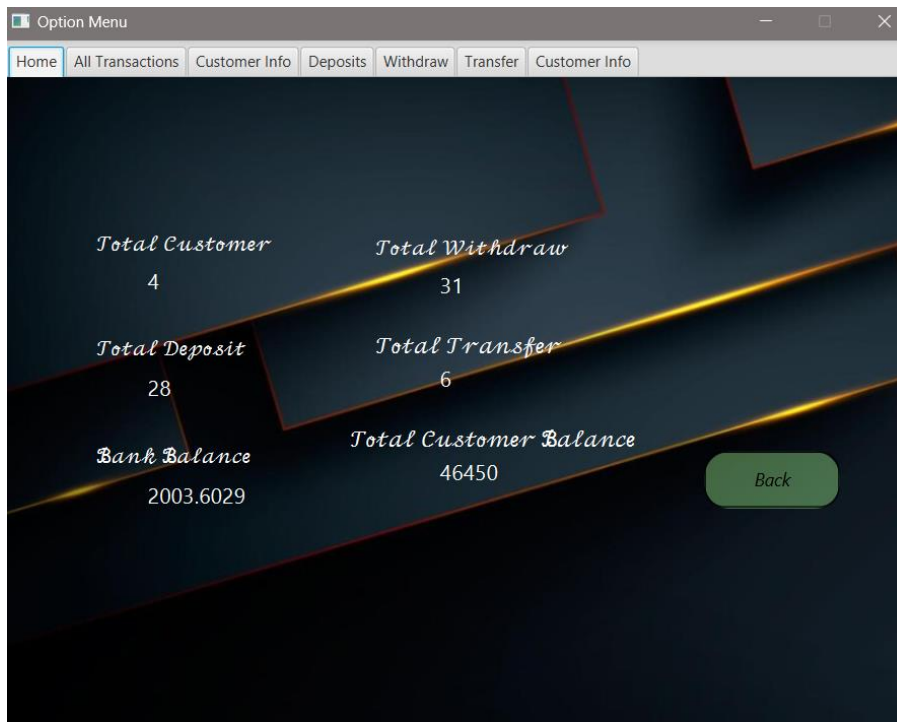
The screenshot shows a web browser window titled "Admin - Registratio" displaying a registration form titled "Create your account". The form is set against a dark background with red and purple geometric shapes. It contains the following fields and controls:

- firstname**: A text input field with the placeholder "first name".
- lastname**: A text input field with the placeholder "last name".
- userId**: A text input field with the placeholder "username".
- Password**: A text input field with the placeholder "password (8 digit)".
- Phone number**: A text input field with the placeholder "phone number (11 digit)".
- Email Address**: A text input field with the placeholder "Mail (abc@gmail.com)".
- Date of Birth:**: A date picker control with the placeholder "select from the calender".
- Gender**: A dropdown menu with the placeholder "Select your gender".

At the bottom of the form, there are two buttons: "Submit" and "Back".

- ✓ Admin have multiple features. All the admin features are handled by src/AdminPageController file.

- Home page – There are some basic info.



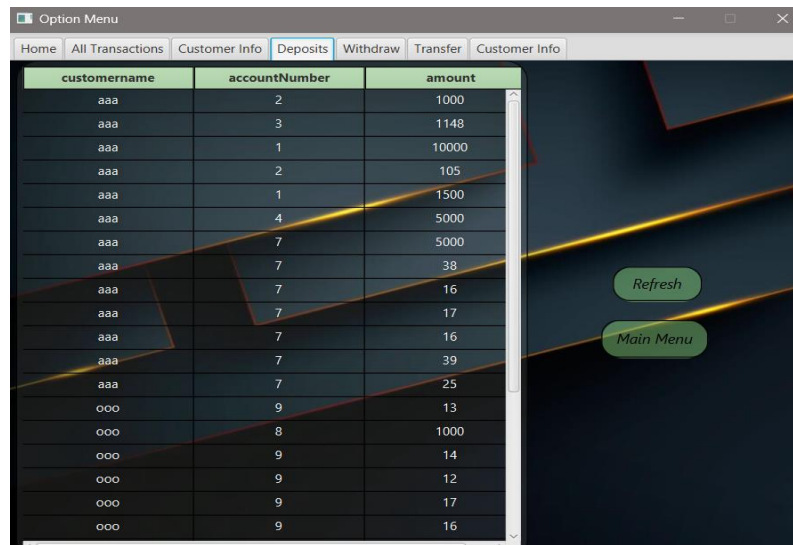
- View and keep track of all transactions
 - Admin can view all the transactions in a table (customer name, account number, transaction type amount). refreshedallTr() is responsible for this view.

The screenshot shows the 'All Transactions' page of the 'Option Menu' application. The page features a dark blue background with yellow and red geometric patterns. The table displays the following transactions:

customername	accountNumber	transactiontype	amount
aaa	2	deposit	1000
aaa	3	withdraw	1000
aaa	3	deposit	1148
aaa	2	withdraw	1028
aaa	2	withdraw	100
aaa	1	deposit	10000
aaa	2	deposit	105
aaa	1	deposit	1500
aaa	1	withdraw	1000
aaa	4	deposit	5000
aaa	7	deposit	5000
aaa	7	withdraw	5111
aaa	7	withdraw	10
aaa	7	deposit	38
aaa	7	withdraw	10
aaa	7	deposit	16
aaa	7	withdraw	10
aaa	7	deposit	17
aaa	7	withdraw	10

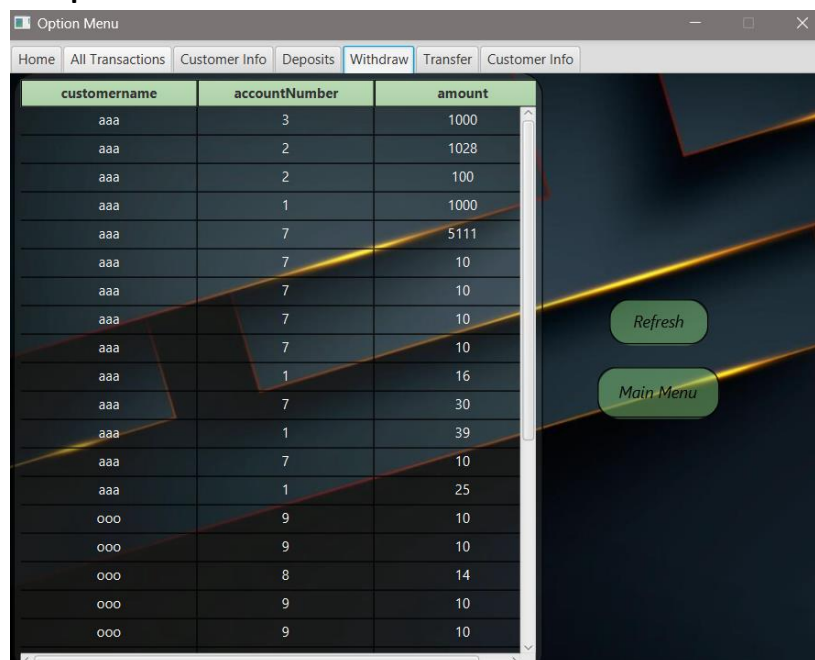
On the right side of the table, there are two green buttons: 'Refresh' and 'Main Menu'.

- View and keep track of all deposit transactions
 - Admin can view all the deposits in a table (customer name, account number, amount). refreshdepo () is responsible for this view.



customername	accountNumber	amount
aaa	2	1000
aaa	3	1148
aaa	1	10000
aaa	2	105
aaa	1	1500
aaa	4	5000
aaa	7	5000
aaa	7	38
aaa	7	16
aaa	7	17
aaa	7	16
aaa	7	39
aaa	7	25
ooo	9	13
ooo	8	1000
ooo	9	14
ooo	9	12
ooo	9	17
ooo	9	16

- View and keep track of all withdraw transactions
 - Admin can view all the withdraw in a table (customer name, account number, amount). refreshwithdraw() is responsible for this view.



customername	accountNumber	amount
aaa	3	1000
aaa	2	1028
aaa	2	100
aaa	1	1000
aaa	7	5111
aaa	7	10
aaa	7	10
aaa	7	10
aaa	7	10
aaa	1	16
aaa	7	30
aaa	1	39
aaa	7	10
aaa	1	25
ooo	9	10
ooo	9	10
ooo	8	14
ooo	9	10
ooo	9	10

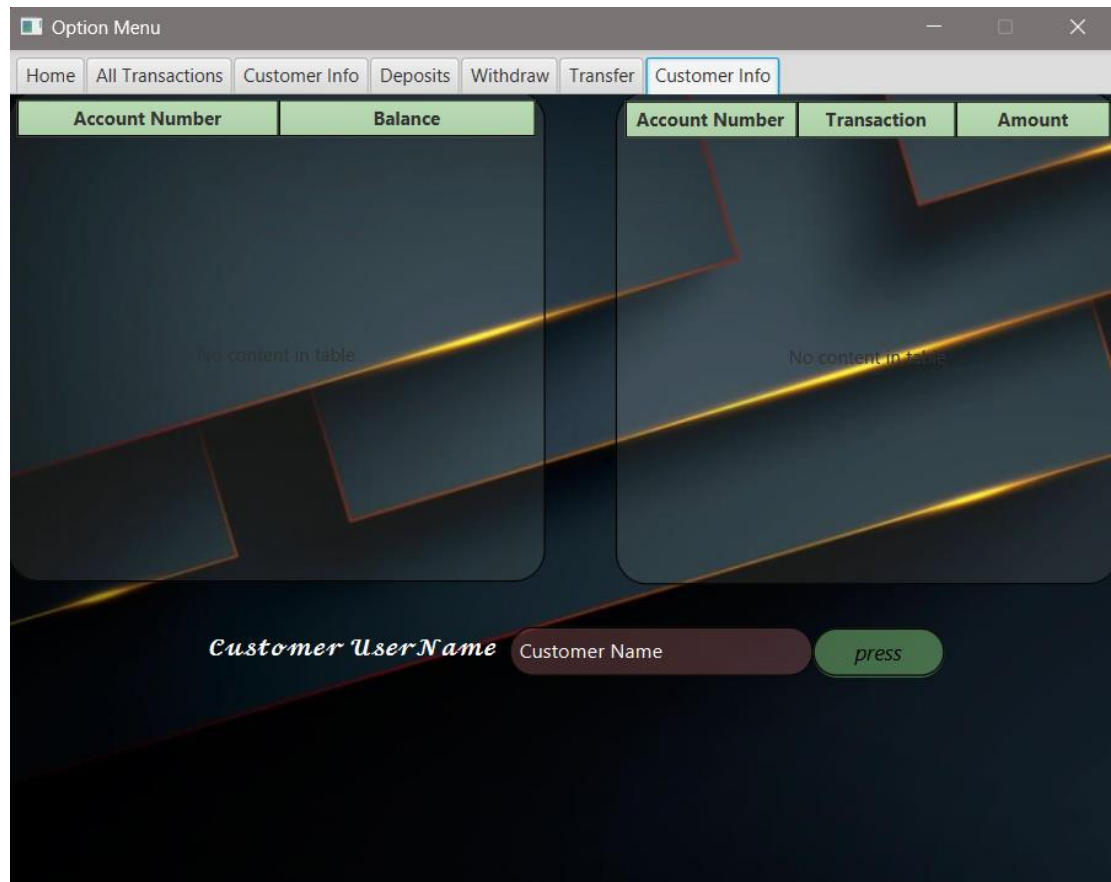
- [illegible]

- The screenshot shows the "Option Menu" window with several tabs at the top: Home, All Transactions, Customer Info, Deposits, Withdraw, Transfer, and Customer Info. The "Customer Info" tab is currently selected.

username	accountnumber	balance
aaa	1	15091
aaa	4	5000
aaa	5	0
bbb	6	13031
ooo	8	970
aaa	9	50
aaa	10	1000
aaa	11	1
aaa	12	1000
aaa	13	1348
aaa	14	1050
aaa	15	1010
aaa	16	0
adib	17	6899
aaa	19	0

To the right of the table are two green buttons labeled "Refresh" and "Main Menu". At the bottom left, there is a search bar containing "< | >" and a small magnifying glass icon.

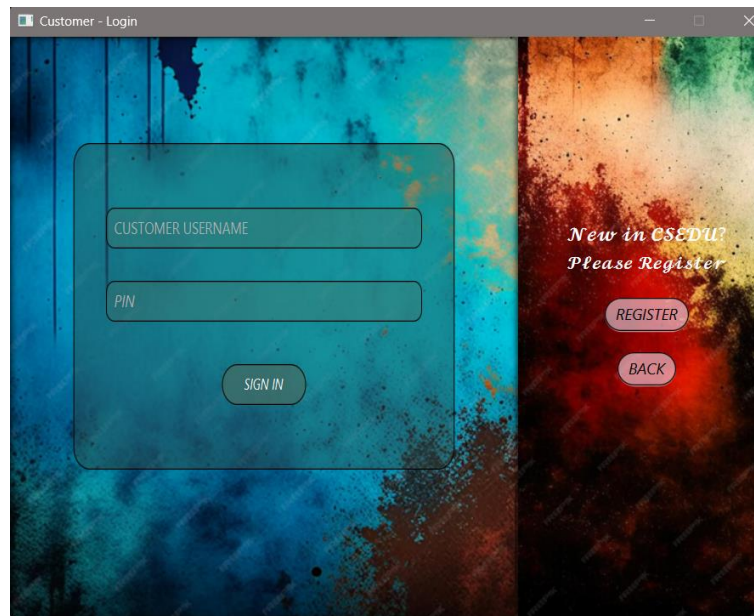
- View and keep track of specific customer details
 - Admin can view specific customer details. There is a search option. If the customer exists than all data will be shown in the tables. Searchcustomer() is responsible for this.



- Management of loan and fixed deposits
 - Bank has a balance. When any customer opens a fixed deposit account this balance will be added to the bank balance. When any customer take loan than the customer will take money from this. At the time of repay loan he will need to pay extra 5% interest. And when a customer withdraws his fixed deposit, he will receive the money with 3% interest.

Customer components and features

- Customer Login-
 - src/CustomerLoginController file is responsible for these functions. The username and password will be crosschecked with the MySQL database data. If incorrect it will show alerts.



- Customer Registration:
 - Customers can open new account.
src/registerController file handle this. Customer will need to fill up all the boxes with some additional verification. They are-
 - Minimum 8 characters long password
 - Minimum 3 characters long username
 - Email address consist 3character+@gmail.com
 - Phone number must be 11 digits.
- Data's will be added to the MySQL tables.

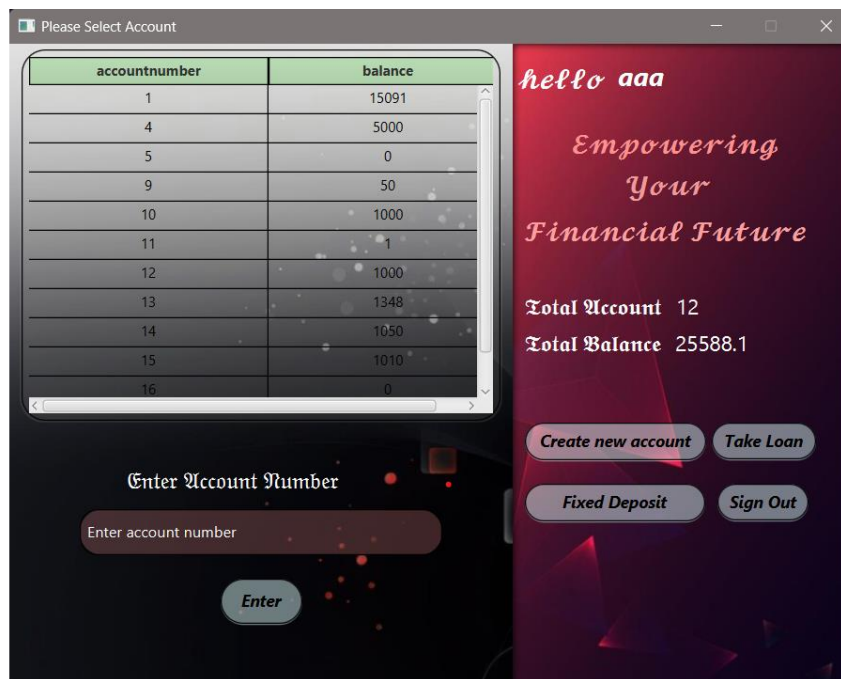
The image shows a web browser window titled "Customer - Registration". The main heading is "Create your account". The form contains the following fields:

- firstname**: Input field with placeholder "first name".
- lastname**: Input field with placeholder "last name".
- Username**: Input field with placeholder "username".
- Password**: Input field with placeholder "password (8 digit)".
- Phone Number**: Input field with placeholder "phone number (11 digit)".
- Email Address**: Input field with placeholder "mail (abc@gmail.com)".
- Date of Birth**: A date picker with the placeholder "select from the calendar".
- Gender**: A dropdown menu with the placeholder "Select your gender".

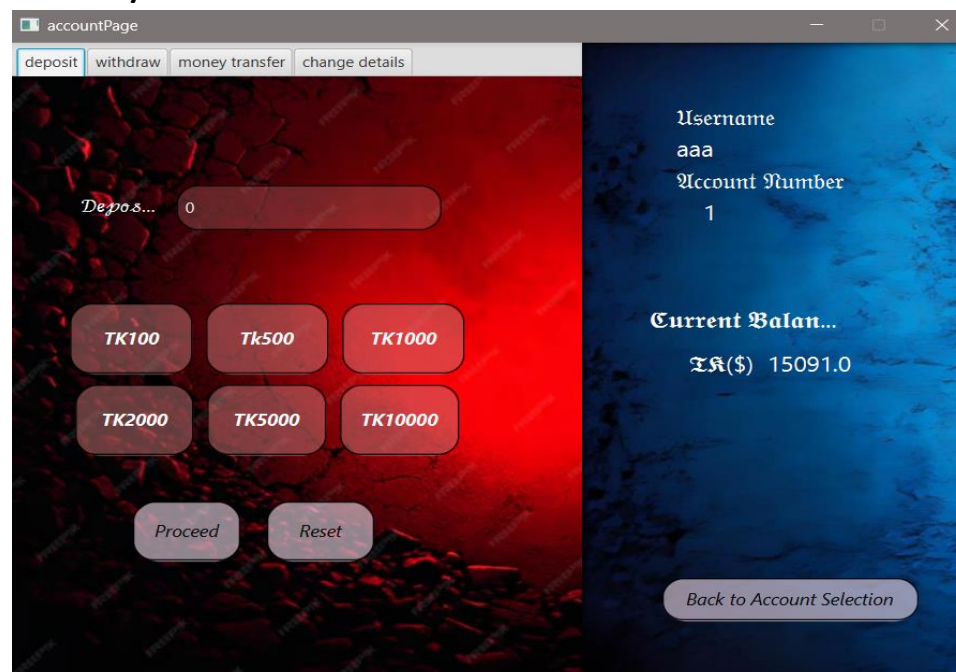
At the bottom of the form are two buttons: "Submit" and "Back". The background of the form is a dark, abstract geometric pattern.

- Customer Account Selection:
 - In this page customer can view all of his accounts in a table. Also customer can open a new normal bank account by clicking 'Create New Account'. Customer can make a fixed deposit. Customer will receive interest(3%) for their fixed deposit money. Bank will give this bonus. Also customer can take loan from bank. At the time of repay customer need to repay with interest(5%). Banks profit is basically come from this. Customer can view his total assets also in this page(total balance). For entering in a account customer need to type account number. If it is a normal account than he will open transaction page or else he will enter to the loan deposit/ fixed deposit withdraw.

customerAccountSelection is responsible for this page actions.



- Account Transaction:
 - Deposit: This is controlled by deposit class and accountTransaction class. Here a customer can deposit money to his account and see balance.



- Withdraw: This is controlled by withdraw class and accountTransaction class. Here a customer can withdraw money from his account and see balance.

The screenshot shows the 'withdraw' page of the 'accountPage' application. The page has a dark red background with a subtle pattern. At the top, there are four tabs: 'deposit', 'withdraw', 'money transfer', and 'change details'. The 'withdraw' tab is selected. Below the tabs, the word 'withdraw' is displayed in a stylized font. To its right is a text input field containing the number '6789'. Below this input field are six buttons arranged in two rows: 'TK100', 'TK500', 'TK1000' in the first row, and 'TK2000', 'TK5000', 'TK10000' in the second row. At the bottom of these buttons are two more buttons: 'Proceed' and 'Reset'. On the right side of the page, there is a blue sidebar with white text. It displays 'Username: aaa' and 'Account Number: 1'. Below this, it shows 'Current Balan...' followed by 'TK(\$) 15091.0'. At the bottom of the sidebar is a button labeled 'Back to Account Selection'.

- Money Transfer: This is controlled by transfer class and accountTransaction class. Here a customer can transfer money to any bank account (must be normal account. Else it will show alert for a advance account).

The screenshot shows the 'Money Transfer' page of the 'accountPage' application. The page has a dark red background with a subtle pattern. At the top, there are four tabs: 'deposit', 'withdraw', 'money transfer', and 'change details'. The 'money transfer' tab is selected. Below the tabs, the words 'Money Transfer' are displayed in a stylized font. In the center of the page is a dark red rounded rectangle containing two text input fields: 'ACCOUNT ID' and 'Amount'. Below these input fields is a button labeled 'TRANSFER'. On the right side of the page, there is a blue sidebar with white text. It displays 'Username: aaa' and 'Account Number: 1'. Below this, it shows 'Current Balan...' followed by 'TK(\$) 15091.0'. At the bottom of the sidebar is a button labeled 'Back to Account Selection'.

- Change Details: Customer can change his details here and overwrite in MySQL database.

The screenshot shows a web application window titled 'accountPage'. It has a navigation bar with tabs: 'deposit', 'withdraw', 'money transfer', and 'change details' (which is selected). The main content area is split into two panels. The left panel, titled 'Change Details', has a red background and contains several input fields: 'aaa' (text), 'aa' (text), '12345678900' (text), 'qwer@gmail.com' (text), '5/2/2024' (date with a calendar icon), and 'Female' (dropdown menu). Below these fields is an 'Update' button. The right panel, with a blue background, displays account information: 'Username: aaa', 'Account Number: 1', and 'Current Balan...: ₹(\$) 15091.0'. At the bottom of the right panel is a 'Back to Account Selection' button.

- Fixed Deposit:
 - Fixed Deposit: Customer can open fixed deposit account and get interest. This account will be considered as a special type of account. First select start date.

The screenshot shows a web application window titled 'fixedDeposit'. The main content area has a dark purple background. It features a 'Welcome!!!' message and the text 'You are going to open a saving account'. Below this, there is a 'Saving account' section with an 'Amount' input field and a 'Please select todays date' label above a date input field with a calendar icon. A 'Submit' button is located below the date field. On the right side, there is a 'Current Interest Rate' of '3.0%'. At the bottom right corner, there is a 'Back' button.

- Fixed deposit withdraw: Customer can withdraw money of fixed deposit. In this part they will receive interest from bank when they select end date of fixed deposit. Need to select end date of deposit.

The screenshot shows a window titled "Saving Account". The interface has a dark purple and red background. On the left, it says "Welcome!!! You are in your deposit account". Below this, there are three input fields: "Starting amount" with the value "1920.0", "Please select end date" with the value "5/7/2027" and a calendar icon, and "Current amount" with the value "2093.2734". On the right, it says "Current Interest Rate 3.0%". Below that, it asks "Withdraw fixed deposit?" with a "YES" button. At the bottom right, there is a "Back" button.

- Take loan:
 - Loan: Customer can take loan account and give interest to bank. This account will be considered as a special type of account. Need to select start date.

The screenshot shows a window titled "loan". The interface has a dark purple and red background. On the left, it says "Welcome!!! You are goint to open a loan account". Below this, there are three input fields: "Maximum balance" with the value "3923.603", "Take loan(Amount)" with the value "Loan Amount", and "please select todays date" with a calendar icon. At the bottom left, there is a "Submit" button. On the right, it says "Current Interest Rate: 5.0%". At the bottom right, there is a "Back" button.

- Loan Account

Welcome!!!

You are in your loan account

Starting Amount

Please select end date

Current Amount

repay Account number

Current Interest Rate: 5.0%

There is two option to repay

If you select "Pay Cash" you will need to pay from your cash.

If you pay from any of your account you will be charged.

Pay Account

Pay Cash

Back

- Admin. Two field here. Password and Username. Login crosschecked will be done by this.

- [illegible]

- Customer: Customer Login crosschecked will be done be this tabs.

	username	password
▶	aaa	12345678
	adib	12345678
	bbb	12345678
	ooo	12345678
•	NULL	NULL

- Customerall: Customers all detail will be added here.

	username	fname	lname	phoneno	email	dob	Gender	balance
▶	aaa	aaa	aa	12345678900	qwer@gmail.com	2024-05-02	Female	25519.1
	adib	adib	adib	12345678900	asdf@gmail.com	2024-05-04	Male	7199.31
	bbb	bb	bb	12345678900	abc@gmail.com	2024-04-30	Male	13031
	ooo	b	b	09876543211	amm@gmail.com	2024-05-01	Male	969.492
•	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

- Transaction: All the transactions will be added here.

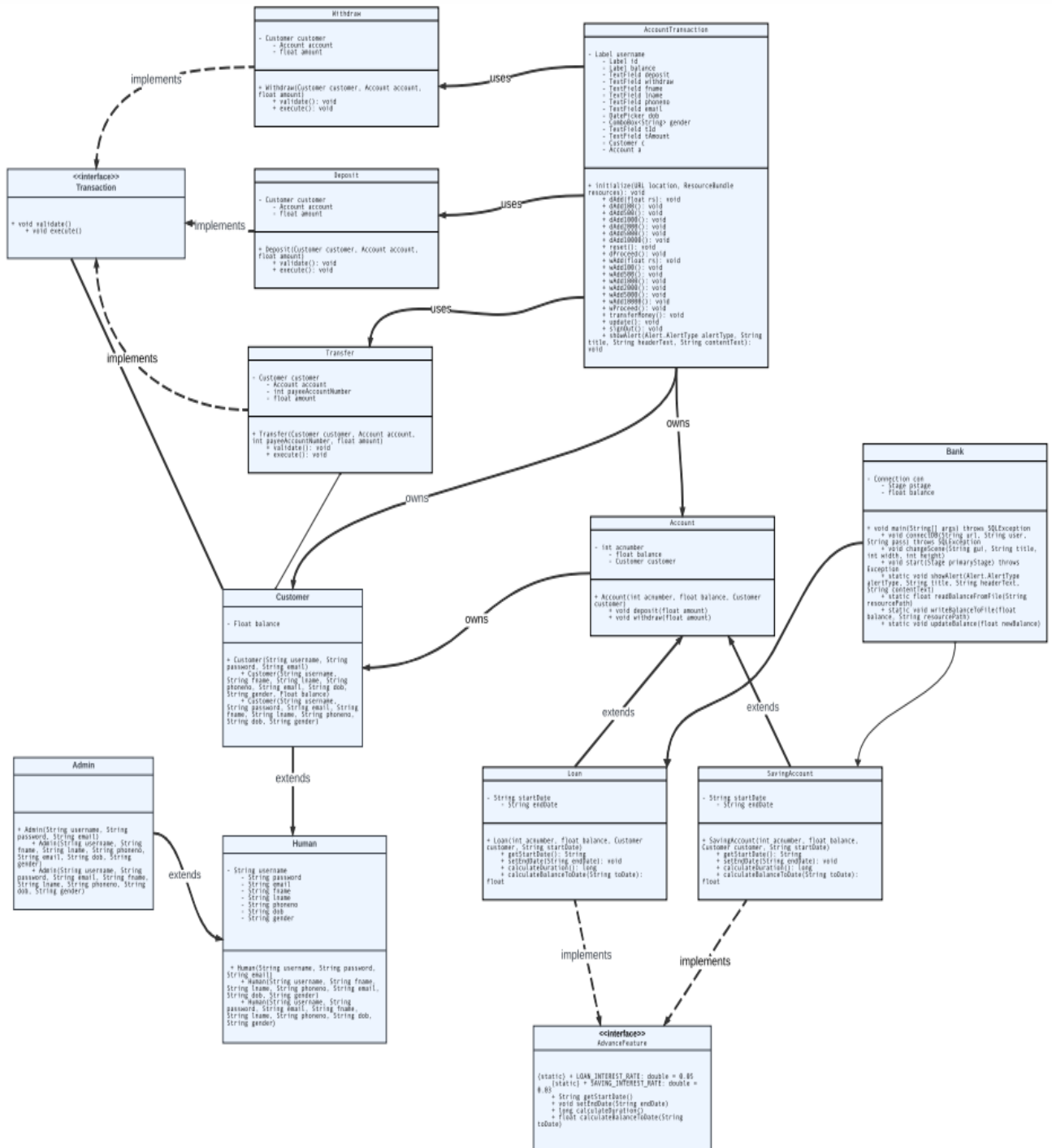
	ID	accountNumber	customername	transactiontype	amount	toaccountnumber
▶	1	2	aaa	deposit	1000	2
	2	3	aaa	withdraw	1000	3
	3	3	aaa	deposit	1148	3
	4	2	aaa	withdraw	1028	2
	5	2	aaa	withdraw	100	2

- Useraccounts: All customers all account will be here.

	username	accountnumber	balance
▶	aaa	1	15091
	aaa	4	5000
	aaa	5	0
	bbb	6	13031
	ooo	8	970
	aaa	9	50

- Advance: All advance account (loan, fixed deposit) will be added here.

	username	accountnumber	balance	accounttype	startingdate	endingdate
▶	aaa	9	50	loan	2024-04-29	NULL
	aaa	10	1000	fixedDeposit	2024-05-04	NULL
	aaa	11	1	loan	2024-05-02	NULL
	aaa	12	1000	fixedDeposit	2024-05-02	NULL
	aaa	20	1920	fixedDeposit	2024-05-04	NULL



SUMMARY

This project was a interesting project to work because of lot of functionalities and cleares a lot of doubts about **JAVA** and **DESIGN**. Our project quality can be improved as it was the first one, many design was not enough efficient. We can upgrade the design more efficiently.

=====END=====