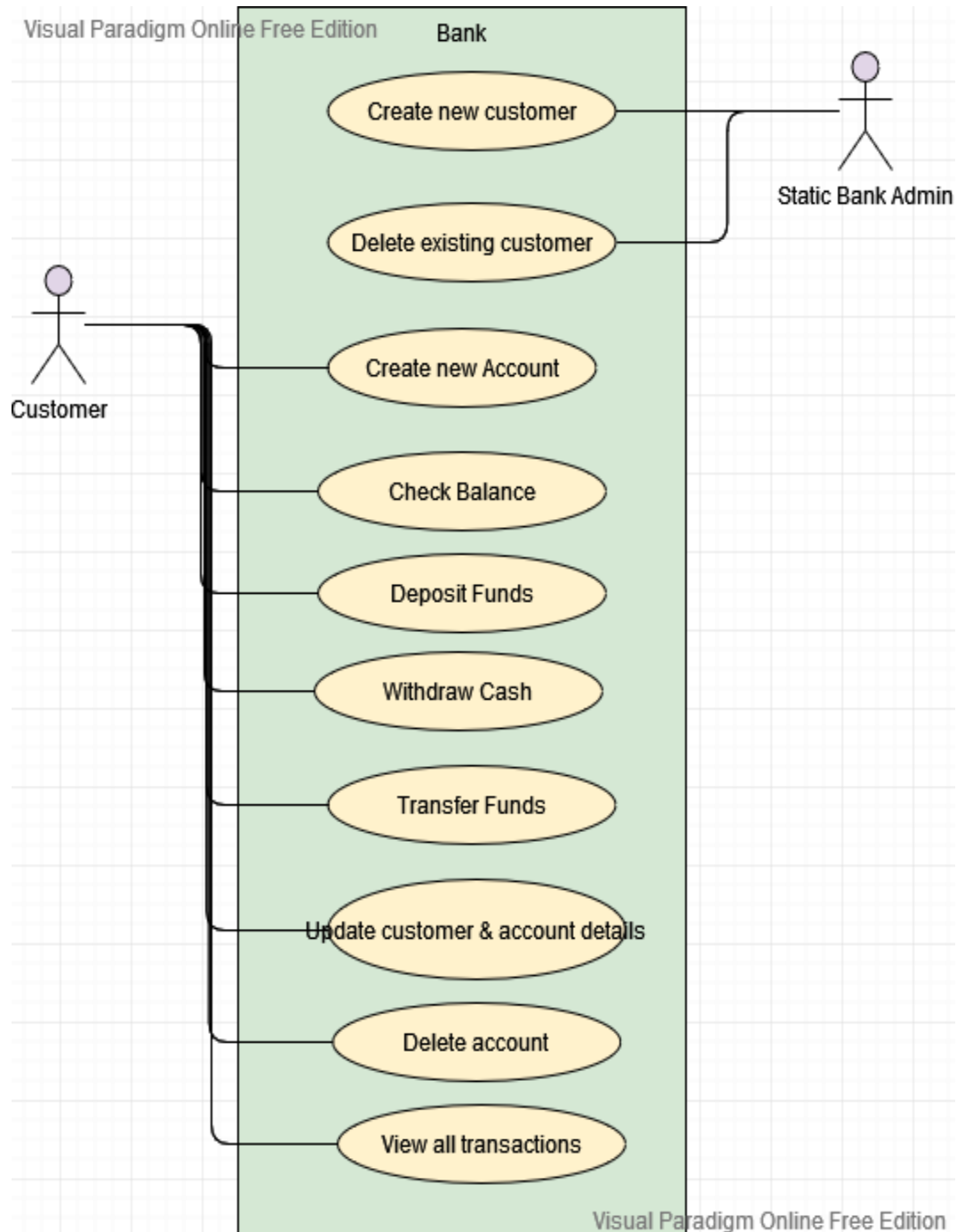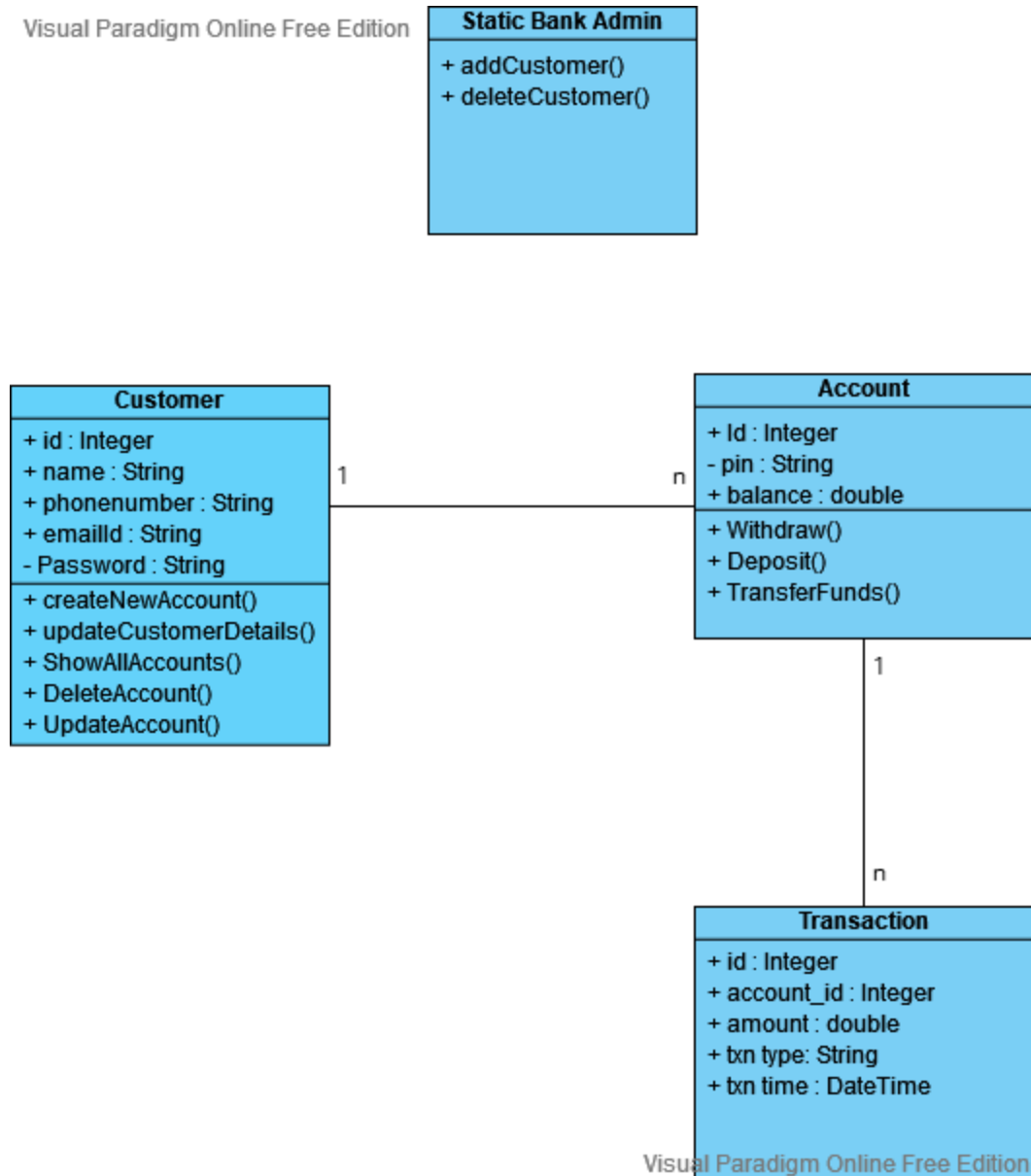# IMT2019063 Project Report

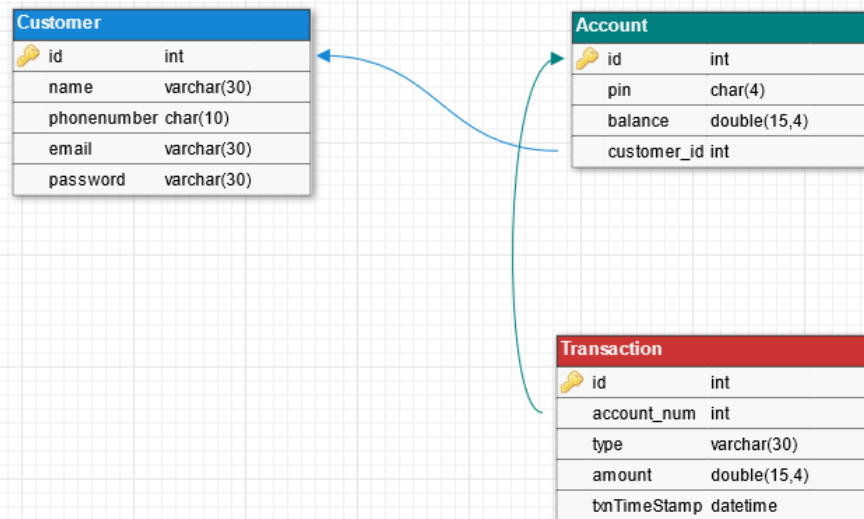Banking application using JDBC and mySQL by IMT2019063.

The use case diagram, class diagram and OR mapping images are shown below. The application has 2 types of logins: one as a user and one as an admin. The admin user can add a new customer to the bank, as well as delete and see all users. The admin user is a static one as compared to having a SQL table with all admins. The username and password of the admin is hardcoded as 'admin' and 'admin' respectively.

The customers/ normal end users have many functionalities such as creating a new account, updating customer details, deleting an existing account, and viewing all accounts. Each customer has a 1:n relationship with accounts, i.e, one customer can have many accounts, whereas each account is linked with only one customer. Each account has a balance, a pin and an account id linked to it. Also a customer can withdraw, deposit and transfer funds from one of his accounts provided he grants the correct PIN. Whenever a fund transaction takes place, it's logged in the transaction table and the user can also see what all transactions took place from the account.

The use case diagram, class diagram and OR Mapping diagram, as well as screenshots of working code are attached in this report.

Bank

Create new customer

Delete existing customer

Static Bank Admin

Customer

Create new Account

Check Balance

Deposit Funds

Withdraw Cash

Transfer Funds

Update customer & account details

Delete account

View all transactions

Static Bank Admin

+ addCustomer()
+ deleteCustomer()

Customer

+ id : Integer
+ name : String
+ phonenumber : String
+ emailId : String
- Password : String

+ createNewAccount()
+ updateCustomerDetails()
+ ShowAllAccounts()
+ DeleteAccount()
+ UpdateAccount()

Account

+ Id : Integer
- pin : String
+ balance : double

+ Withdraw()
+ Deposit()
+ TransferFunds()

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n

Transaction

+ id : Integer
+ account_id : Integer
+ amount : double
+ txn type: String
+ txn time : DateTime

Steps to run the code

- mysql> source bankapp.sql
- javac IMT2019063Driver.java
- java -classpath "./mysql-connector-java-8.0.18.jar:." IMT2019063Driver

Screenshots:


```
Database changed
mysql> show tables;
+----------------+
| Tables_in_bank |
+----------------+
| account        |
| customer       |
| transaction    |
+----------------+
3 rows in set (0.01 sec)
```



```
prasanna@DESKTOP-2NG63K7: /mnt/c/Users/PRASANNA/Desktop/SEM-5/databases/project

prasanna@DESKTOP-2NG63K7:/mnt/c/Users/PRASANNA$ cd Desktop/SEM-5/databases/project/
prasanna@DESKTOP-2NG63K7:/mnt/c/Users/PRASANNA/Desktop/SEM-5/databases/project$ javac IMT2019063Driver.java
prasanna@DESKTOP-2NG63K7:/mnt/c/Users/PRASANNA/Desktop/SEM-5/databases/project$ java -classpath "./mysql-connector-java-8.0.18.jar:." IMT2019063Dri
ver
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The driver is automatically register
ed via the SPI and manual loading of the driver class is generally unnecessary.
Connecting to database...
Creating statement...
Welcome to the DressianKiolsh Bank
Login as admin or user
1.Admin
2.User
3.Exit

Enter your login privileges:
```

```
Enter your admin username: admin
Your username is: admin
Enter your admin password: admin
Your password is: admin
Welcome to the admin page

You are logged in as athe Bank Admin
1.Add a new customer
2.Delete a customer
3.Show all customers
4.Logout as admin

Enter your admin option: 1
Your option is: 1
Enter name:
boba fett
Enter customer phone number:
943873484
Enter customer Email Id:
bobafett@gmail.com
Set a Password:
bobafett1
insert into customer values (5,'boba fett','bobafett@gmail.com','943873484','bobafett1');

 Customer Created successful!
customer id: 5
```

```
You are logged in as athe Bank Admin
1.Add a new customer
2.Delete a customer
3.Show all customers
4.Logout as admin

Enter your admin option: 3
Your option is: 3
Printing out all the customers
Customer id: 1 Customer name: prasannvenkatesh Customer email: prasanna@outlook.org Customer phone: 6385302662
Customer id: 2 Customer name: siva Customer email: siva@gmail.com Customer phone: 9777777777
Customer id: 3 Customer name: suresh Customer email: suresh@gmail.com Customer phone: 9666666666
Customer id: 4 Customer name: pranav Customer email: pranav@gmail.com Customer phone: 1234567890
Customer id: 5 Customer name: boba fett Customer email: bobafett@gmail.com Customer phone: 943873484
```

```
Welcome to the DressianKiolsh Bank
Login as admin or user
1.Admin
2.User
3.Exit

Enter your login privileges:
2
Your choice is: 2
Enter your customer ID: 1
Enter your password: 1
Customer verified!
Customer Details:
Customer id: 1
Customer name: prasannvenkatesh
Customer email: prasanna@outlook.org
Customer phone: 6385302662

Welcome to the user page
1.Create Account
2.Deposit
3.Withdraw
4.Transfer
5.Print Account Details
6.Update Account Details
7.Update Customer Details
8.Delete Account
9.Show all accounts
10.Show transactions from account
11.Logout as User

Enter your choice:
```

wsl.exe[64]:17184

```
Welcome to the user page
1.Create Account
2.Deposit
3.Withdraw
4.Transfer
5.Print Account Details
6.Update Account Details
7.Update Customer Details
8.Delete Account
9.Show all accounts
10.Show transactions from account
11.Logout as User

Enter your choice:
4
Your choice is: 4
Enter from account number:
1
Enter to account number:
2
Enter pin number:
1234
Enter amount to be transferred:
23.4554
Transfer successful!
New Balance: 61.66550000000001
```

```
2.Deposit
3.Withdraw
4.Transfer
5.Print Account Details
6.Update Account Details
7.Update Customer Details
8.Delete Account
9.Show all accounts
10.Show transactions from account
11.Logout as User

Enter your choice:
9
Your choice is: 9
Account Number: 1
Balance: 61.6655
Account Number: 4
Balance: 40000.0
Account Number: 5
Balance: 58000.0
```

```
Enter your choice:
10
Your choice is: 10
Enter account number:
1
Transaction Number: 1
Type of transaction:credit
Balance: 123.3443
Transaction Number: 2
Type of transaction:debit
Balance: 129.34
Transaction Number: 3
Type of transaction:debit
Balance: 3874.3434
Transaction Number: 5
Type of transaction:credit
Balance: 1000.0
Transaction Number: 6
Type of transaction:debit
Balance: 34.54
Transaction Number: 7
Type of transaction:credit
Balance: 1000.0
Transaction Number: 8
Type of transaction:debit
Balance: 8000.0
Transaction Number: 10
Type of transaction:debit
Balance: 23.4554
```

```
Welcome to the user page
1.Create Account
2.Deposit
3.Withdraw
4.Transfer
5.Print Account Details
6.Update Account Details
7.Update Customer Details
8.Delete Account
9.Show all accounts
10.Show transactions from account
11.Logout as User

Enter your choice:
8
Your choice is: 8
Enter account number:
4
Account deleted!
```

```
Database changed
mysql> show tables;
+----------------+
| Tables_in_bank |
+----------------+
| account        |
| customer       |
| transaction    |
+----------------+
3 rows in set (0.01 sec)

mysql> select * from customer;
+----+-----------------+----------------------+------------+-----------+
| id | name            | email                | phone      | passwrd   |
+----+-----------------+----------------------+------------+-----------+
|  1 | prasannvenkatesh | prasanna@outlook.org | 6385302662 | 1         |
|  2 | siva            | siva@gmail.com       | 9777777777 | 2         |
|  3 | suresh          | suresh@gmail.com     | 9666666666 | 3         |
|  4 | pranav          | pranav@gmail.com     | 1234567890 | 4         |
|  5 | boba fett       | bobafett@gmail.com   | 943873484  | bobafett1 |
+----+-----------------+----------------------+------------+-----------+
5 rows in set (0.00 sec)

mysql> select * from account;
+----+------+------------+----------------+
| id | pin  | balance    | customer_id_fk |
+----+------+------------+----------------+
|  1 | 1234 |    85.1209 |              1 |
|  2 | 2345 | 23874.3434 |              2 |
|  3 | 3456 | 30000.0000 |              3 |
|  4 | 1234 | 40000.0000 |              1 |
|  5 | 1234 | 58000.0000 |              1 |
+----+------+------------+----------------+
5 rows in set (0.00 sec)
```

```
+----+----------------+--------+-----------+---------------------+
| id | account_num_fk | type   | amount    | txntimestamp        |
+----+----------------+--------+-----------+---------------------+
|  1 |              1 | credit |  123.3443 | 2021-12-07 23:30:02 |
|  2 |              1 | debit  |  129.3400 | 2021-12-07 23:30:17 |
|  3 |              1 | debit  | 3874.3434 | 2021-12-07 23:30:33 |
|  4 |              2 | credit | 3874.3434 | 2021-12-07 23:30:33 |
|  5 |              1 | credit | 1000.0000 | 2021-12-08 01:28:48 |
|  6 |              1 | debit  |   34.5400 | 2021-12-08 01:29:08 |
|  7 |              1 | credit | 1000.0000 | 2021-12-08 12:16:53 |
|  8 |              1 | debit  | 8000.0000 | 2021-12-08 12:17:28 |
|  9 |              5 | credit | 8000.0000 | 2021-12-08 12:17:28 |
| 10 |              1 | debit  |   23.4554 | 2021-12-08 16:06:55 |
| 11 |              2 | credit |   23.4554 | 2021-12-08 16:06:55 |
+----+----------------+--------+-----------+---------------------+
11 rows in set (0.00 sec)

mysql>
```