INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, Allahabad

B.Tech. 4th Semester

Database Management System Project

Online Banking System

Group members:

This project is submitted by group 3

Our team consists of the following members as follows:

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Title of the project: Online Banking System

Abstract of the project:

The project is aimed at creating an Online Banking System for customers. It should be an online application that can be accessed throughout the organization and outside as well with proper login provided. Upon verification, users should be provided with requisite account details such as account balance, last 5 transactions etc. Common online banking facilities like money transfer should also be accommodated in the system. Make necessary assumptions as and when required and state them clearly.

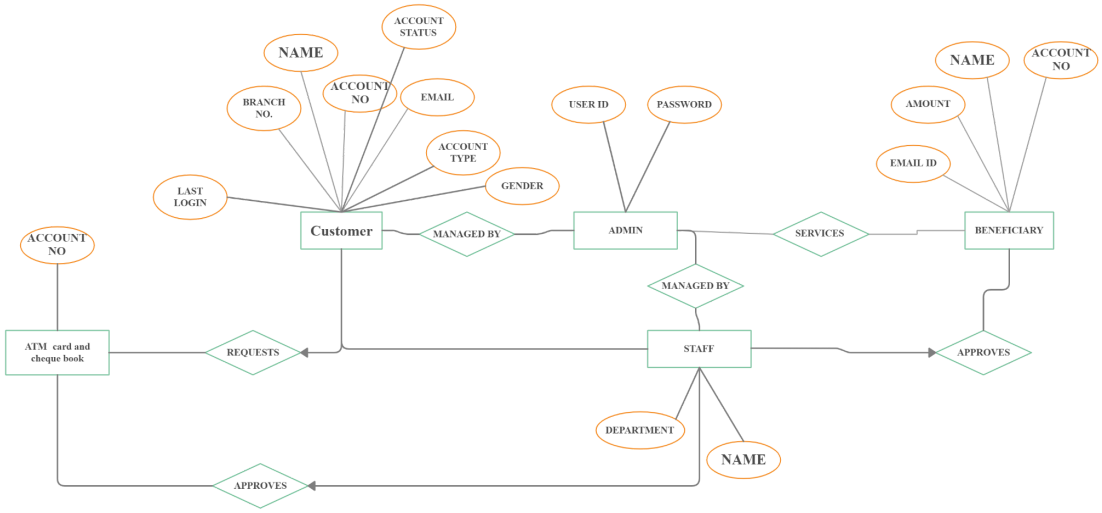
Technologies Used:

- XAMPP Server
- Frontend: HTML, CSS
  Backend: PHP
- Database: MySQL

This report contains:

- Introduction
- Abstract of project
- Technologies used
- Functional components/use cases
- ER Diagram
- Use case diagram
- User interface
- Normalization of database
- How to install and run

ER Diagram:



Use Case Diagram:

Functional components of the project:

Admin

- Add a new customer
- For creating a new customer assigns customer details like name, dob, address, contact, nominee, gender, user-name/Password/type of account, etc
- Edit an existing customer details.
- Delete existing customer details.
- Add a new staff member
- For creating a new staff member assigns staff details like name, dob, address, contact, date of joining , salary, gender, etc
- Edit an existing staff member details.
- Delete an existing staff's details.
- Change password
- Log out of admin account

Customers Module

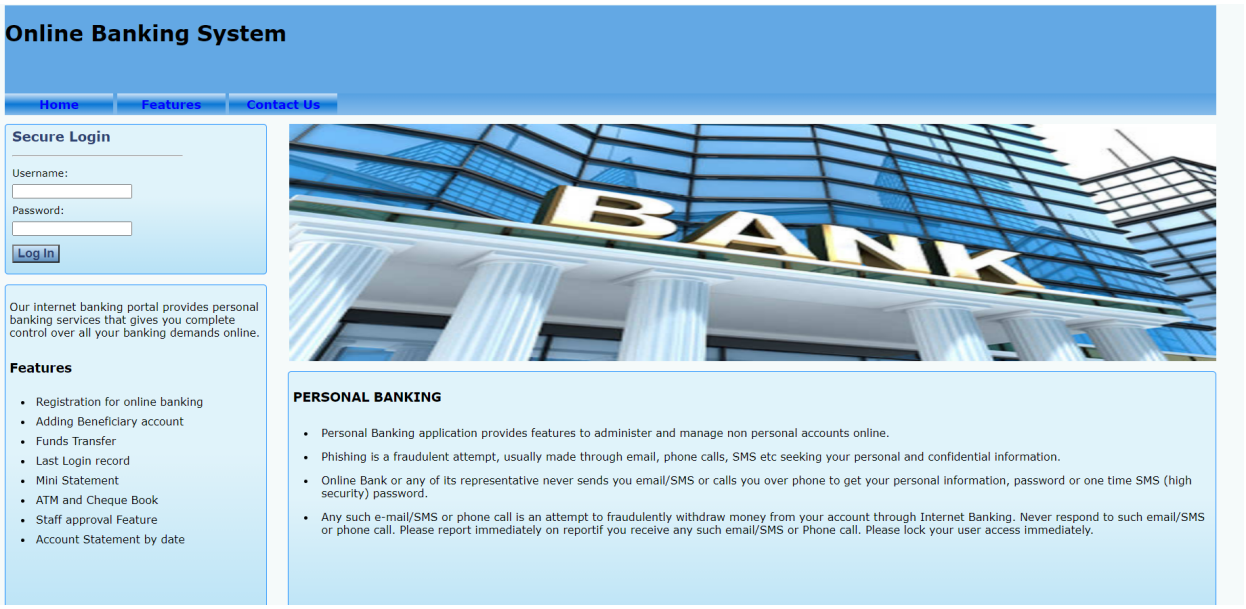
- Login of Customer
- View his/her Account summary
- View his current account balance
- View a mini account statement
- View account summary by date
- Add beneficiary
- View added beneficiary list
- Funds transfer to another account
- Request for Cheque Book/ATM
- View his personal details provided
- Change password
- Logout from the account

Staff

- View staff account details
- Approve the beneficiary requests
- Approve ATM generation requests
- Approve Cheque Book requests
- Change account password
- Log out from staff account

Web application and user interface:

The main web interface looks like this and is meant to cater the needs of the customer

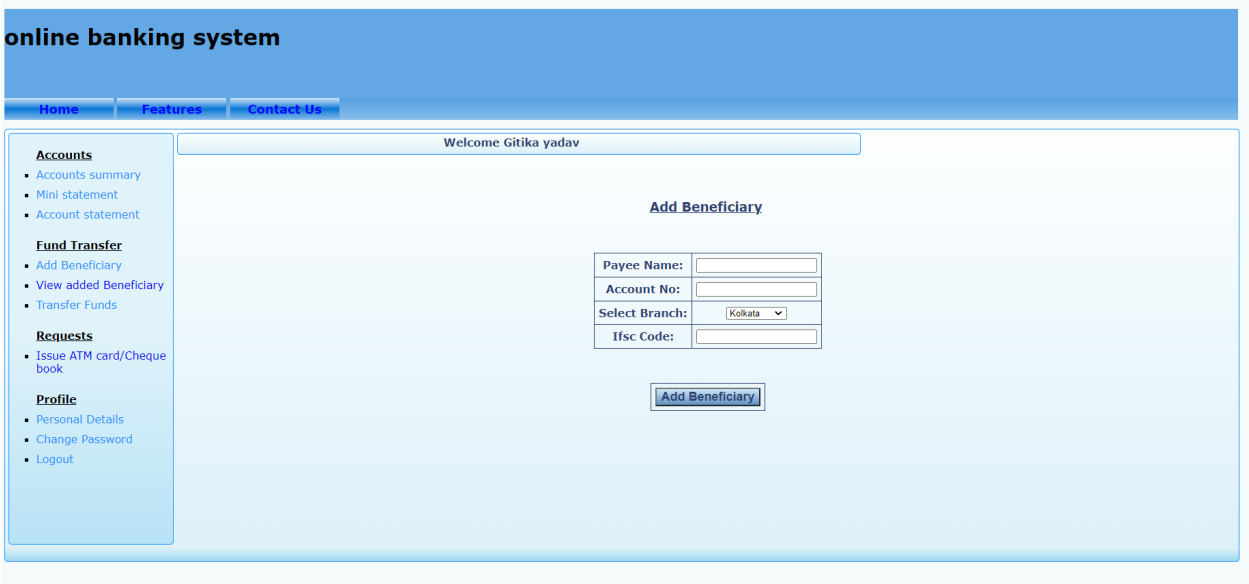


This is the login window of our online banking system. Filling up the required credentials we will be forwarded to below image.

Customer Account summary:

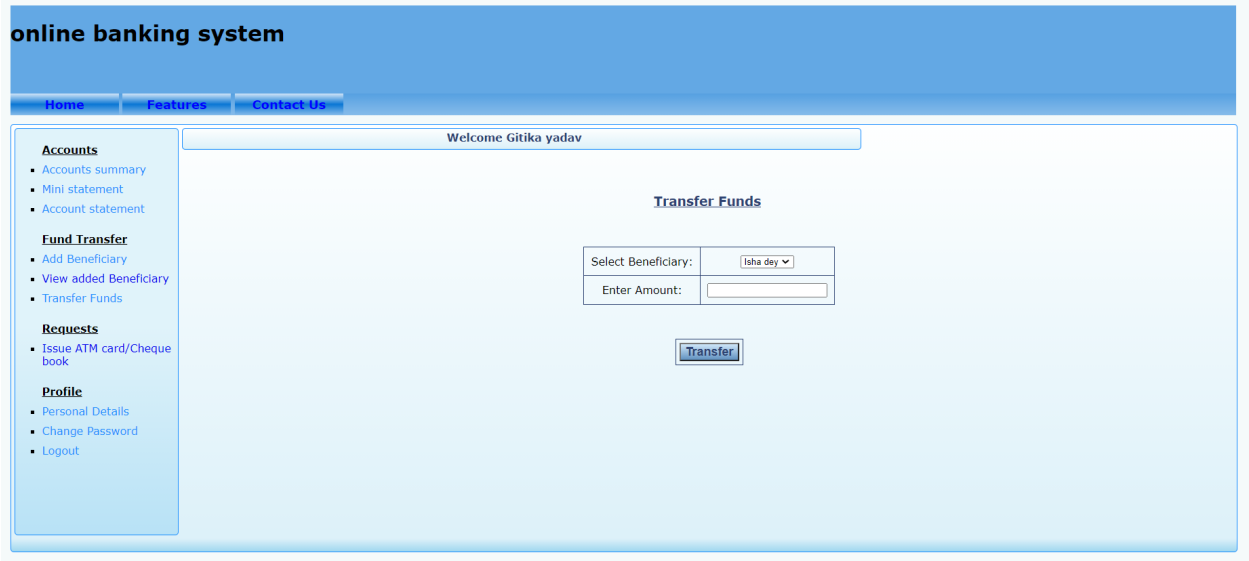
The customer login interface will look like above image and can view the account details as well as make requests, fund-transfers and check pr

Add beneficiary:



Add beneficiary will ask the customer to add account details of the beneficiary account.

Transfer funds:

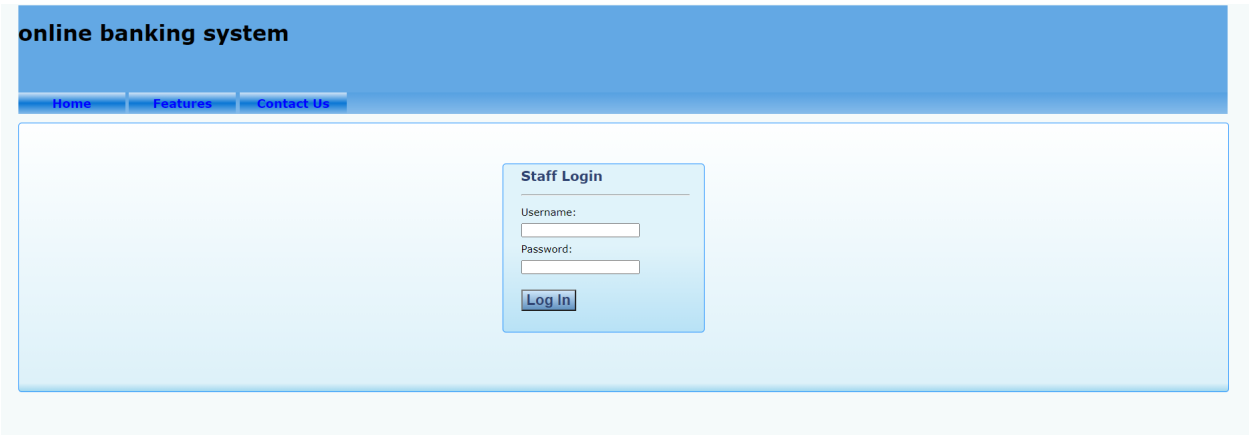


The customer can only transfer funds if:

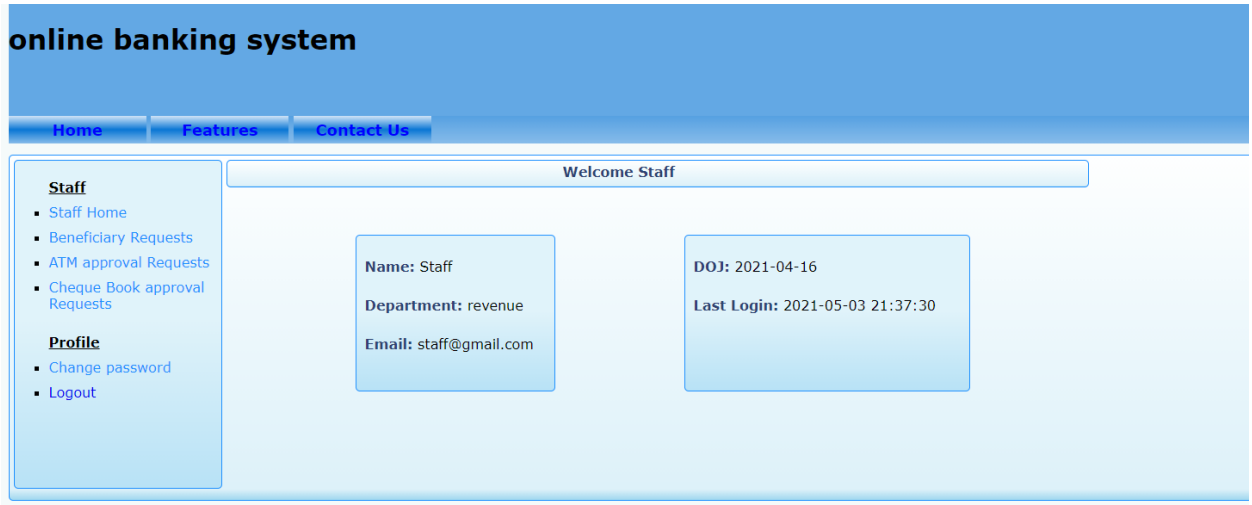
1) The user account should have more than 500 bucks in his/her account
2) The user should make minimum transaction of 100 bucks

Personal details:

Staff interface:

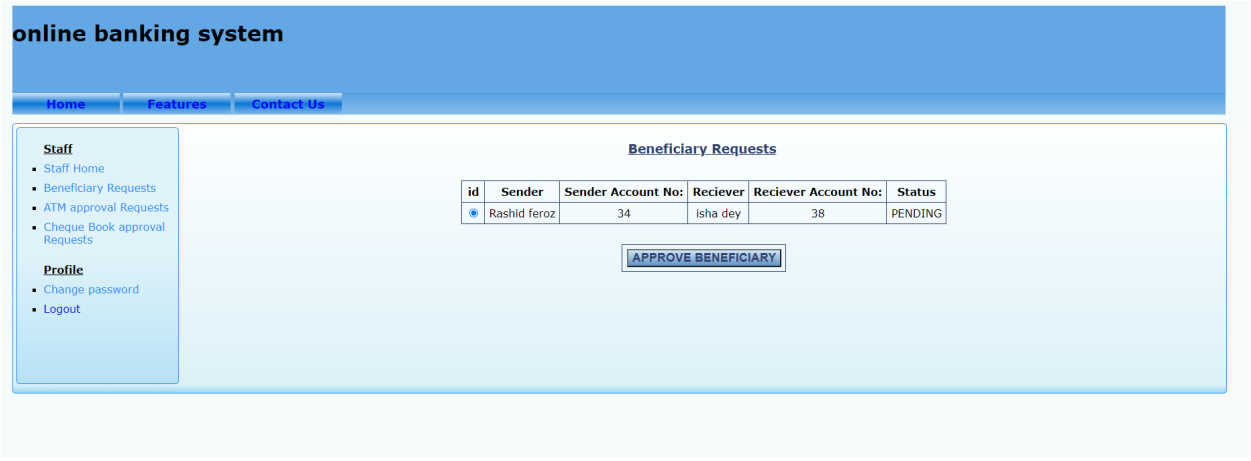


Upon navigating to localhost/onlinebankingsystem/staff_login.php we will be able to see the following login page.



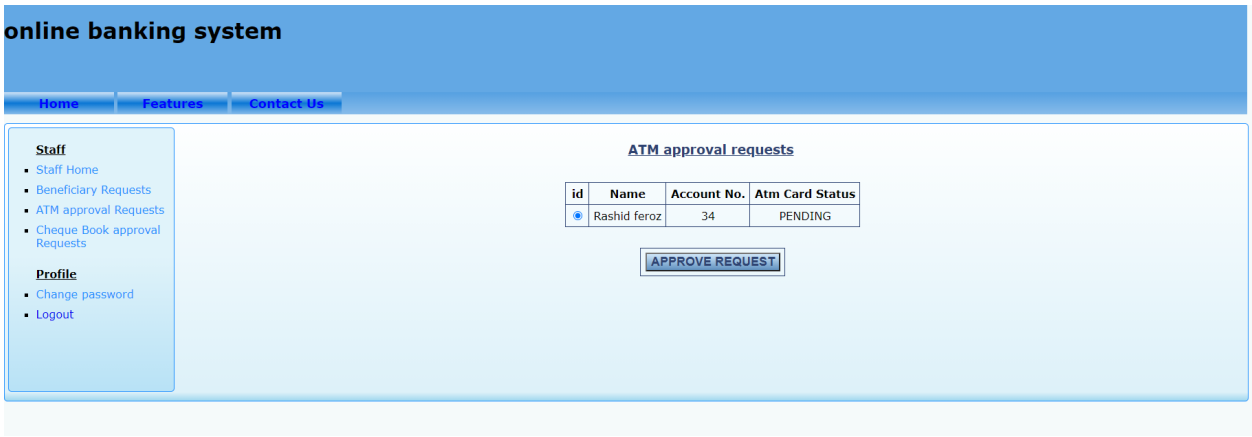
The above image shows the staff interface who can see his/her details as well as approve requests of customer.

Approve beneficiary:



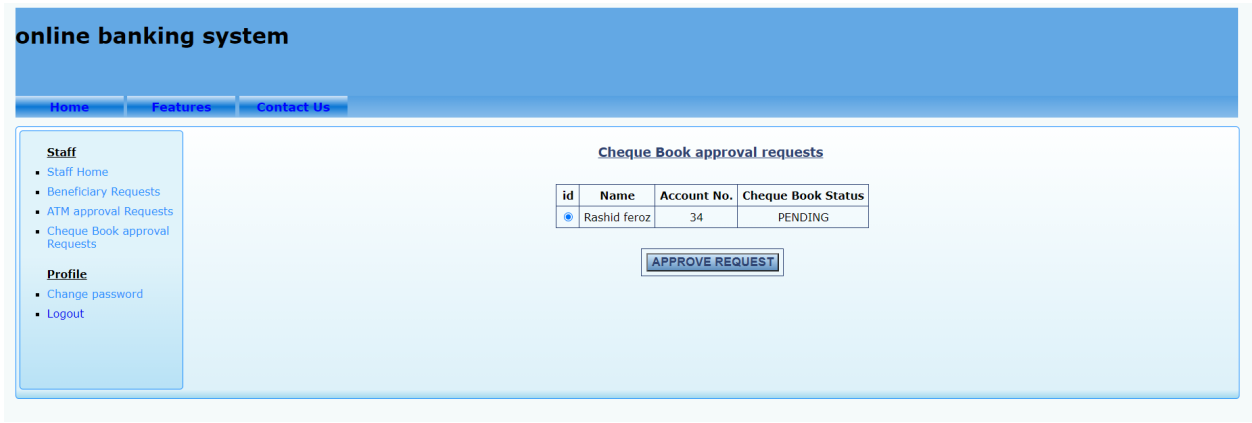
Approve beneficiary provides staff members to approve the pending beneficiary transaction requests made by customers.

Approve ATM request:



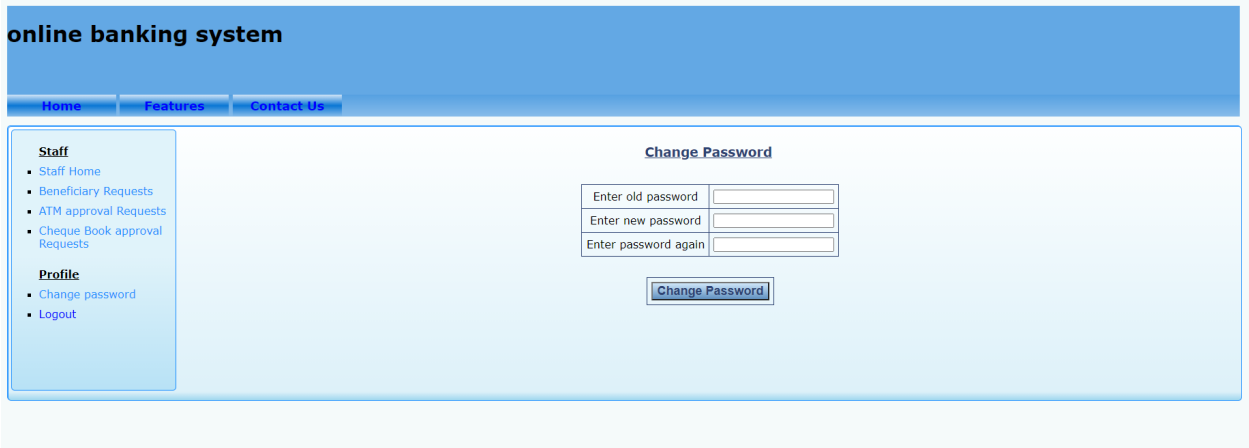
Approve ATM provides staff members to approve the pending ATM transaction requests made by customers.

Approve check book request:



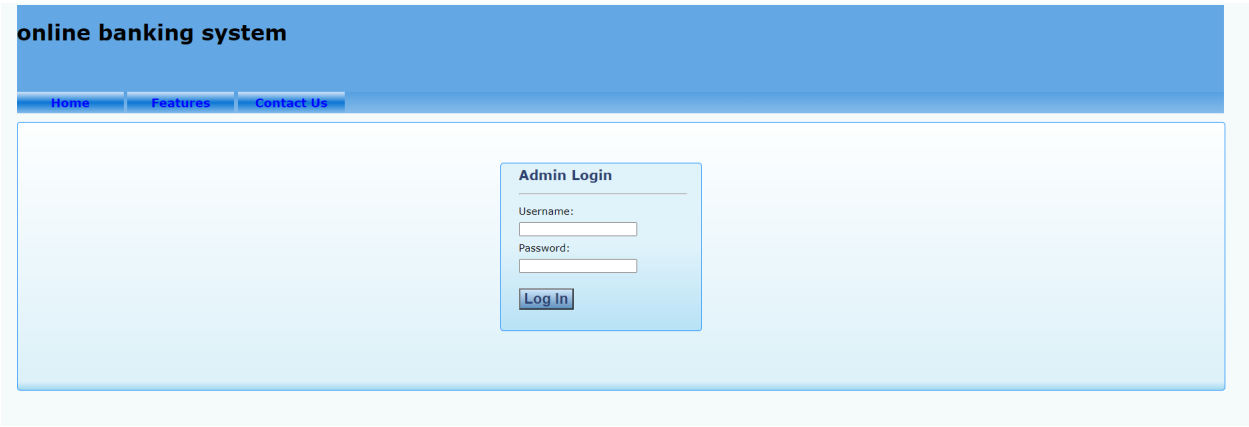
Approve cheque book request provides staff members to approve the pending check book updation requests made by customers.

Change password:

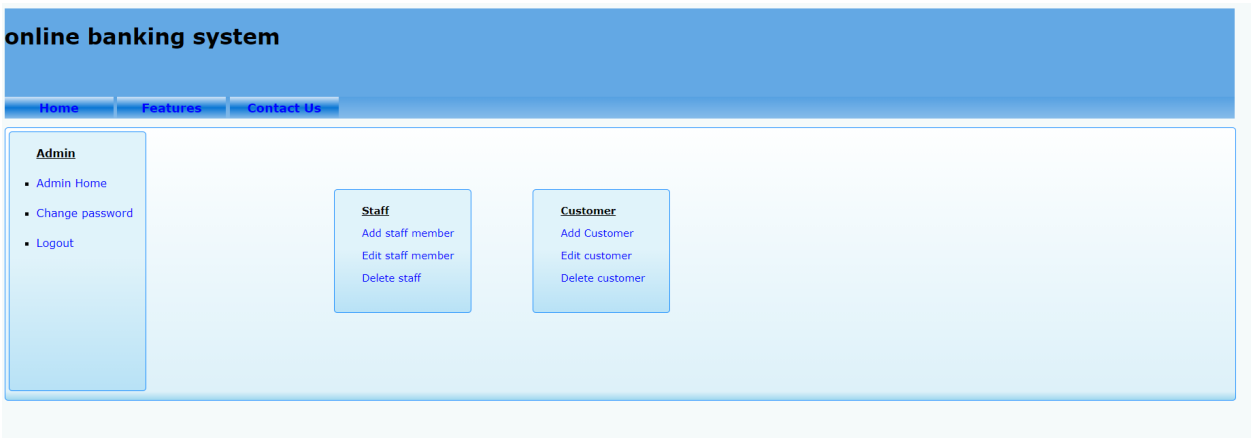


This allows a staff member to change his/her accounts' password.

Admin interface:

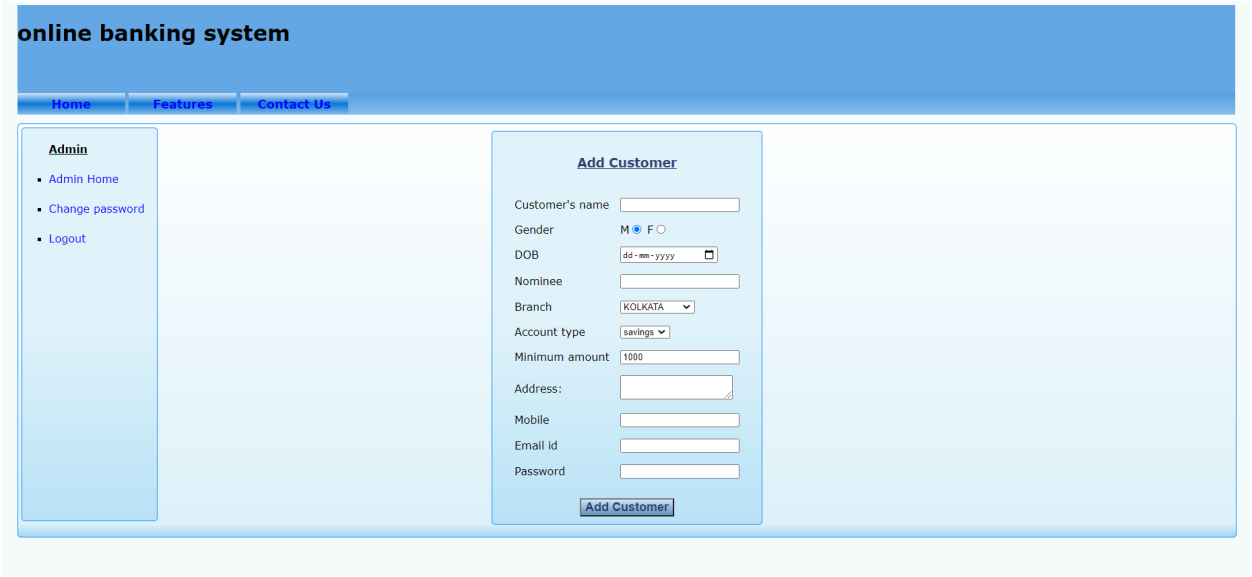


The admin login provides the admin to login and forwards him/her to the below image



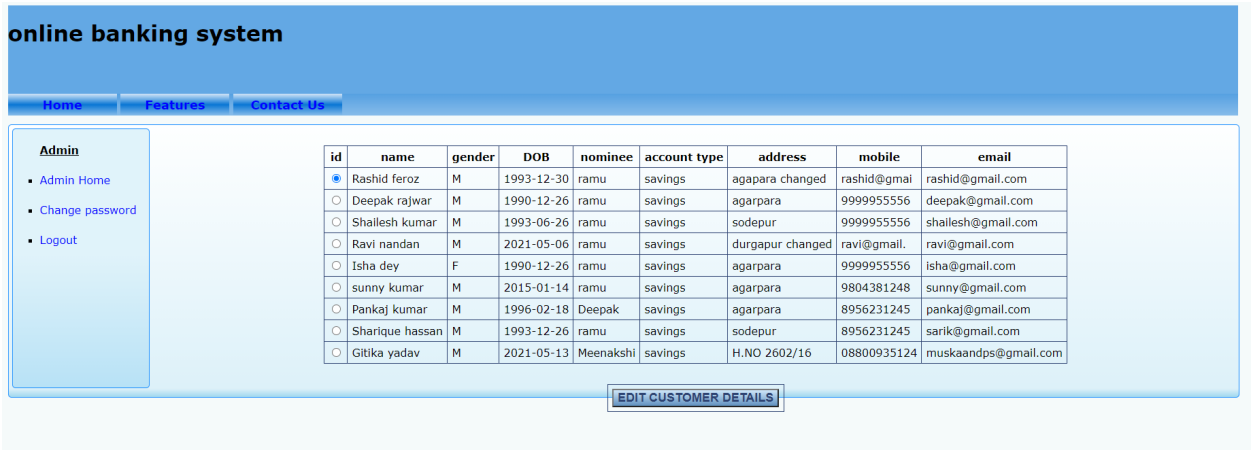
Here, the admin can edit the staff details and customer details and change his own details too.

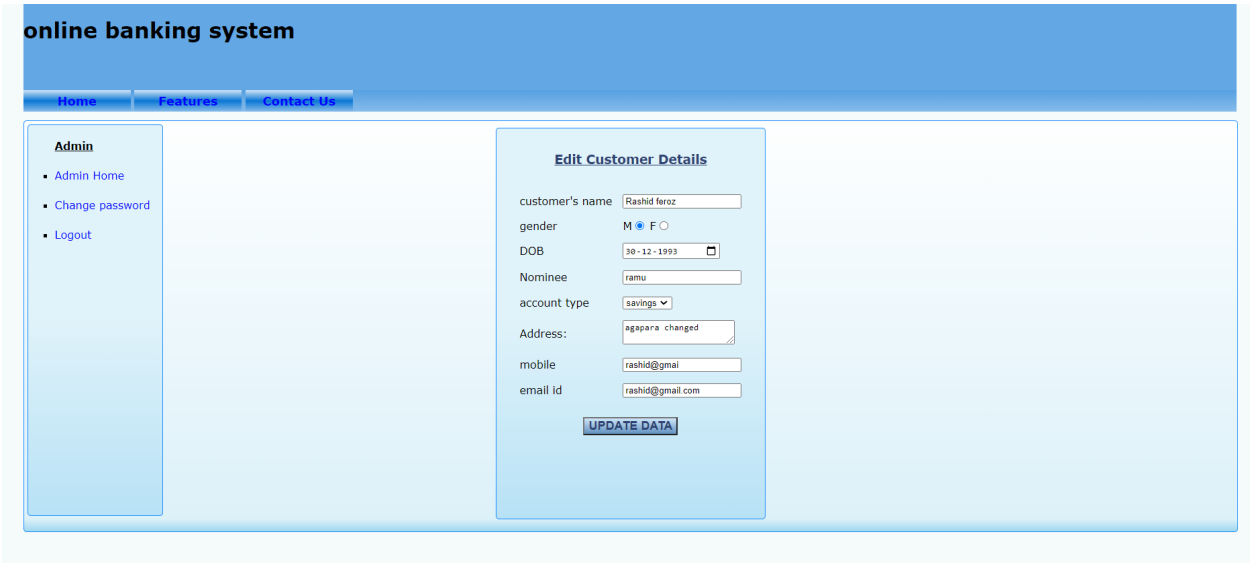
Add customer:



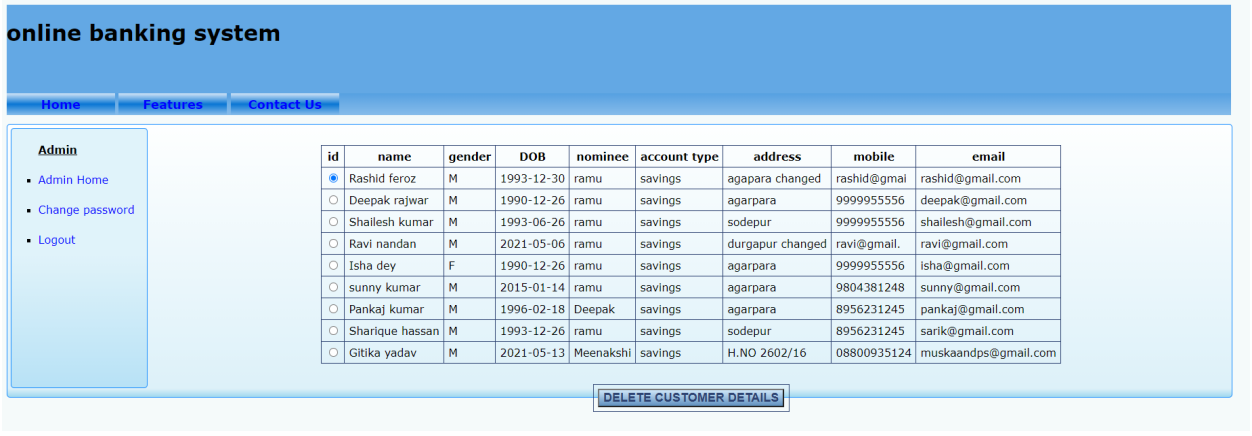
Add customer details will make the admin add a customer detail manually and does not require permission of a customer.

Edit customer details:

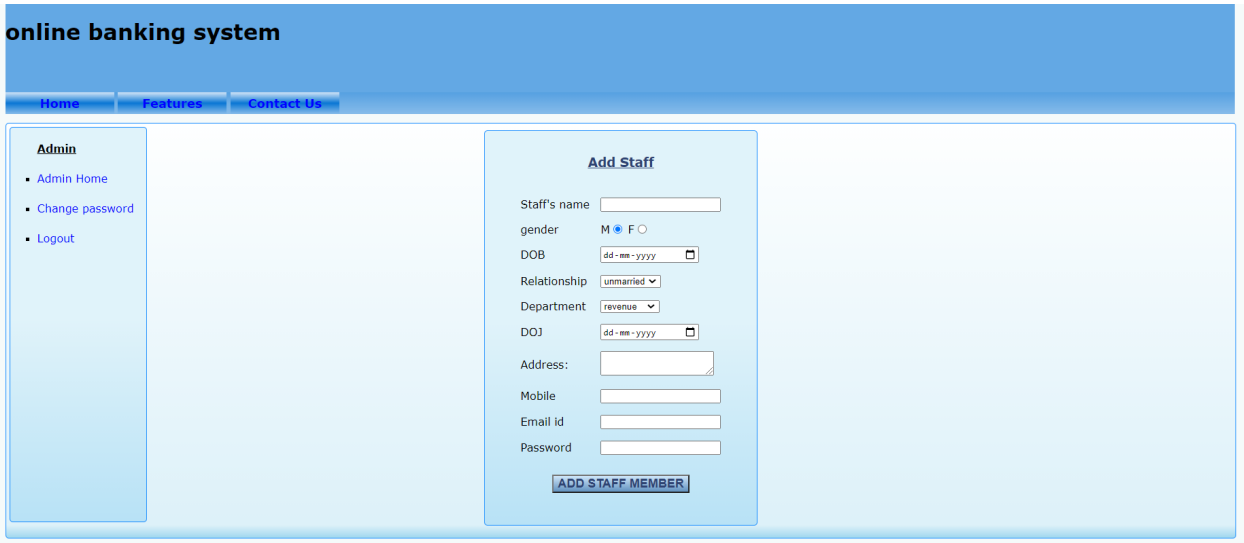




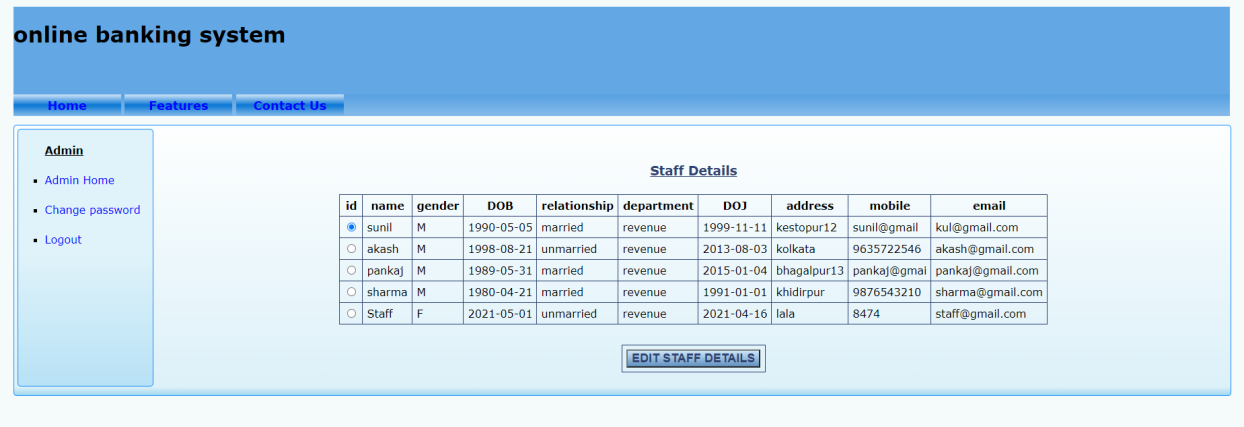
Delete customer:



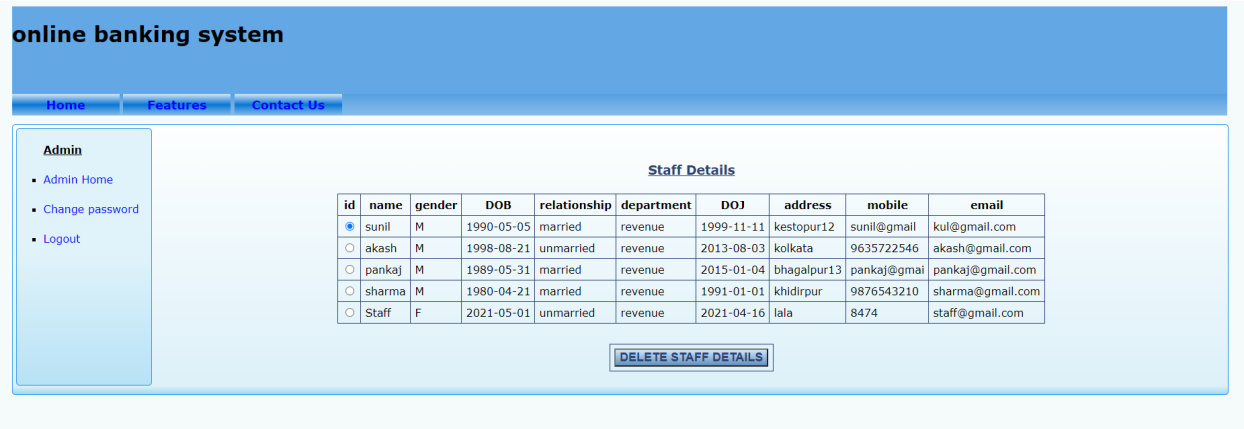
Add staff:



Edit staff member:



Delete staff member:



Database Normalization:

First Normal Form (1NF):

- Data is stored in tables with rows uniquely identified by a primary key
- Data within each table is stored in individual columns in its most reduced form
- There are no repeating groups

The primary key in our database is id or account number which is self incremented and generated on creation of a new account, the value and is unique for each user.

id	name	gender	dob	nominee	account
34	Rashid feroz	M	1993-12-30	ramu	savings
35	Deepak rajwar	M	1990-12-26	ramu	savings
36	Shailesh kumar	M	1993-06-26	ramu	savings
37	Ravi nandan	M	2021-05-06	ramu	savings
38	Isha dey	F	1990-12-26	ramu	savings
39	sunny kumar	M	2015-01-14	ramu	savings
40	Pankaj kumar	M	1996-02-18	Deepak	savings
41	Sharique hassan	M	1993-12-26	ramu	savings
42	Gitika yadav	M	2021-05-13	Meenakshi	savings

The data is in its most reduced form and there are no repeating groups.
As you can see in our database the columns are unique. The values are id/account number, name, gender, dob, nominee, account type, address, mobile number, email, password saved as encryption, branch, last login, account status.

id	name	gender	dob	nominee	account	address	mobile	email	password	branch	ifsc	lastlogin	accstatus
34	Rashid feroz	M	1993-12-30	ramu	savings	agapara changed	rashid@gmai	rashid@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	KOLKATA	K421A	2015-01-11 10:29:30	ACTIVE
35	Deepak rajwar	M	1990-12-26	ramu	savings	agarpara	9999955556	deepak@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 10:11:07	ACTIVE
36	Shailesh kumar	M	1993-06-26	ramu	savings	sodepur	9999955556	shailesh@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	BANGALORE	B6A9E	0000-00-00 00:00:00	ACTIVE
37	Ravi nandan	M	2021-05-06	ramu	savings	durgapur changed	ravi@gmail.	ravi@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 10:18:57	ACTIVE
38	Isha dey	F	1990-12-26	ramu	savings	agarpara	9999955556	isha@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	KOLKATA	K421A	0000-00-00 00:00:00	ACTIVE
39	sunny kumar	M	2015-01-14	ramu	savings	agarpara	9804381248	sunny@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 10:09:36	ACTIVE
40	Pankaj kumar	M	1996-02-18	Deepak	savings	agarpara	8956231245	pankaj@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 09:42:43	ACTIVE
41	Sharique hassan	M	1993-12-26	ramu	savings	sodepur	8956231245	sarik@gmail.com	b638866443ed874cd5a9449a090cb8dce66e4a3a	KOLKATA	K421A	2015-01-11 10:27:48	ACTIVE
42	Gitika yadav	M	2021-05-13	Meenakshi	savings	H.NO 2602/16	08800935124	muskaandps@gmail.com	fa33f79b5625178f5ea9eb3c2fb15bc6eea60390	KOLKATA	K421A	2021-05-11 10:29:07	ACTIVE

id	name	dob	relationship	department	doj	address	mobile	email	pwd	gender	lastlogin
1	sunil	1990-05-05	married	revenue	1999-11-11	kestopur12	sunil@gmail	kul@gmail.com	wew	M	2015-01-11 10:29:48
2	akash	1998-08-21	unmarried	revenue	2013-08-03	kolkata	9635722546	akash@gmail.com	125	M	2015-01-10 21:22:59
4	pankaj	1989-05-31	married	revenue	2015-01-04	bhagalpur13	pankaj@gmai	pankaj@gmail.com	789	M	0000-00-00 00:00:00
5	sharma	1980-04-21	married	revenue	1991-01-01	khidirpur	9876543210	sharma@gmail.com	sharma	M	0000-00-00 00:00:00
6	Staff	2021-05-01	unmarried	revenue	2021-04-16	lala	8474	staff@gmail.com	password	F	2021-05-03 21:37:30

Second Normal Form (2NF):

- Everything from 1NF
- every non-prime attribute should be fully functionally dependent on prime key attribute. That is, if X → A holds, then there should not be any proper subset Y of X, for which Y → A also holds true.

All the values name, gender, dob, nominee, account type, address, mobile number, email, password saved as encryption, branch, last login, account status are the non prime attributes since id is our primary key.

All our non prime attributes depend only and only on the prime key attribute being the id. Had we stored the nominee contact details in the table as name, contact number, and address of the nominee itself they would have depended on the nominee a non prime key. However currently all our values depend only and only on the customer id/ account number of the respective customer.

Thus there are no partial dependencies.

Third Normal Form (3NF):

- Everything from 2NF
- No non-prime attribute is transitively dependent on prime key attribute.
- For any non-trivial functional dependency, X → A, then either −
    - X is a superkey or,
    - A is prime attribute.

id	name	gender	dob	nominee	account	address	mobile	email
34	Rashid feroz	M	1993-12-30	ramu	savings	agapara changed	rashid@gmai	rashid@gmail.com
35	Deepak rajwar	M	1990-12-26	ramu	savings	agarpara	9999955556	deepak@gmail.com
36	Shailesh kumar	M	1993-06-26	ramu	savings	sodepur	9999955556	shailesh@gmail.com
37	Ravi nandan	M	2021-05-06	ramu	savings	durgapur changed	ravi@gmail.	ravi@gmail.com
38	Isha dey	F	1990-12-26	ramu	savings	agarpara	9999955556	isha@gmail.com
39	sunny kumar	M	2015-01-14	ramu	savings	agarpara	9804381248	sunny@gmail.com
40	Pankaj kumar	M	1996-02-18	Deepak	savings	agarpara	8956231245	pankaj@gmail.com
41	Sharique hassan	M	1993-12-26	ramu	savings	sodepur	8956231245	sarik@gmail.com
42	Gitika yadav	M	2021-05-13	Meenakshi	savings	H.NO 2602/16	08800935124	muskaandps@gmail.com

email	password	branch	ifsc	lastlogin	accstatus
rashid@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	KOLKATA	K421A	2015-01-11 10:29:30	ACTIVE
deepak@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 10:11:07	ACTIVE
shailesh@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	BANGALORE	B6A9E	0000-00-00 00:00:00	ACTIVE
ravi@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 10:18:57	ACTIVE
isha@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	KOLKATA	K421A	0000-00-00 00:00:00	ACTIVE
sunny@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 10:09:36	ACTIVE
pankaj@gmail.com	28a1b310b43643306f560bb161ff6b67f763c576	DELHI	D30AC	2015-01-11 09:42:43	ACTIVE
sarik@gmail.com	b638866443ed874cd5a9449a090cb8dce66e4a3a	KOLKATA	K421A	2015-01-11 10:27:48	ACTIVE
muskaandps@gmail.com	fa33f79b5625178f5ea9eb3c2fb15bc6eea60390	KOLKATA	K421A	2021-05-11 10:29:07	ACTIVE

We can add more branches to our system thus each city can have multiple branches having multiple ifsc codes thus it ifsc is not directly dependent on the city rather the customer account number.

Hence satisfying the third normal form.

Thus our database is normalised and hence verified

Steps to install and run:

1. Download and set up a XAMPP or similar environment. LAMP can be used for ubuntu systems.
2. Start the Apache and MySQL servers.
3. In the _inc/dbconn.php file, type the username and password of your phpmyadmin setup in the appropriate places.
4. Open phpmyadmin and create a new database named bank_db.
5. Use the bank_db.sql file to import the database tables.
6. Copy the project folder to the htdocs/ directory in your xampp folder. Rename the project directory to online bank or whatever you deem suitable.
7. Now, navigate to localhost/<PROJECT_DIRECTORY_NAME> on your preferred browser.
8. Navigate to localhost/onlinebankingsystem/
9. There you can login as a customer. In our database we have added a demo customer whose credentials are
   Username : muskaandps@gmail.com
   Password: changed
10. Once you log in you can see account summary , access features and process requests
11. Navigate to localhost/onlinebankingsystem/adminlogin.php
12. There you can login as an admin. The credentials are :
    Username:admin
    Password:changed
13. Upon login you can add/edit/delete staff and customer accounts.
14. Navigate to localhost/onlinebankingsystem/staff_login.php
15. To login as staff we have created a demo user with credentials:
    Username: staff@gmail.com
    Password: password
    Upon logging in as a staff we can approve all the beneficiary,atm, cheque book requests.