

Computer Science Project



Banking Management System

Python and MySQL Based

Group Members:

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Introduction

This is a project based on Python and MySQL database which replicates a real-life application of banks. This is a simple banking management system which can be used to create, manipulate, or delete client information stored in the Bank's Database. This system is associated with a fictional Bank called WAY Banks Ltd. WAY stands for Wahab, Akash and Yusra.

As mentioned before, this project requires Python and MySQL database to be pre-installed in the system on which this code is run. Henceforth upon startup, the user is asked basic questions on whether the device on which he is using the code has MySQL installed or not? He is also asked the root password for the Server. This is mandatory information which the user must enter to use the system properly. In real life, banks may have these details pre-loaded on starting the program. But this system is designed to be universal and used on any system, hence the questions are asked.

The user is then presented with the main console where he can start using the database and create or manipulate client information. In case the user doesn't know how to use the system or is starting for the first time, he can use /help and the system will help him to get started off, hence it is designed to be user friendly and easy to use.

Furthermore, this system also contains admin mode which gives instant administrative privileges and full control of the database.

An administrator can view information of all clients, delete funds or entire records when in admin mode.

The user whilst in Client Interface can use the following commands. Each command will be explained in detail.

- /register
- /login
- /logout
- /deposit
- /withdraw
- /transfer
- /balance
- /stat
- /change pin
- /change username
- /cancel acc
- /enteradmin
- /godmode
- /help
- /feedback
- /about
- /quit

File Size – 45 KB

Lines - 1173

The system also offers survey forms if the user wants to give feedback about it.

Other features include, PIN protected accounts, Case or Number criteria checks, Penalty wait time or Automatic Logouts in case of repeated incorrect verification, waiting time for transactions, etc.

The system is tested and tries to print custom messages in case of unexpected errors during runtime or exceptions rather than terminating unexpectedly.

Explanation

We shall now see how to use each command in detail, just like a user manual.

/register

This command helps the user to register new account into the bank just as new accounts are created by the accountants in real banks. User must be logged out to use this feature.

The system asks user his preferred username and PIN. Username must be unique, if another client is found to have the same username, suitable message is printed. Checks are also done for PIN. It has to be a four-digit number which will be used for logging in. An account is created with 0 Funds.

Syntax- /register [username] [PIN] or /register

Example-

```
>>>/register
Account name: ABC
Create a PIN: 0000
An account with the name ABC has been created!

>>>/register ABC 0000
An account with the name ABC has been created!
```

/login

This command helps the user to login to his newly created account. Login along with timestamp is recorded in a Logs.txt file.

The system asks user his username and PIN. If the entered username is not found, then the system offers to register a new one. Checks are also done for PIN. It has to be a four-digit number and should be matching with the PIN entered while registration. The user has 4 chances before he is banned from logging in for 30 seconds.

Syntax- /login [username] [PIN] or /login

Example-

```
>>>/login
Account name: ABC
Enter your PIN: 0000
User ABC successfully logged in...

>>>/login ABC 0000
User ABC successfully logged in...
```

/logout

As the name suggests, this command instantly logs out the current user. Logout along with timestamp is recorded in a Logs.txt file. User must be logged in to use this feature.

Syntax- /logout

Example-

```
>>>/logout
You have successfully logged out...
```

/deposit

This command helps the user to deposit funds into his account. The user must be logged in to use this feature. Transactions are recorded in Logs.txt file.

The user is given the provision to deposit either in Current or Savings much like real banks. All transactions in this system are done in Qatari Riyals QAR.

Syntax- /deposit [Amount] [c/s] or /deposit

Example-

```
>>>/deposit 25000 c
Deposited QAR 25000 into Current
Available Balance QAR 25000
>>>/deposit
Deposit Amount: QAR 40000
Deposit QAR 40000 in Current or Savings? (c/s): s
Deposited QAR 40000 into Savings
Available Balance QAR 40000
```

/withdraw

This command helps the user to withdraw funds from his account. The user must be logged in to use this feature. Transactions are recorded in Logs.txt file.

The user is given the provision to withdraw either from Current or Savings much like real banks. Suitable error is raised if the user has insufficient funds in his account.

Syntax- /withdraw [Amount] [c/s] or /withdraw

Example-

```
>>>/withdraw 10000 c
Withdraw QAR 10000 from Current
Remaining Balance QAR 15000

>>>/withdraw
Withdrawal Amount: QAR 35000
Withdraw QAR 35000 from Current or Savings? (c/s): s
Withdraw QAR 35000 from Savings
Remaining Balance QAR 5000
```

/transfer

This command helps the user to transfer funds to a different account already registered in the same bank. The user must be logged in to use this feature. Transactions are recorded in Logs.txt file.

The user can transfer by choosing either Current or Savings in both sender's and recipient's account. Suitable error is raised if the user has insufficient funds in his account or if the recipient account does not exist in the bank.

Syntax- /transfer [Amount] [c/s] [username] [c/s] or /transfer

Example-

```
>>>/transfer 5000 c Akash s
Transferring Amount QAR 5000 from Current
Remaining Balance QAR 10000
Recipient Name: Akash
Transfer Success
>>>/transfer
Transfer Amount: QAR 5000
Transfer QAR 5000 from Current or Savings? (c/s): c
Recipient Account: Akash
Transfer to Current or Savings of Recipient Account? (c/s): s
Transferring Amount QAR 5000 from Current
Remaining Balance QAR 5000
Recipient Name: Akash
Transfer Success...
```

/balance

This command helps the user to view his balance in the bank. The user must be logged in to use this feature.

Syntax- /balance

Example-

```
>>>/balance
Your Current Balance is: QAR 5000
Your Savings are: QAR 5000
```

/stat

This command helps the user to view his total deposits and withdrawals from the bank since he first registered. The user must be logged in to use this feature.

Syntax- /stat

Example-

```
>>>/stat
You have deposited a total of 65000 QAR so far, and withdrawn a total of 45000 QAR.
We hope you have a great time using our helpful services!
```

/change PIN

This command helps the user to change the PIN number associated with his account. The user must be logged in to use this feature.

Suitable error is raised if the user does not enter a valid PIN. He has 4 chances before the account is automatically logged out for safety.

Syntax- /change PIN [Old] [New] or /change PIN

Example-

```
>>>/change PIN
Enter your current PIN: 0000
Choose new PIN: 9999
Your PIN was successfully changed...

>>>/change PIN 0000 9999
Your PIN was successfully changed...
```

/change username

This command helps the user to change the username associated with his account. The user must be logged in to use this feature.

Syntax- /change username [New] or /change username

Example-

```
>>>/change username XYZ
Username successfully changed to XYZ...

>>>/change username
Please enter new Account Name: XYZ
Username successfully changed to XYZ...
```

/cancel acc

This command helps the user to permanently delete his account. The user must be logged in to delete his account. A warning will be raised if he still has funds in the bank. The user is also offered a survey form to tell the reason why he chose to delete his account from WAY Banks.

Syntax- /cancel acc

Example-

```
>>>/cancel acc
Are you sure you want to cancel your account? (y/n): y
Account Deleted...
```

/enteradmin or /godmode

This command allows the user to enter admin mode. The user must be logged out to use this feature.

Master Password - @akash/wahab=yusra@

Suitable error is raised if the user enters wrong password. He has to wait a penalty time of 10 seconds and is given no chances.

Once in this mode, the user has admin privileges and can use

/clear - Removes all client records

/delete - Deletes a single client record

/defund - Clears Deposits

/help - Displays a list of all valid Admin Commands

/view - Displays all records

/exitadmin - Returns to Client Interface

Syntax- /enteradmin [Master Password] or /enteradmin

```
>>>/enteradmin
```

```
Enter Master Password: @akash/wahab=yusra@
```

No	Name	PIN	Current	Savings	Deposited	Withdrew
1	Akash	0000	0	10000	0	0
2	Wahab	0000	0	0	0	0
3	Yusra	0000	0	0	0	0
4	Avinash	0000	0	0	0	0

```
Now you have full control of the database. List of actions
```

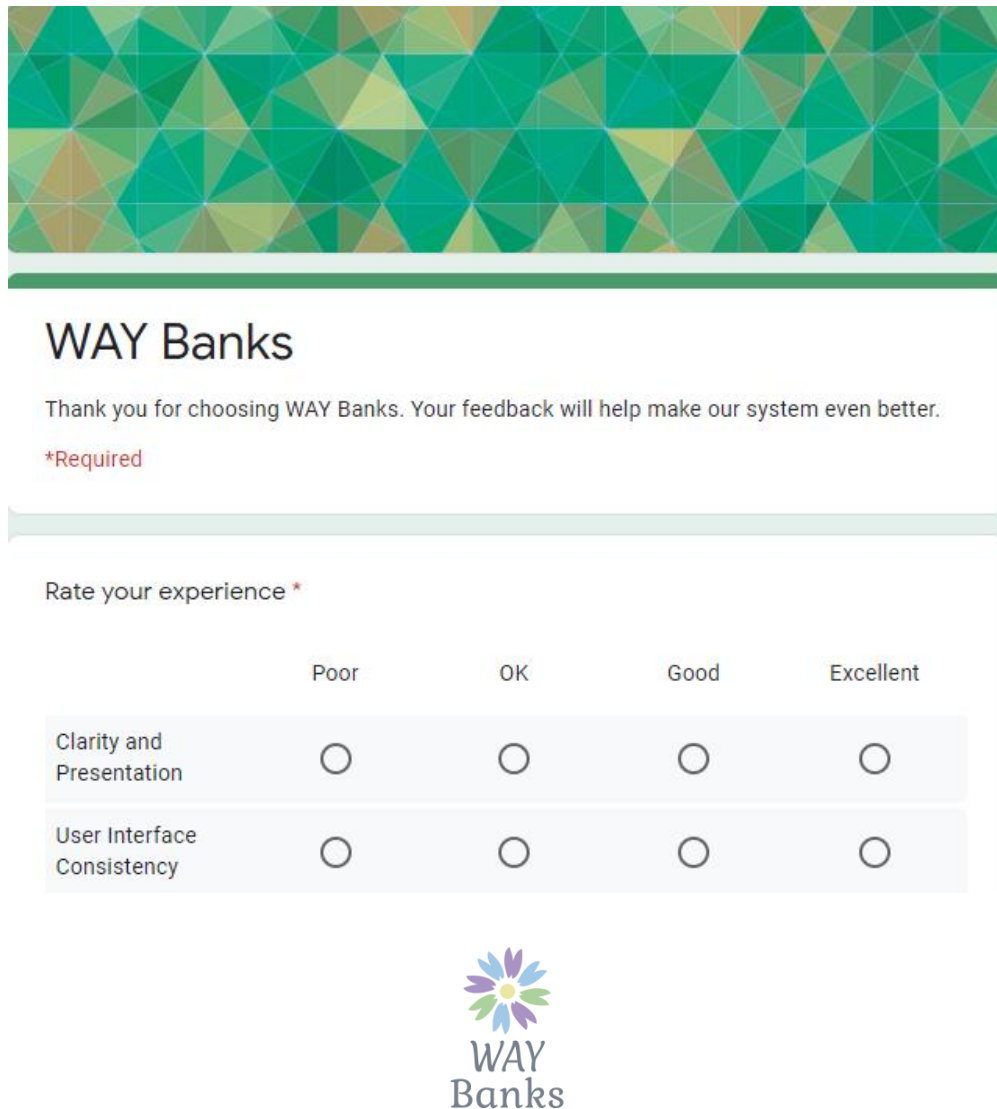
Command	Description
/clear	Remove all client records
/delete	Delete a single client record
/defund	Clear Deposits
/help	Display a list of all valid Admin Commands
/view	Fetch and Display all records
/exitadmin	Return to Client Interface

/feedback

This command launches the default web browser and loads a Google Form for Customer Feedback page. The user can give feedback and submit it.


User is automatically logged out, if logged in, for safety.

Syntax- /feedback



The image shows a customer feedback form for WAY Banks. At the top is a decorative header with a green and yellow geometric pattern. Below the header, the text "WAY Banks" is displayed in a large, bold font. Underneath, a message reads: "Thank you for choosing WAY Banks. Your feedback will help make our system even better." A red asterisk indicates that the following question is required. The question is "Rate your experience *". Below this, there are four radio button options: "Poor", "OK", "Good", and "Excellent". The form includes two rows of questions, each with four radio buttons corresponding to the rating options. The first row is "Clarity and Presentation" and the second row is "User Interface Consistency". At the bottom of the form is the WAY Banks logo, which consists of a stylized flower icon above the text "WAY Banks".

	Poor	OK	Good	Excellent
Clarity and Presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User Interface Consistency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



/about

This command prints basic information about the system as well as the project team members.

Syntax- /about

Output-

```
>>>/about
+-----+
|                WAY Banks Ltd                |
+-----+
|    Computer Team Project by Akash, Wahab, Yusra    |
+-----+
Coded in Python 3.8.3 - Requires MySQL 8.0
Lines - 1170
Size - 45KB
```

/quit

This command saves user logs and logs out user (if not already) and terminates the program in 5 seconds.

Syntax- /quit

Output-

```
>>>/quit
+-----+
|    Thank you for choosing WAY Banks Ltd    |
+-----+
|    Computer Team Project by Akash, Wahab, Yusra    |
+-----+
Program will terminate shortly...
```

Changelogs

V1.0

- Name of System added AWY Banks Ltd
- Added Database
- Added Changelog
- Preliminary Checks
- Table Created
- Name of System changed WAY Banks Ltd

V1.1

- Main Console Added
- /quit /about /help commands now work
- /register command now works
- /login /logout commands added

V1.2

- /withdraw /deposit commands now work

V1.3

- /transfer command now works

V1.4

- /enteradmin and /godmode works
- Changes made to Password Collection. Now considered PIN
- Changes to command. Please refer assigned codes.
- Printing table in Python

V1.5

- /stat and /cancel acc commands now work
- PIN datatype changed to varchar. Name Constraint Added

V1.6

- Added Sub commands to /enteradmin
 - /clear
 - /delete
 - /defund
 - /view
 - /help
 - /exitadmin
- Added Google Feedback forms
- Added new command /feedback

V1.7

- /change username and /change pin commands now work
- Added Startup Design
- Redesigned /help to display information in a tabular form
- /balance command now works

V1.8

- Redesigned /quit and /about interface
- Project Report
- Created WAY Banks Logo

V1.9

- Logging Complete
- Added Comments
- Final Formatting
- Testing Phase Commenced

V2.0

-Report Completed

-Final Release

Assigned Codes

Akash

/enteradmin or godmode

/deposit

/withdraw

/transfer

/logout

/login

Wahab

/stat

/register

/cancel acc

/feedback

Yusra

/change pin

/change username

/balance