

CS132: Software Engineering

Specification

Banking System

Group 15

Author: 祝宇航 王芸飞 贾舜康

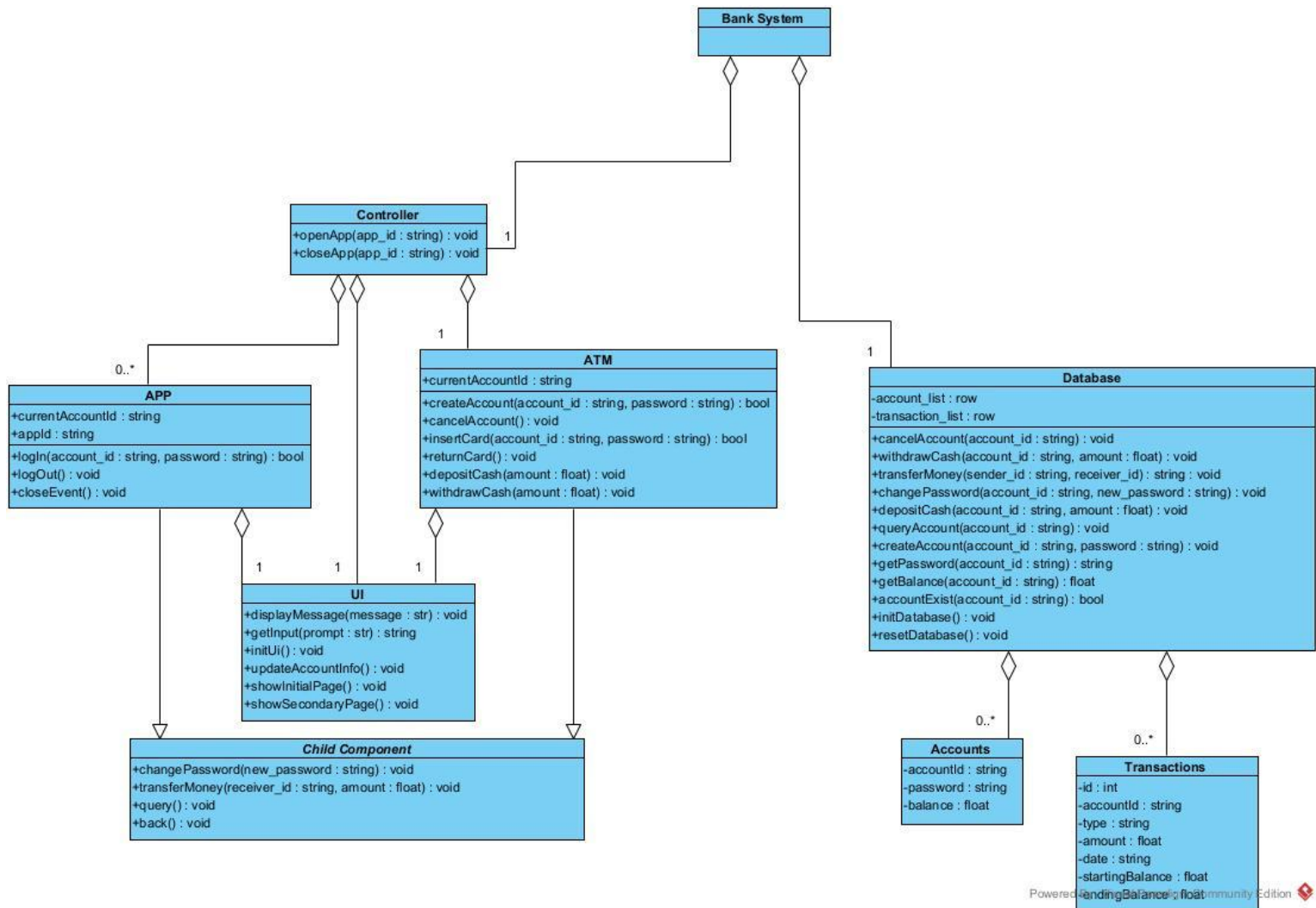
Catalogue

System Architecture	4
S1: Controller	4
● S1.1 Open APP	5
● S1.2 Close APP	5
● S1.3 Reset System Database	5
● Total functional sequence diagram	6
S2: ATM	7
● S2.1 Create Account	7
● S2.1.1 Input Account ID	8
● S2.1.2 Input Password ID	8
● S2.1.3 Confirm	8
● S2.2 Log In	8
● S2.2.1 Input Account ID	9
● S2.2.2 Input Password ID	9
● S2.2.3 Confirm	9
● S2.3 Query	10
● S2.4 Deposit Cash	11
● S2.4.1 Input amount	11
● S2.4.2 OK	11
● S2.5 Withdraw Cash	11
● S2.5.1 Input amount	11
● S2.5.2 OK	11
● S2.6 Transfer Money	11
● S2.6.1 Input receiver ID	11
● S2.6.2 Input amount	11
● S2.6.3 OK	11
● S2.7 Change Password	12
● S2.7.1 Input new password	12
● S2.7.2 OK	12
● S2.8 Cancel Account	12
● S2.9 Return Card	12
● Total functional sequence diagram	12
S3: APP	14
● S3.1 Log In	14
● S3.1.1 Input Account ID	15
● S3.1.2 Input Password ID	15
● S3.1.3 Confirm	15
● S3.2 Query	16
● S3.3 Transfer Money	17
● S3.3.1 Input receiver ID	17
● S3.3.2 Input amount	17

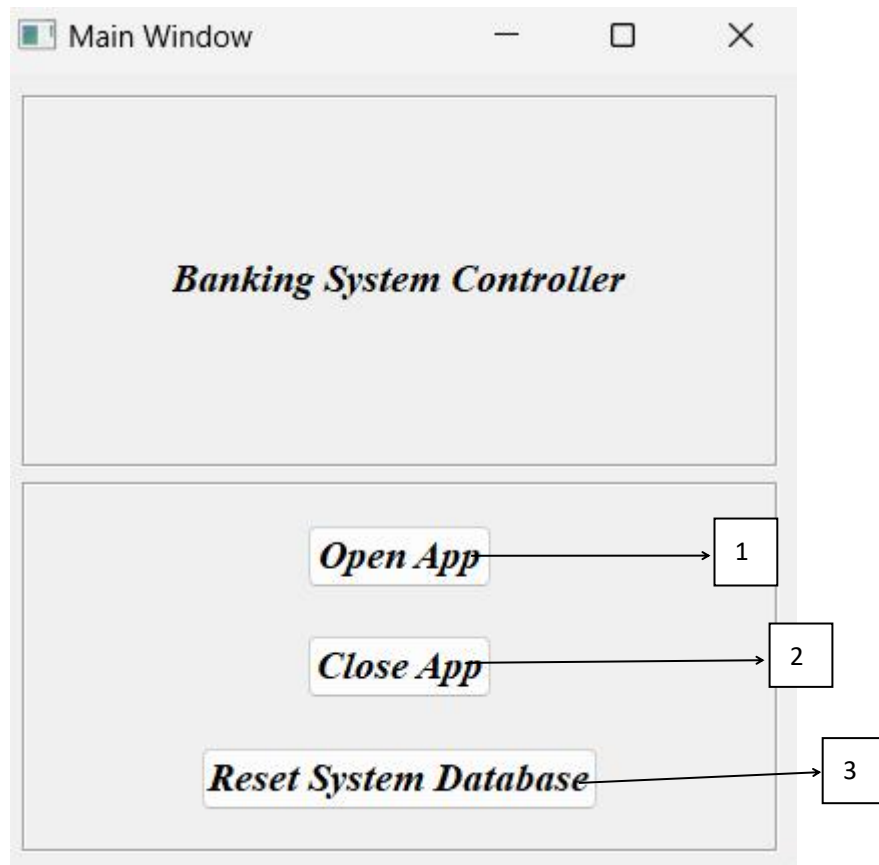
● S3.3.3 OK	17
● S3.4 Change Password	17
● S3.4.1 Input new password	17
● S3.4.2 OK	17
● S3.5 Log Out	17
● Total functional sequence	18

System Architecture

The system architecture is shown below:



S1: Controller



Controller Components

- S1.1 Open APP

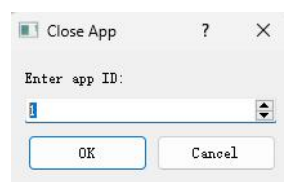
Clicking this button will allow the user to enter an app ID to create a new app.

1. There will be sequential generation of app with appId.
2. Add the instance to the instance dictionary for easy subsequent lookups.

- S1.2 Close APP

Clicking this button will allow the user to enter an app ID to close a open app.

1. Closes an instance of an app that is already open and has an appId equal to the entered app ID.
2. Remove the instance from the instance dictionary.



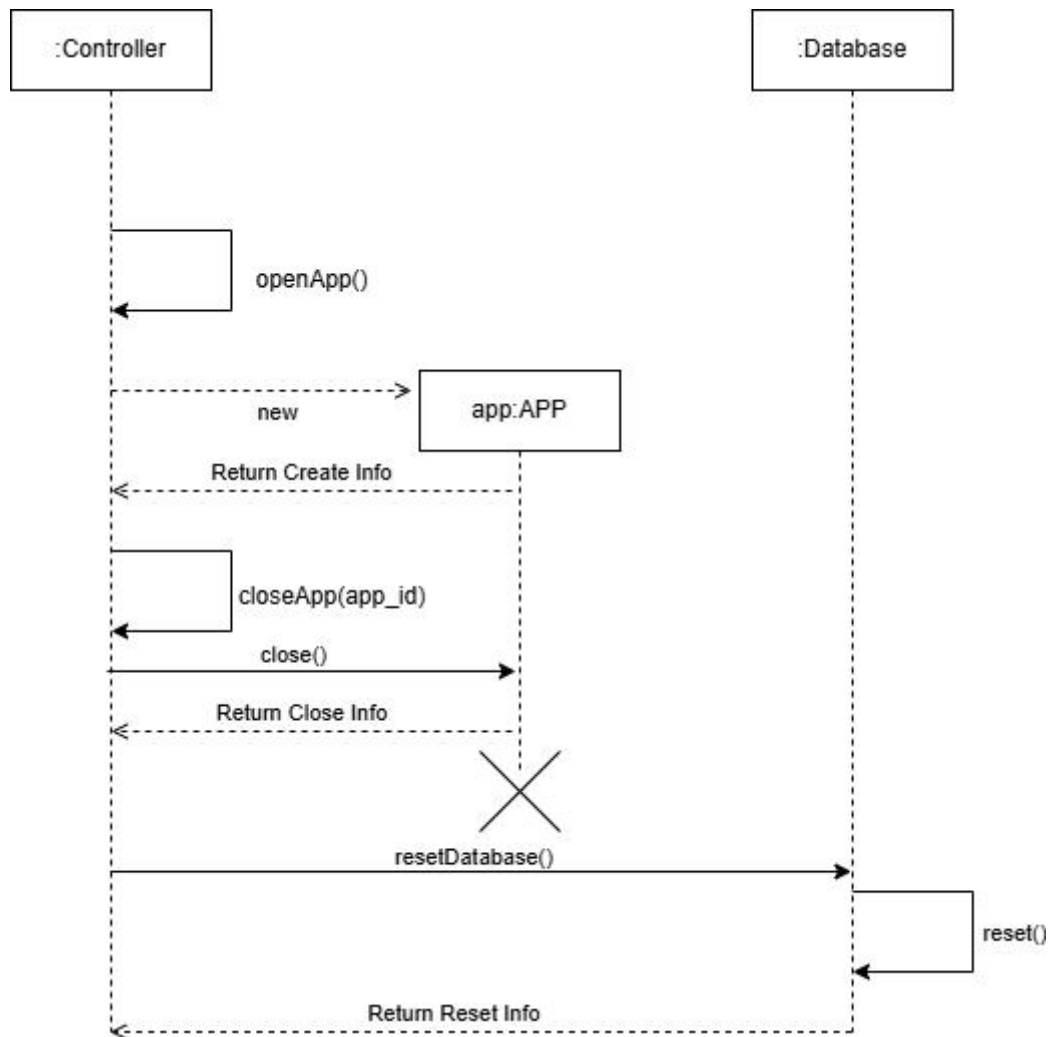
- S1.3 Reset System Database

Click on this button to reset the database in the banking system, removing all account and transaction information.

1. Remove all data from the local database and reinitialize.

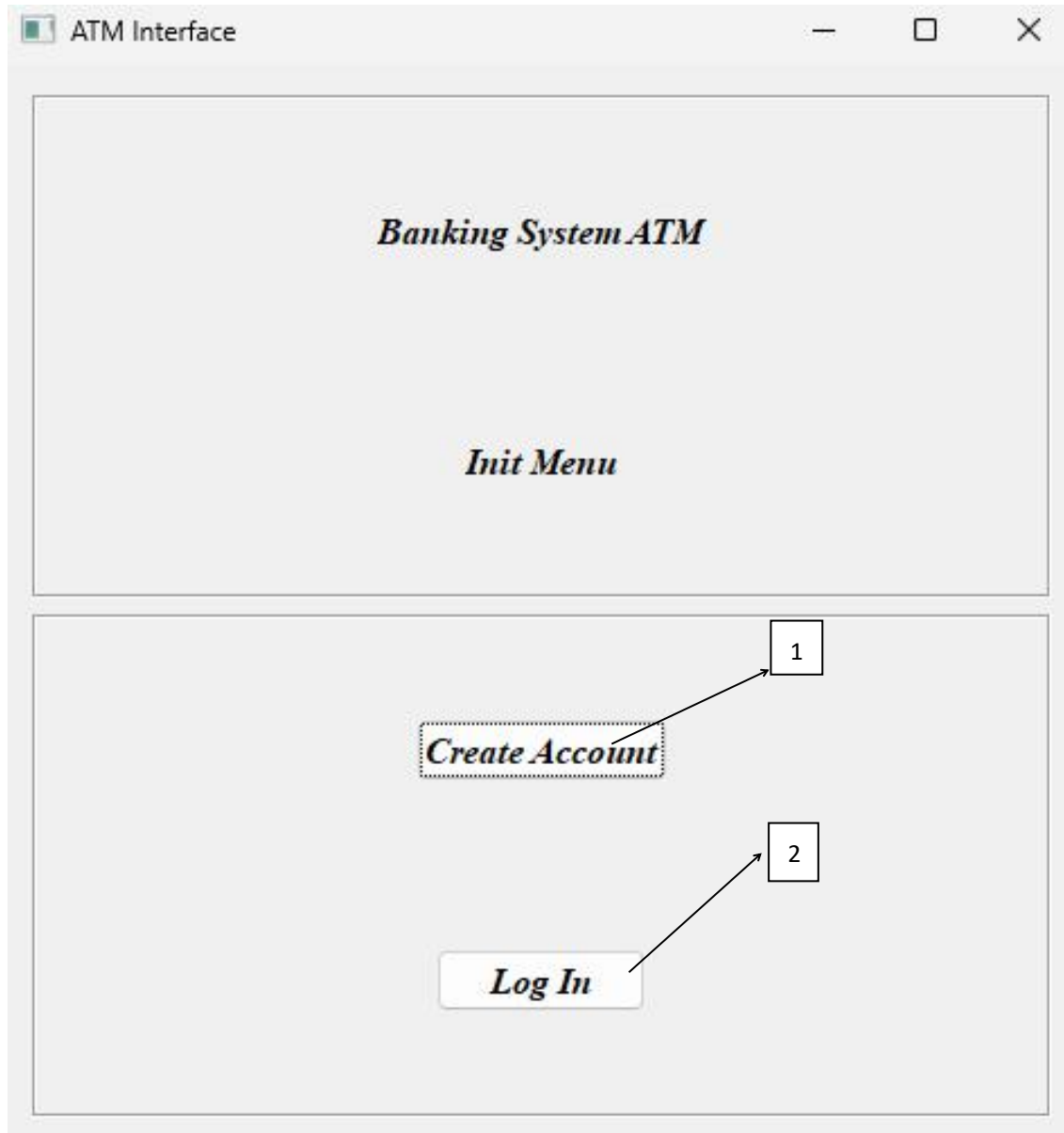


- Total functional sequence diagram



S2: ATM

Init Menu



Init Menu Components

- S2.1 Create Account
Clicking on this button will redirect it to the Create Account Menu.

Banking System ATM

Create Account

Account ID → 1

Password → 2

Confirm → 3

Back → 4

- S2.1.1 Input Account ID
 1. Determine if it is a 10-digit pure number.
 2. Determine if an account already exists
- S2.1.2 Input Password ID
 1. Determine whether the password meets the requirements of six-digit pure number.
- S2.1.3 Confirm
 1. Returns the creation results for display on the front end.
 2. If created successfully the database will be updated.

Error

! Password must be at least 8 characters long and include uppercase letters, lowercase letters, and numbers

OK

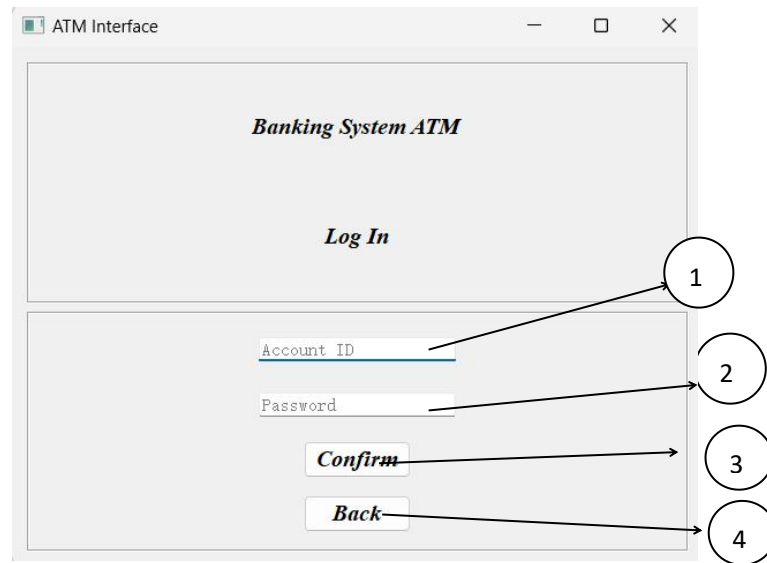
Success

i Account created successfully

OK

- S2.2 Log In

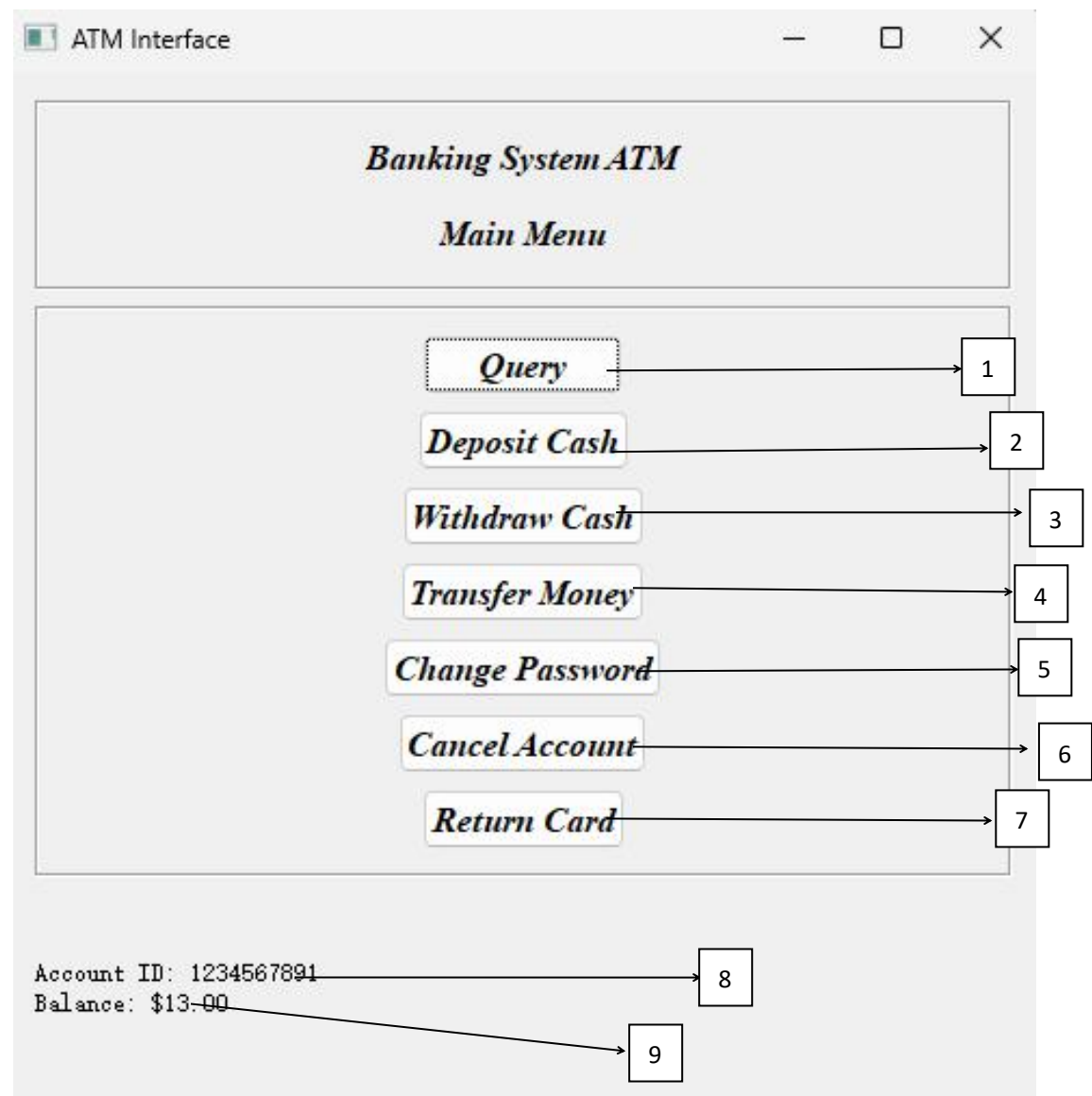
Clicking on this button will redirect it to the Log In Menu.



- S2.2.1 Input Account ID
 1. Determine if an account has been created.
- S2.2.2 Input Password ID
 1. Determine if the password is correct.
- S2.2.3 Confirm
 1. Returns login information to the front-end.
 2. If inserted card successfully, the ATM's currentAccountId will be set to this ID.

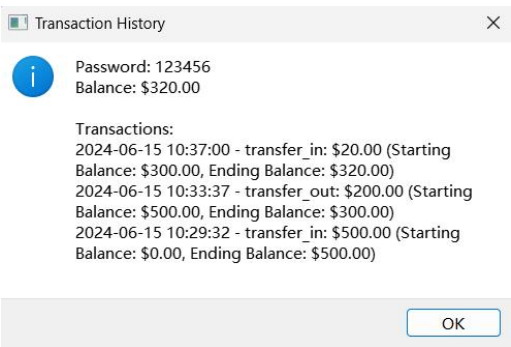


Main Menu



Main Menu Components

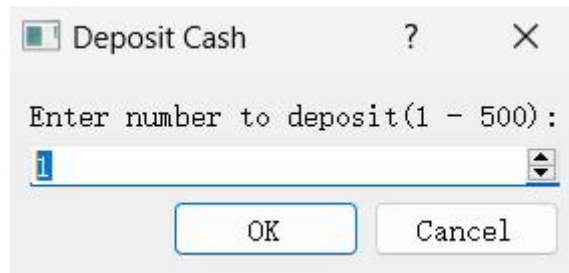
- S2.3 Query
Click this button and it will allow the user to perform the Query operation.
 1. Request data about currentAccountId from the database.
 2. Send the data to the front end to show the latest five.



- S2.4 Deposit Cash

Click this button and it will allow the user to perform the Deposit operation.

- S2.4.1 Input amount
 1. Check if cash number is in the correct interval.
- S2.4.2 OK
 1. Return Deposit result information to the front end.
 2. Updating relevant data in the database.



- S2.5 Withdraw Cash

Click this button and it will allow the user to perform the Withdraw operation.

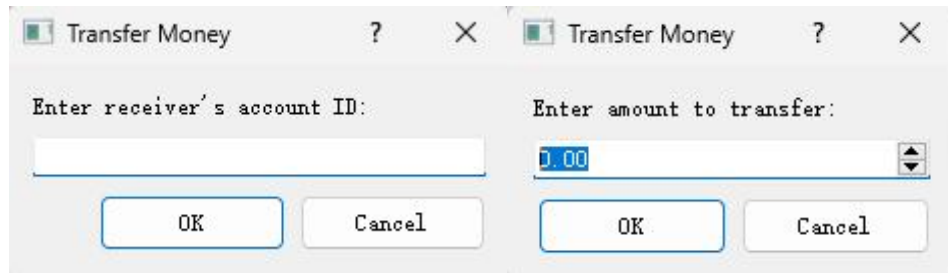
- S2.5.1 Input amount
 1. Check if cash number is in the correct interval.
 2. Check if the current account has enough amount.
- S2.5.2 OK
 1. Return Withdraw result information to the front end.
 2. Updating relevant data in the database.



- S2.6 Transfer Money

Click this button and it will allow the user to perform the Transfer operation.

- S2.6.1 Input receiver ID
 1. Check if the current account is the same as the receiver ID.
 2. Check that the receiver ID conforms to the ID specification.
 3. Check if the receiver ID exists in the database.
- S2.6.2 Input amount
 1. Check if amount is in the correct interval.
 2. Check if the current account has enough amount.
- S2.6.3 OK
 1. Return Transfer result information to the front end.
 2. Updating relevant data in the database.



- S2.7 Change Password

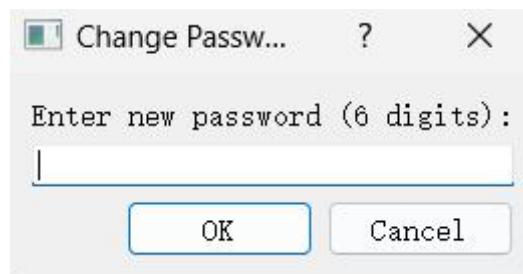
Click on this button and it will allow the user to change Password.

- S2.7.1 Input new password

1. Check that the new password whether is the same as the old password.
2. Check that the new password is in specification(6-digit pure number).

- S2.7.2 OK

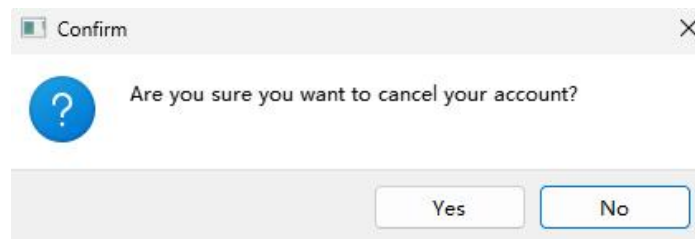
1. Return Change Password result information to the front end.
2. Updating relevant data in the database.



- S2.8 Cancel Account

Clicking on this button will allow the user to cancel the account.

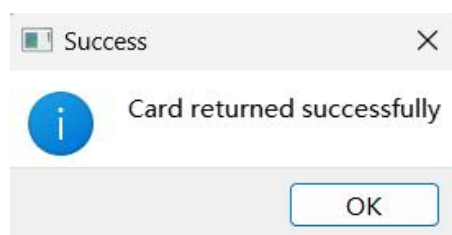
1. Check if the balance of the account is 0.
2. Check the instance dictionary to see if an app is logged into the account.
3. Remove relevant data from the database.



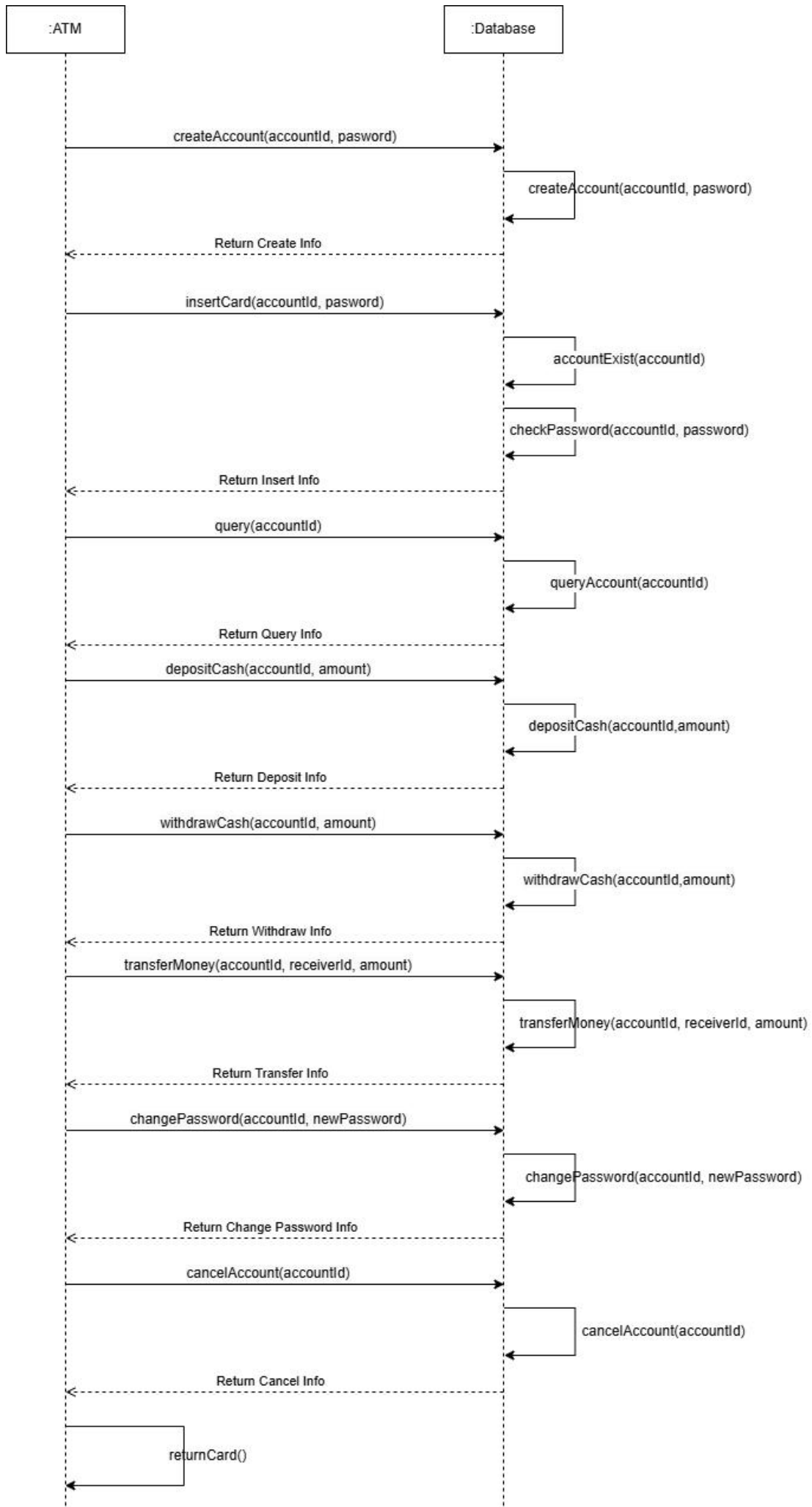
- S2.9 Return Card

Click on this button and it will automatically log out of the account. Then it will return to the Init Menu.

1. Set currentAccountId to None and return to the Init Menu.

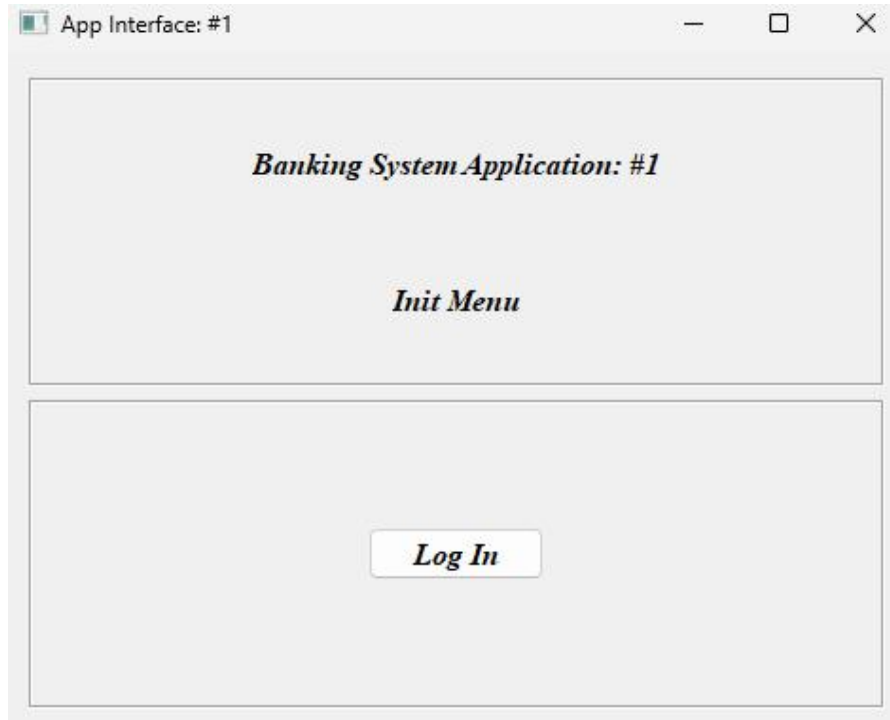


- Total functional sequence diagram

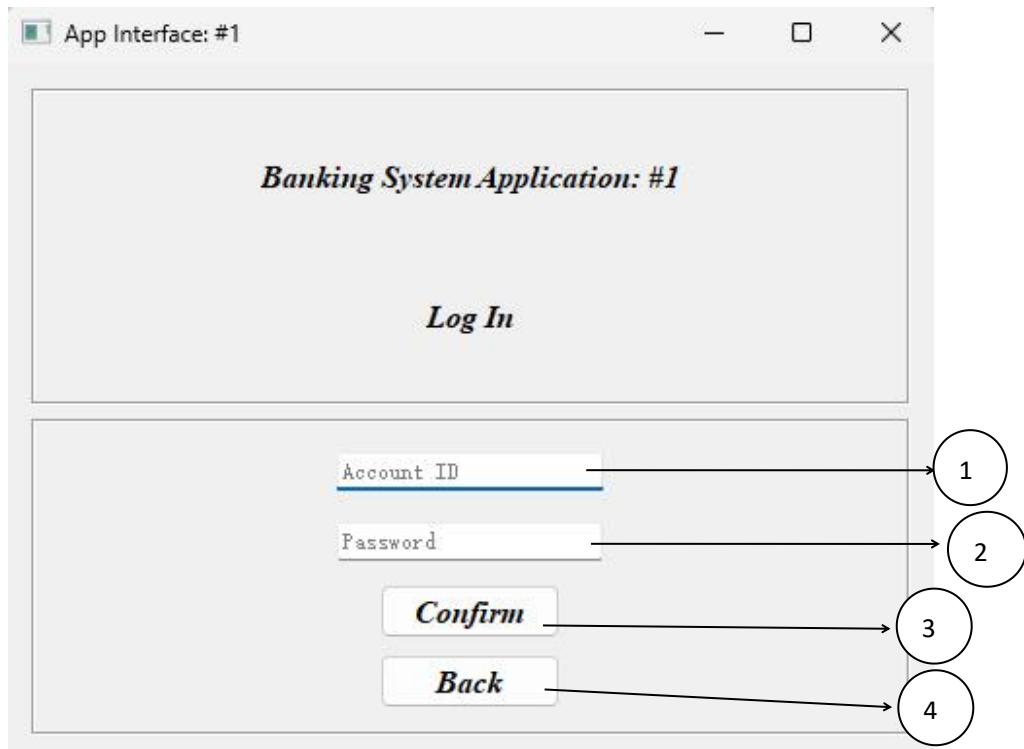


S3: APP

Init Menu



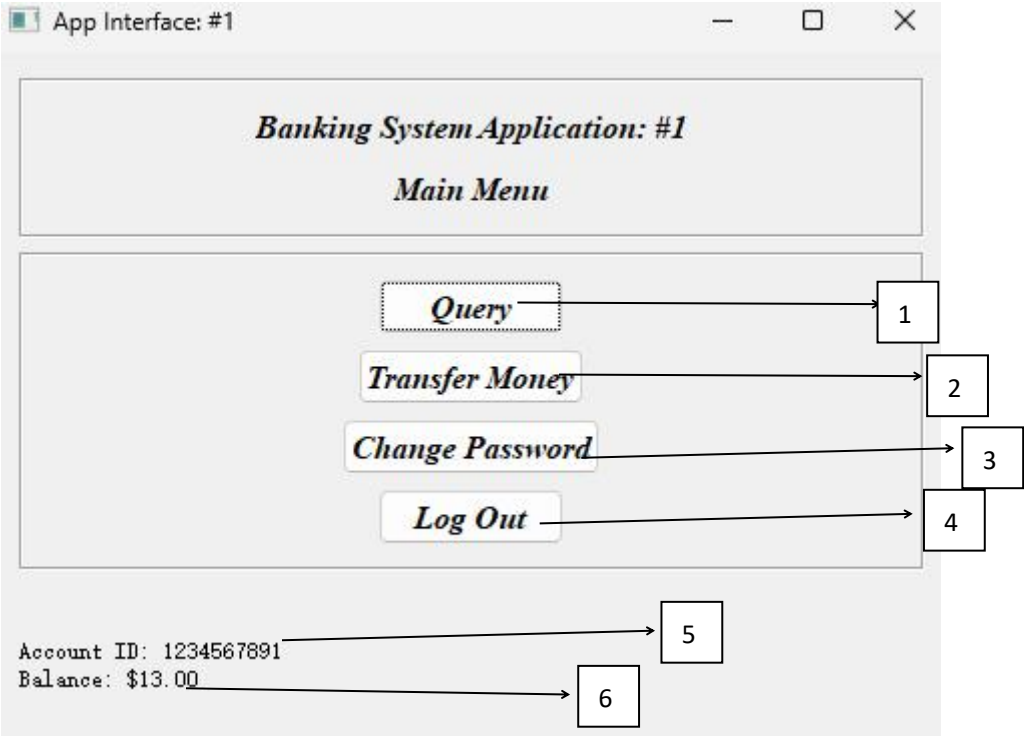
- S3.1 Log In
Clicking on this button will redirect it to the Log In Menu.



- S3.1.1 Input Account ID
 1. Determine if an account has been created.
- S3.1.2 Input Password ID
 1. Determine if the password is correct.
- S3.1.3 Confirm
 1. Returns login information to the front-end.
 2. If logged in successfully, the APP's currentAccountId will be set to this ID.
 3. If other apps have been log in this account already, log it out in others.



Main Menu

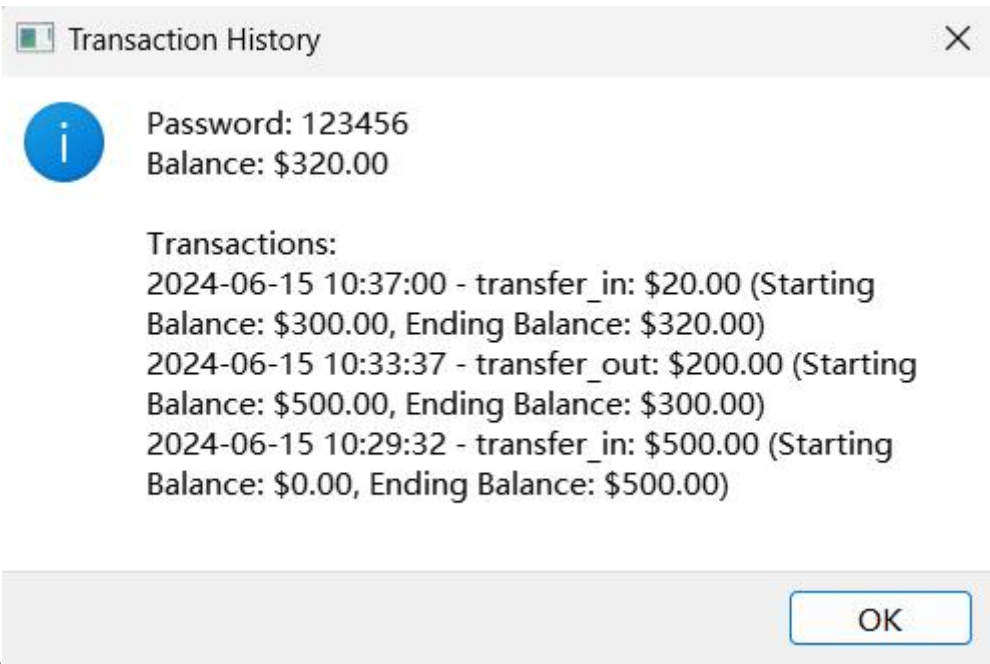


Main Menu Components

- S3.2 Query

Clicking on this button will return all the information about the account including the password, Balance and all the Transaction information

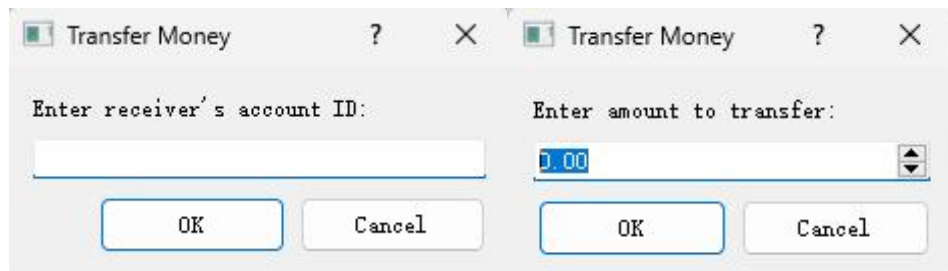
1. Request data about currentAccountId from the database.
2. Send the data to the front end to show the latest five.



- S3.3 Transfer Money

Click this button and it will allow the user to perform the Transfer operation.

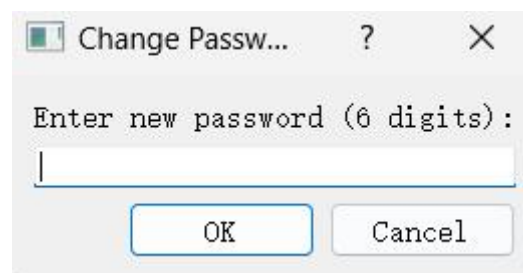
- S3.3.1 Input receiver ID
 1. Check if the current account is the same as the receiver ID.
 2. Check that the receiver ID conforms to the ID specification.
 3. Check if the receiver ID exists in the database.
- S3.3.2 Input amount
 1. Check if amount is in the correct interval.
 2. Check if the current account has enough amount.
- S3.3.3 OK
 1. Return Transfer result information to the front end.
 2. Updating relevant data in the database.



- S3.4 Change Password

Click on this button and it will allow the user to change Password.

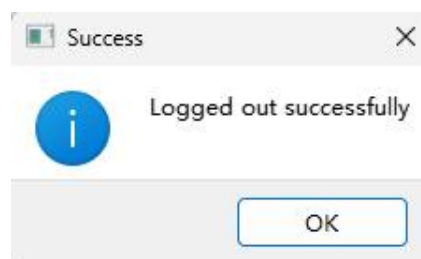
- S3.4.1 Input new password
 1. Check that the new password is the same as the old password.
 2. Check that the new password is in specification.
- S3.4.2 OK
 1. Return Change Password result information to the front end.
 2. Updating relevant data in the database.



- S3.5 Log Out

Click on this button and it will automatically log out of the account. Then it will return to the Init Menu.

1. Set currentAccountId to None and return to the Init Menu.



- Total functional sequence

