Sample Banking Application - Manual

PREPARED BY

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1. Functionalities

The application is capable of following four functionalities.

Depositing an amount

The minimum deposit value is $1. The maximum deposit amount is such a way, that the maximum amount of the closing balance of the account should exceed 2.2250738585072014E-308.

```
Welcome to AwesomeGIC Bank! What would you like to do?
[D] eposit
[W] ithdraw
[P] rint statement
[Q] uit
D
Please enter the amount to deposit:
100
Thank you. $100 has been deposited to your account.
Is there anything else you'd like to do?
[D] eposit
[W] ithdraw
[P] rint statement
[Q] uit
```

Withdrawing an amount

The minimum withdrawal value is $1. The maximum withdraw amount is such a way, that the minimum amount of the closing balance is zero.

```
Thank you. $392 has been deposited to your account.
Is there anything else you'd like to do?
[D] eposit
[W] ithdraw
[P] rint statement
[Q] uit
W
Please enter the amount to withdraw:
234
Thank you. $234 has been withdrawn.
Is there anything else you'd like to do?
[D] eposit
[W] ithdraw
[P] rint statement
[Q] uit
```

Exiting the application

```
Is there anything else you'd like to do?
[D] eposit
[W] ithdraw
[P] rint statement
[Q] uit
Q
Thank you for banking with AwesomeGIC Bank.
Have a nice day!
```

Printing a statement

```
Cannot do the transaction. Insufficient account balance.
Is there anything else you'd like to do?
[D] eposit
[W] ithdraw
[P] rint statement
[Q] uit
P
Date                    | Amount | Balance
10 Mar 2023 12:00:00 AM | 100.0  | 200.0
10 Mar 2023 12:00:00 AM | 392.0  | 592.0
10 Mar 2023 12:00:00 AM | 234.0  | 358.0
10 Mar 2023 12:00:00 AM | 344.0  | 14.0

Is there anything else you'd like to do?
[D] eposit
[W] ithdraw
[P] rint statement
[Q] uit
```

2. Running and Verifying the results

The application can be launched in the following ways.

1. Run as a spring boot application.
2. Package a jar file and run it through the command line. (java -jar <target/bank-snapshot-0.0.1.jar>)

H2 database console credentials

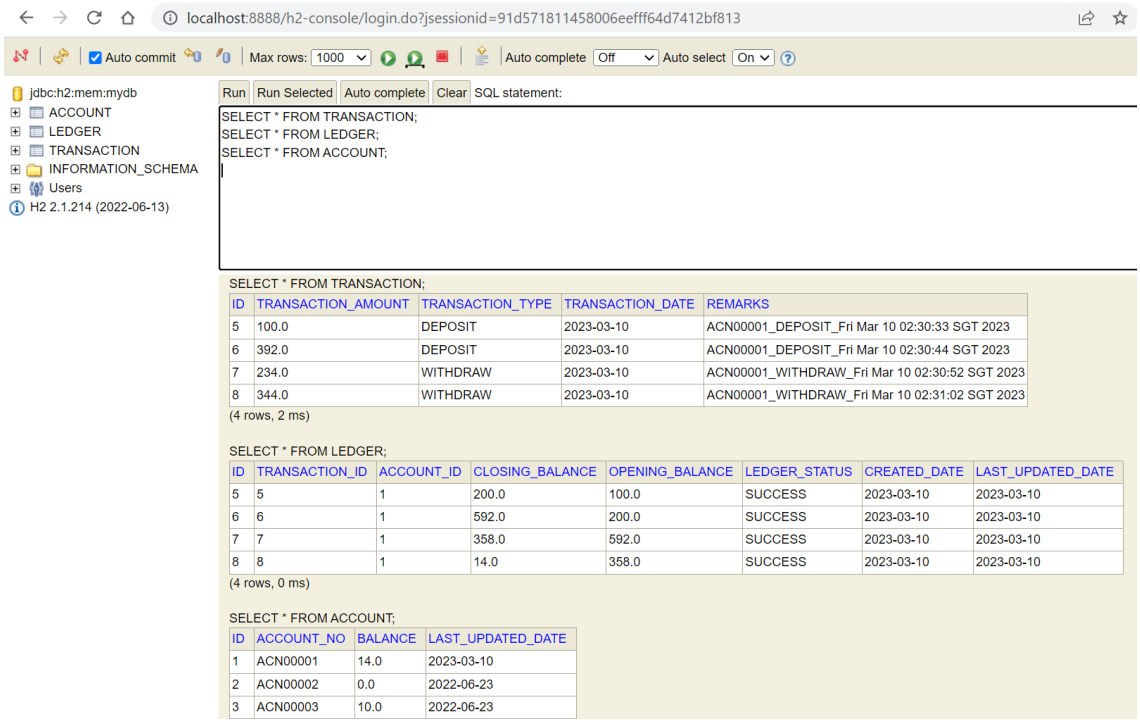
- URL: http://localhost:8888/h2-console
- User: sa
- Password: password

Queries to verify

SELECT * FROM TRANSACTION;

SELECT * FROM LEDGER;

SELECT * FROM ACCOUNT;



SELECT * FROM TRANSACTION;

ID	TRANSACTION_AMOUNT	TRANSACTION_TYPE	TRANSACTION_DATE	REMARKS
5	100.0	DEPOSIT	2023-03-10	ACN00001_DEPOSIT_Fri Mar 10 02:30:33 SGT 2023
6	392.0	DEPOSIT	2023-03-10	ACN00001_DEPOSIT_Fri Mar 10 02:30:44 SGT 2023
7	234.0	WITHDRAW	2023-03-10	ACN00001_WITHDRAW_Fri Mar 10 02:30:52 SGT 2023
8	344.0	WITHDRAW	2023-03-10	ACN00001_WITHDRAW_Fri Mar 10 02:31:02 SGT 2023

(4 rows, 2 ms)

SELECT * FROM LEDGER;

ID	TRANSACTION_ID	ACCOUNT_ID	CLOSING_BALANCE	OPENING_BALANCE	LEDGER_STATUS	CREATED_DATE	LAST_UPDATED_DATE
5	5	1	200.0	100.0	SUCCESS	2023-03-10	2023-03-10
6	6	1	592.0	200.0	SUCCESS	2023-03-10	2023-03-10
7	7	1	358.0	592.0	SUCCESS	2023-03-10	2023-03-10
8	8	1	14.0	358.0	SUCCESS	2023-03-10	2023-03-10

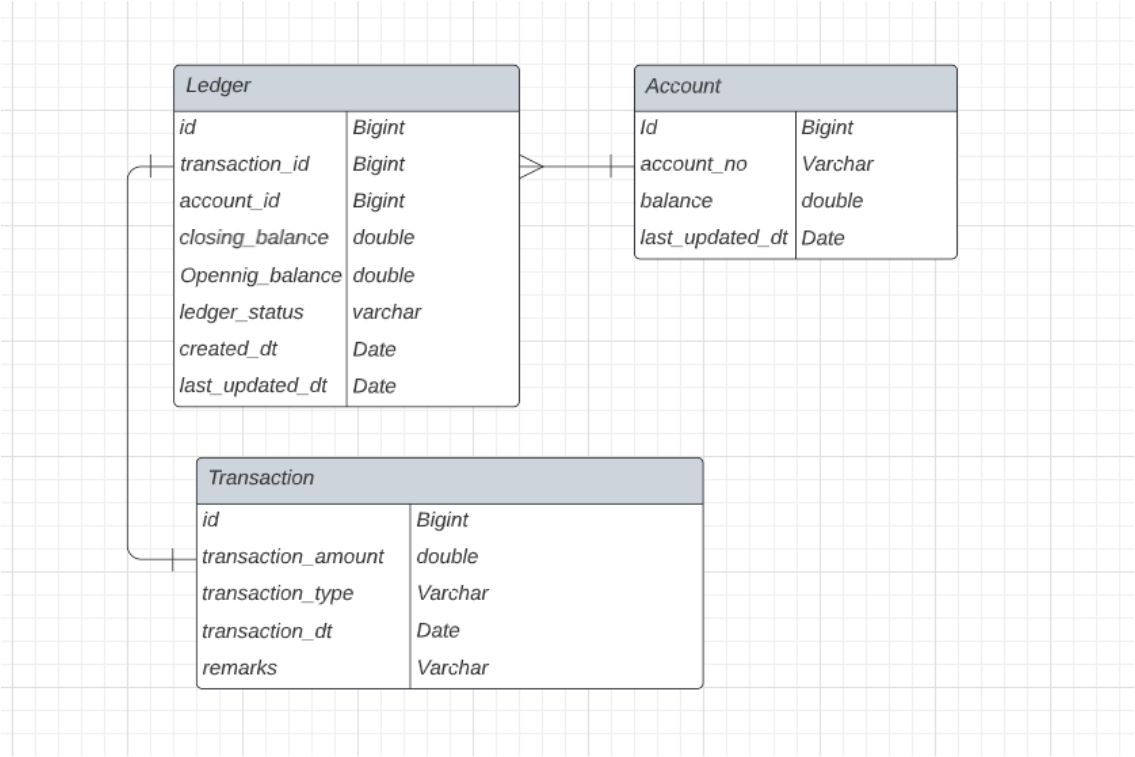
(4 rows, 0 ms)

SELECT * FROM ACCOUNT;

ID	ACCOUNT_NO	BALANCE	LAST_UPDATED_DATE
1	ACN00001	14.0	2023-03-10
2	ACN00002	0.0	2022-06-23
3	ACN00003	10.0	2022-06-23

3. Design

Entity Relation diagram for database



There are three spring service beans introduced for the application.

- Transaction Service - This manages the deposit and withdrawal transactions for the given account.
- Statement Service - This service access database and composes printable statements for the given account.
- Application Simulator Service - This service simulates the user requests from the terminal and invokes other services to accomplice the task.

The transaction service manages deposit and withdrawal operations as transactional. So partial records will not be updated on the ‘Transaction’ and ‘Ledger’ tables.

Application layers

1. Command Line
2. Service
3. Repository
4. In Memory Database

4. Future Changes

Transaction service has been implemented to facilitate the transaction based on the accounts. Currently, the Simulator service uses a hardcoded account to simulate the above functionalities.

Also account repositories also available to implement an account-creating service and a controller.

Also, the application currently uses H2 in the memory database and can change to the required database with minimal configurations.

Git Repository: https://github.com/Akila93/Bank.git