

CS 631 - DATA MANAGEMENT SYSTEMS DESIGN

PROJECT DELIVERABLE 3

Submitted by: Group 10

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Goals

- The goal for phase 3 of the project is to develop a web application for the WALLET payment network database
- Run SQL commands for creating tables including primary keys, secondary keys and foreign keys
- Run SQL command files that populate each table

List of tables

We have created various table

1. BANK_ACCOUNT - BANK_ID, BANK_NUMBER
2. USER_ACCOUNT - SSN, NAME, PHONE_NUMBER, BALANCE, BANK_ID, BANK_NUMBER, PBA_VERIFIED
3. REQUEST_TRANSACTION - RT_ID, AMOUNT, MEMO, SSN, DATE_TIME
4. SEND_TRANSACTION - ST_ID, AMOUNT, MEMO, CANCEL_REASON, MEMO, IDENTIFIER, SSN, DATA_TIME
5. ELEC_ADDRESS - IDENTIFIER, VERIFIED, TYPE_EORP
6. EMAIL - EMAIL_ADD, SSN
7. FROM_TRANSACTION - RT_ID, PERCENT_CUT, IDENTIFIER
8. PHONE - PHONE_NO, SSN
9. USER_LOGIN - ID, EMAIL, PASSWORD, CREATED, MODIFIED

SQL commands for creating tables

BANK_ACCOUNT

```
CREATE TABLE
BANK_ACCOUNT(
    BANK_ID int NOT NULL,
    BANK_NUMBER int NOT NULL,
    Constraint pk1 PRIMARY KEY(BANK_ID, BANK_NUMBER)
)
```

ELEC_ADDRESS

```
CREATE TABLE
ELEC_ADDRESS(
    IDENTIFIER VARCHAR(20) NOT NULL PRIMARY KEY,
    VERIFIED BOOLEAN DEFAULT(FALSE),
    TYPE_EORP VARCHAR(40)
)
```

USER_ACCOUNT

```
CREATE TABLE
USER_ACCOUNT(
    SSN int(10) PRIMARY KEY,
    NAME VARCHAR(50) not null,
    PHONE_NUMBER VARCHAR(20),
    BALANCE FLOAT DEFAULT(0),
    BANK_ID int ,
    BANK_NUMBER int ,
    PBA_VERIFIED BOOLEAN NOT NULL DEFAULT(FALSE),
    CONSTRAINT FK_PHONE FOREIGN KEY(PHONE_NUMBER)
REFERENCES ELEC_ADDRESS(IDENTIFIER)
    ON UPDATE CASCADE
    ON DELETE CASCADE,
    CONSTRAINT FK_BANK_ID1 FOREIGN KEY(BANK_ID,BANK_NUMBER)
REFERENCES BANK_ACCOUNT(BANK_ID,BANK_NUMBER)
```

```
    ON UPDATE CASCADE  
    ON DELETE CASCADE  
)
```

HAS_ADDITIONAL

```
CREATE TABLE  
HAS_ADDITIONAL(  
    SSN int NOT NULL,  
    BANK_ID int NOT NULL,  
    BANK_NUMBER int NOT NULL,  
    VERIFIED BOOLEAN DEFAULT(FALSE),  
    CONSTRAINT FK_SSN FOREIGN KEY(SSN) REFERENCES  
USER_ACCOUNT(SSN) ON UPDATE CASCADE  
    ON DELETE CASCADE,  
    CONSTRAINT FK_BANK_ID FOREIGN KEY(BANK_ID,BANK_NUMBER)  
REFERENCES BANK_ACCOUNT(BANK_ID,BANK_NUMBER) ON UPDATE  
CASCADE  
    ON DELETE CASCADE  
)
```

SEND_TRANSACTION

```
CREATE TABLE  
SEND_TRANSACTION(  
    STID int auto_increment PRIMARY KEY,  
    AMOUNT INT NOT NULL,  
    MEMO VARCHAR(40),  
    CANCEL_REASON VARCHAR(40),  
    IDENTIFIER VARCHAR(20),  
    SSN INT ,  
    DATE_TIME TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,  
    CONSTRAINT FK_IDENTIFIER FOREIGN KEY(IDENTIFIER)  
REFERENCES ELEC_ADDRESS(IDENTIFIER) ON UPDATE CASCADE  
    ON DELETE CASCADE,
```

```
    CONSTRAINT FK_SSNSN_SEND FOREIGN KEY(SSN) REFERENCES
    USER_ACCOUNT(SSN) ON UPDATE CASCADE
    ON DELETE CASCADE
```

```
)
```

REQUEST_TRANSACTION

```
CREATE TABLE
REQUEST_TRANSACTION(
    RT_ID int auto_increment PRIMARY KEY,
    AMOUNT INT NOT NULL,
    MEMO VARCHAR(40),
    SSN INT ,
    DATE_TIME TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    CONSTRAINT FK_SSNSN_REQUEST FOREIGN KEY(SSN) REFERENCES
    USER_ACCOUNT(SSN) ON UPDATE CASCADE
    ON DELETE CASCADE
```

```
)
```

USER_LOGIN

```
CREATE TABLE
USER_LOGIN(
    id int auto_increment PRIMARY KEY,
    EMAIL VARCHAR(20) not null,
    password VARCHAR(60) not null,
    CONSTRAINT FK_EMAIL_3 FOREIGN KEY(EMAIL) REFERENCES
    ELEC_ADDRESS(IDENTIFIER) ON UPDATE CASCADE
    ON DELETE CASCADE,
    created TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
    modified TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP ON
    UPDATE CURRENT_TIMESTAMP
)
```

FROM_TRANSACTION

```
CREATE TABLE
  FROM_TRANSACTION(
    RT_ID int,
    IDENTIFIER VARCHAR(20) not null,
    PERCENT_CUT int(10) DEFAULT(100) not null,
    CONSTRAINT FK_FROM_IDENTIFIER FOREIGN KEY(IDENTIFIER)
    REFERENCES ELEC_ADDRESS(IDENTIFIER) ON UPDATE CASCADE
    ON DELETE CASCADE,
    CONSTRAINT FK_FROM_RT_ID FOREIGN KEY(RT_ID) REFERENCES
    REQUEST_TRANSACTION(RT_ID) ON UPDATE CASCADE
    ON DELETE CASCADE
  )
```

EMAIL

```
CREATE TABLE
  EMAIL(
    EMAIL_ADD VARCHAR(50) PRIMARY KEY,
    SSN int NOT NULL,
    CONSTRAINT FK_SSN1 FOREIGN KEY(SSN) REFERENCES
    USER_ACCOUNT(SSN) ON UPDATE CASCADE
    ON DELETE CASCADE,
    CONSTRAINT FK_EMAIL_1 FOREIGN KEY(EMAIL_ADD) REFERENCES
    ELEC_ADDRESS(IDENTIFIER) ON UPDATE CASCADE
    ON DELETE CASCADE
  )
```

PHONE

```
CREATE TABLE
  PHONE(
    PHONE_NO VARCHAR(20) PRIMARY KEY,
    SSN int NOT NULL,
```

```

    CONSTRAINT FK_SS2 FOREIGN KEY(SSN) REFERENCES
USER_ACCOUNT(SSN) ON UPDATE CASCADE
    ON DELETE CASCADE,
    CONSTRAINT FK_PHONE_1 FOREIGN KEY(PHONE_NO) REFERENCES
ELEC_ADDRESS(IDENTIFIER) ON UPDATE CASCADE
    ON DELETE CASCADE
)

```

SQL commands that populate the tables

SEND_TRANSACTION

```
DB.insertOne("INSERT INTO SEND_TRANSACTION(AMOUNT, MEMO, IDENTIFIER, SSN)
values (%s,%s,%s,%s)",amount,memo,send_email,res_amt.row["SSN"])
```

```
DB.insertOne("INSERT INTO SEND_TRANSACTION(AMOUNT, MEMO, IDENTIFIER, SSN)
values (%s,%s,%s,%s)",amount,memo,result.row["EMAIL_ADD"],user_balance.row["SSN"])
```

REQUEST_TRANSACTION

```
DB.insertOne("INSERT INTO REQUEST_TRANSACTION(AMOUNT, MEMO, SSN) values
(%s,%s,%s)",amount,memo,res_amt.row["SSN"])
```

FROM_TRANSACTION

```
DB.insertOne("INSERT INTO FROM_TRANSACTION (RT_ID, IDENTIFIER) values
(%s,%s)",res_rtid.row["RT_ID"],request_email)
```

ELEC_ADDRESS

```
DB.insertOne("INSERT INTO ELEC_ADDRESS(IDENTIFIER,type_eorp) VALUES
(%s,'email')",email)
```

```
DB.insertOne("INSERT INTO ELEC_ADDRESS(IDENTIFIER,type_eorp) VALUES
(%s,'phone')",phone)
```

Populate table from login

```
DB.insertOne("INSERT INTO ELEC_ADDRESS(identifier,type_eorp) VALUES
(%s,'phone')",phone)
```

```
DB.insertOne("INSERT INTO ELEC_ADDRESS(identifier,type_eorp) VALUES  
(%s,'email')",email)
```

EMAIL

```
DB.insertOne("INSERT INTO EMAIL(EMAIL_ADD, SSN) VALUES  
(%s,%s)",email,res_amt.row["SSN"])
```

```
DB.insertOne("INSERT INTO PHONE(PHONE_NO, SSN) VALUES  
(%s,%s)",phone,res_amt.row["SSN"])
```

```
DB.insertOne("INSERT INTO EMAIL(email_add,ssn) VALUES (%s,%s)",email,ssn)
```

BANK_ACCOUNT

```
DB.insertOne("INSERT INTO BANK_ACCOUNT(BANK_ID,BANK_NUMBER) VALUES  
(%s,%s)",bankid,bank)
```

HAS_ADDITIONAL

```
DB.insertOne("INSERT INTO HAS_ADDITIONAL(SSN,BANK_ID,BANK_NUMBER) VALUES  
(%s,%s,%s)",res_amt.row["SSN"],bankid,bank)
```

USER_ACCOUNT

```
DB.insertOne("INSERT INTO USER_ACCOUNT(ssn,name,phone_number) VALUES (%s, %s,  
%s)",ssn,name,phone)
```

USER_LOGIN

```
DB.insertOne("INSERT INTO USER_LOGIN(email,password) VALUES (%s,  
%s)",email,password)
```

Description of Implementation

We have implemented the following functions and menus:

Login

We have created a login page where the user will login and can access all the mentioned functionalities

Register

We have created a register page where the user can register and all the data entered on the page will be stored in the database in the table login_info

Main menu:

The main menu tab is created in navigation bar and consists the below mentioned functions

- **Account info**

In the account info tab the information of the account will be shown for the user who is logged in. We are displaying SSN, Name and balance for the user and when the user adds the bank account this information is also displayed on the account info page

- **Send money** (send money to a phone number or email address)

This option will be used to send money to any other user by providing email, amount and memo.

- **Request money** (request money from phone numbers and email addresses)

This functionality is used to request money from any user using email, amount and memo. We have added a “Pending Requests” button in the request money page which will display all the money requests made to that user

- **Statements** (total amount sent and received per month)

We have created a page that displays a monthly statement which shows Transaction Id, amount , memo, cancellation reason, email and date. At the end we have displayed the total money sent and total money received

- **Search Transactions** (based on user SSN, email address, phone number, type of transaction, time_date range etc.)

User will be able to search the transactions based on various filters like Transaction id, email, amount, memo, etc

Sign Out

User can sign out once he is done with the work

Account functions:

In account functions we have added functionality that can modify personal details, add/remove email addresses, phone number and bank account

- **Modify personal details**

This option will display the personal details of the user and then the user can modify the details such as ssn, name, phone, email and password

- **Add/remove email address**

Using this functionality user can add and remove some additional email ids

- **Add/remove phone number**

Using this functionality user can add and remove some additional phone numbers

- **Add/remove bank account**

Using this functionality user can add and remove bank accounts

Statement functions:

We have added various ways so that the user can get the statements filtered by total amount each month sent/received, average amount sent/received, maximum amount of money sent/received

- **Total amount of money sent/received by a user in a range of dates**

We are displaying the statement of transactions done by a user within range of dates in addition to that we are displaying total amount of money sent/received by a user in a range of dates

- **Total/average amount of money sent and received by a user per month**

We are displaying the statement of transactions done by a user within range of dates in addition to that we are displaying average amount of money sent/received by a user in a range of dates

- **The transactions with the maximum amount of money per month**

We are displaying the statement of transactions done by a user within range of dates in addition to that we are displaying maximum amount of money sent/received by a user in a range of dates

- **The best users** (users who have sent/received the maximum total amount of money)

Difficulties faced

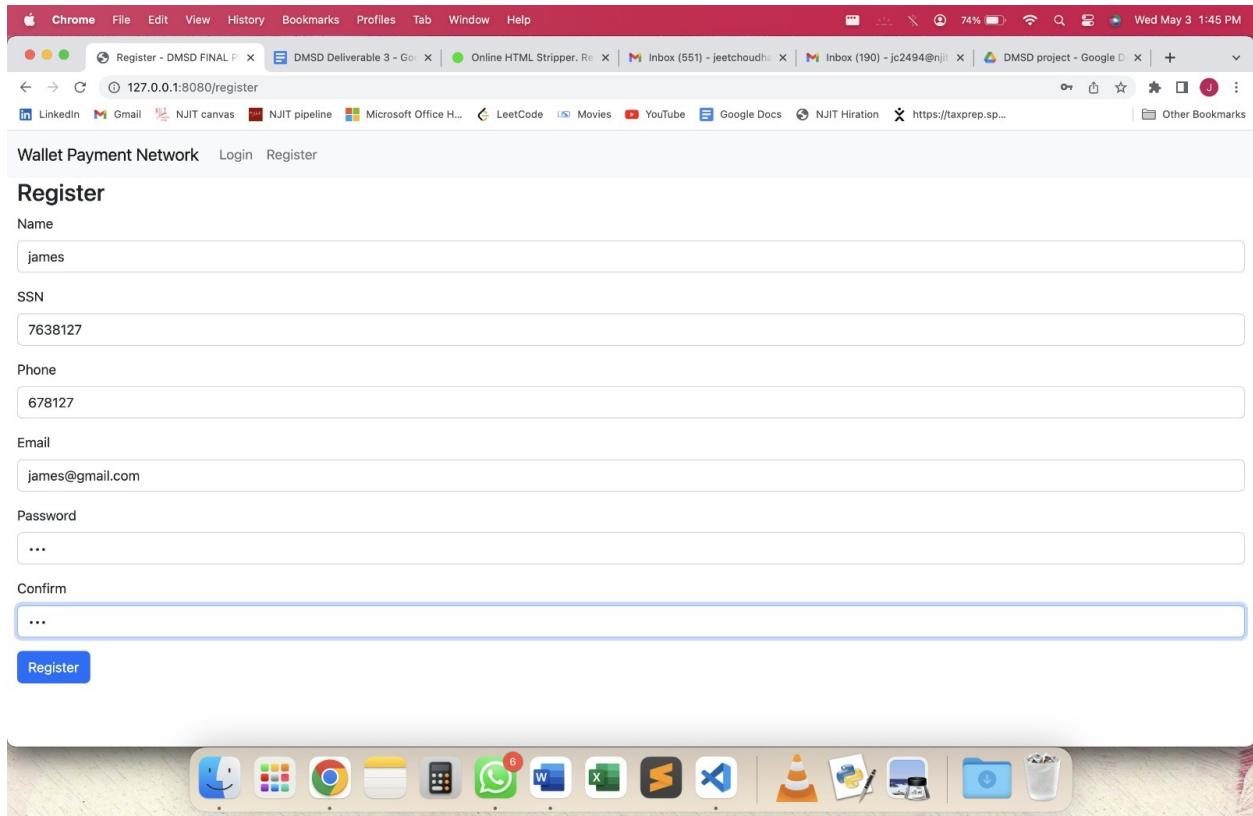
1. We faced a few problems initially on displaying the database output on the application but it was resolved soon.
2. We also had an issue putting both phone and email for user login . Hence, we only put the email address of the user to be used as login details.

Source code

<https://github.com/rony840/DMSDProject.git>

Screenshots

Register



Wallet Payment Network [Login](#) [Register](#)

Register

Name

SSN

Phone

Email

Password

Confirm

Register

Successfully registered

Chrome File Edit View History Bookmarks Profiles Tab Window Help

127.0.0.1:8080/register

LinkedIn Gmail NJIT canvas NJIT pipeline Microsoft Office H... LeetCode Movies YouTube Google Docs NJIT Hiration https://taxprep.sp...

Other Bookmarks

Wallet Payment Network Login Register

Successfully registered

Successfully registered_phone

Successfully registered_email

Successfully entered in login

Register

Name
james

SSN
7638127

Phone
678127

Email
james@gmail.com



Login

127.0.0.1:8080/login

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Apps Pirate Bay NJIT Portal NJIT UCID login FileCR Big Data Class reso... Remove BG WEBP to PNG Freepik PNGEgg Pixels Word Pattern Creator Bedtracks - Music f...

Other bookmarks

Wallet Payment Network Login Register

Successfully logged out

Login

Email
ron@gmail.com

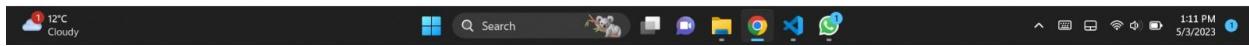
Password

Login



Login success

A screenshot of a web browser window. The address bar shows the URL `127.0.0.1:8080/landing-page`. The page content includes a navigation menu with "Wallet Payment Network", "Home", "Main Menu", "Account Functions", "Statement Functions", and "Logout". A green banner at the top states "Log in successful". Below the banner, the word "Welcome" is displayed.



Account details

A screenshot of a web browser window. The address bar shows the URL `127.0.0.1:8080/main_menu/account_info`. The page content includes a navigation menu with "Wallet Payment Network", "Home", "Main Menu", "Account Functions", "Statement Functions", and "Logout". A green banner at the top states "USER DETAILS FOUND".

Account Details

SSN	NAME	BALANCE
1231231	jeet chaudhari	540.0

BANK_ID	BANK_NUMBER
1	227981
2	7219221



Pending requests

Request ID	Amount	Memo	Date/Time	Payment
1	1234	test1	2023-04-30 21:16:25	<button>Pay</button>
6	10	project party	2023-05-01 20:45:57	<button>Pay</button>
19	12	bla	2023-05-03 17:04:56	<button>Pay</button>



Request money

ID IS 3

REQUEST MONEY Pending Requests

Email

Amount

Memo

Request



Request sent

REQUEST MONEY - DMSD FINAL | Shared with me - Google Drive | DMSD project - Google Drive | DMSD Deliverable 3 - Google Drive

127.0.0.1:8080/main_menu/request_money

ID IS 3

Success data went into database

REQUEST MONEY

Pending Requests

Email: jeet@gmail.com

Amount: 30

Memo: DMSD project completion party

Request

12°C Cloudy 1:16 PM 5/3/2023

Requested money paid

Requests - DMSD FINAL PROJECT | Shared with me - Google Drive | DMSD project - Google Drive | DMSD Deliverable 3 - Google Drive

127.0.0.1:8080/main_menu/payment/12/19/bla

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Transaction Made

Working

Requested Money

Request ID	Amount	Memo	Date/Time	Payment
1	1234	test1	2023-04-30 21:16:25	Pay
6	10	project party	2023-05-01 20:45:57	Pay



Send Money

SENDD MONEY - DMSD FINAL PR Shared with me - Google Drive DMSD project - Google Drive DMSD Deliverable 3 - Google Drive 127.0.0.1:8080/main_menu/send Apps Pirate Bay NIIT Portal NIIT UCID login FileCR Big Data Class reso... Remove BG WEBP to PNG Freepik PNGEgg Pixels Word Pattern Creator Bedtracks - Music f... Other bookmarks

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

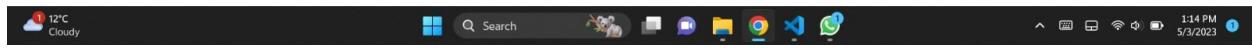
SEND MONEY

Email
mario@gmail.com

Amount
20

Memo
mario bros game

Send



Money Sent successfully

SENDD MONEY - DMSD FINAL PR Shared with me - Google Drive DMSD project - Google Drive DMSD Deliverable 3 - Google Drive 127.0.0.1:8080/main_menu/send Apps Pirate Bay NIIT Portal NIIT UCID login FileCR Big Data Class reso... Remove BG WEBP to PNG Freepik PNGEgg Pixels Word Pattern Creator Bedtracks - Music f... Other bookmarks

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Transaction Made

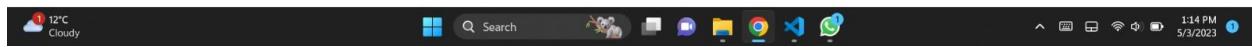
SEND MONEY

Email
mario@gmail.com

Amount
20

Memo
mario bros game

Send



Monthly statement

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Working

Monthly Statements

May

Transaction ID	Amount	Memo	Cancel Reason	Identifier	Date
25	20	mario bros game	-	mario@gmail.com	2023-05-03 17:14:42
24	12	bla	-	jeet@gmail.com	2023-05-03 17:13:20
23	12	bla	-	ron@gmail.com	2023-05-03 17:20:20
21	30	test statements	-	ron@gmail.com	2023-05-03 06:07:11
20	20	Hiiiii	-	ron@gmail.com	2023-05-02 23:40:14
19	20	MAY rent -R	-	jeet@gmail.com	2023-05-02 23:39:32
18	20	test 2	-	mario@gmail.com	2023-05-02 18:19:47
17	20	test negative	-	mario@gmail.com	2023-05-02 18:17:21
16	10	timepass	-	r@gmail.com	2023-05-02 17:03:29
15	10	pizza party	-	ron@gmail.com	2023-05-01 23:14:15

12°C Cloudy 1:16 PM 5/3/2023

127.0.0.1:8090/main_menu/monthly_statements

14 10 demo1 - mario@gmail.com 2023-05-01 22:09:31

12 40 niagra falls cab - ron@gmail.com 2023-05-01 21:46:19

11 50 NYC trip - r@gmail.com 2023-05-01 21:42:39

10 10 exchange money - ron@gmail.com 2023-05-01 21:26:32

9 1234 test1 - ron@gmail.com 2023-05-01 21:23:23

8 10 project party - bla3@gmail.com 2023-05-01 21:20:14

7 100 uber money - r@gmail.com 2023-05-01 21:18:51

6 10 project party - bla3@gmail.com 2023-05-01 21:17:44

5 10 project party - bla3@gmail.com 2023-05-01 21:17:04

4 10 project party - bla3@gmail.com 2023-05-01 21:15:06

Total Sent: 1536

Total Received: 122

April

Transaction ID	Amount	Memo	Cancel Reason	Identifier	Date
3	100	test3	-	ron@gmail.com	2023-04-30 21:21:41

12°C Cloudy 1:16 PM 5/3/2023

Search Transaction

Working

Search Transactions

10						Search
Transaction ID	Amount	Memo	Cancel Reason	Identifier	Date	
16	10	timypass	-	r@gmail.com	2023-05-02 17:03:29	
10	10	exchange money	-	ron@gmail.com	2023-05-01 21:26:32	
2	10	Sending again	-	jeet@gmail.com	2023-04-30 18:51:30	



Add Email

Successfully inserted new email

Add Email

Email

ronitbhai@gmail.com

Add Email

ALL PRESENT EMAIL IDs

ron@gmail.com

ronitbhai@gmail.com



Remove Email

Deleted record

Add Email

Email

Add Email

ALL PRESENT EMAIL IDs

ron@gmail.com



Add Phone

Successfully inserted new phone

Modify Personal Details

Phone

200314578

Add Phone

ALL PRESENT Phone Numbers

200314578

911023156



Remove Phone

Personal Details - DMSD FINAL | Shared with me - Google Drive | DMSD project - Google Drive | DMSD Deliverable 3 - Google Drive

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Deleted record

Modify Personal Details

Phone

Add Phone

ALL PRESENT Phone Numbers

200314578 x



Add bank

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Bank - DMSD FINAL PRO | DMSD Deliverable 3 - Google Drive | Online HTML Stripper. Re... | Inbox (551) - jeetchoudh... | Inbox (189) - jc2494@njit... | DMSD project - Google D...

LinkedIn Gmail NJIT canvas NJIT pipeline Microsoft Office H... LeetCode Movies YouTube Google Docs NJIT Hiration https://taxprep.sp...

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Successfully inserted new bank account

Add Bank

Bankid

4

Bank Number

7912733

Add Bank

BANK_ID	BANK_NUMBER
3	7912731 x
4	7912733 x



Remove Bank

Deleted record

Add Bank

Bankid

Bank Number

Add Bank

BANK_ID	BANK_NUMBER
4	7912733

Total money sent/received between range of dates

Total Money Sent/Received between 2 Dates

Start Date:

mm/dd/yyyy

End Date:

mm/dd/yyyy

Filter

Total Sent:	\$160.0				
Total Received:	\$160.0				
Transaction ID	Memo	Amount	Sent To	Cancel_Reason	Date
16	timepass	10.0	r@gmail.com	None	2023-05-02 17:03:29
13	burger king	70.0	mario@gmail.com	None	2023-05-01 21:50:25
12	niagra falls cab	40.0	ron@gmail.com	None	2023-05-01 21:46:19
11	NYC trip	50.0	r@gmail.com	None	2023-05-01 21:42:39
10	exchange money	10.0	ron@gmail.com	None	2023-05-01 21:26:32
7	uber money	100.0	r@gmail.com	None	2023-05-01 21:18:51
2	Sending again	10.0	jeet@gmail.com	None	2023-04-30 18:51:30
1	Sending 30	30.0	jeet@gmail.com	None	2023-04-30 18:51:09

- DMSD FINAL PROJECT x +

127.0.0.1:8080/main_menu/totalamount

Pirate Bay NJIT Portal NJIT UCID login FileCR Big Data Class reso... Remove BG WEBP to PNG Freepik PNGEgg Pixels Word Pattern Creator Bedtracks - Music f... Other bookmarks

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Working

Total Money Sent/Received between 2 Dates

Start Date: 04/30/2023

End Date: 05/01/2023

Filter

Total Sent:	\$40.0				
Total Received:	\$0.0				
Transaction ID	Memo	Amount	Sent To	Cancel Reason	Date
2	Sending again	10.0	jeet@gmail.com	None	2023-04-30 18:51:30
1	Sending 30	30.0	jeet@gmail.com	None	2023-04-30 18:51:09



Average money sent/received

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127.0.0.1:8080/main_menu/avgmoney

LinkedIn Gmail NJIT canvas NJIT pipeline Microsoft Office H... LeetCode Movies YouTube Google Docs NJIT Hiration https://taxprep.sp...

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Working

Average Money Sent/Received

Month	Average Money Sent	Average Money Received
May	16.00	0.00
April	0.00	20.00



Maximum money sent/received

Wallet Payment Network Home Main Menu Account Functions Statement Functions Logout

Working

Transaction ID	Memo	Amount	Sent To/Received From	Cancel Reason	Date
20	Hiiiii	20.0	ron@gmail.com	None	2023-05-02 23:40:14
1	Sending 30	30.0	jeet@gmail.com	None	2023-04-30 18:51:09



Conclusion

We have developed web application for the WALLET payment network database which performs various functions like send/receive money, request money, get account information, modify personal details, etc