# Banking API and Web App

## Project Brief

Task is to build internal API and Web Application for below features:

- Application must have custom login/logout pages with Multi factor/ 2 factor authentication using email-based OTP.
- Create a new bank account for a customer, with an initial deposit amount. A single customer may have multiple bank accounts.
- Transfer amounts between any two accounts, including those owned by different customers.
- Retrieve balances for a given account.
- Retrieve transfer history for a given account.
- Banking operations must be done through UI as well as from API.

## Features Implemented

**Login**

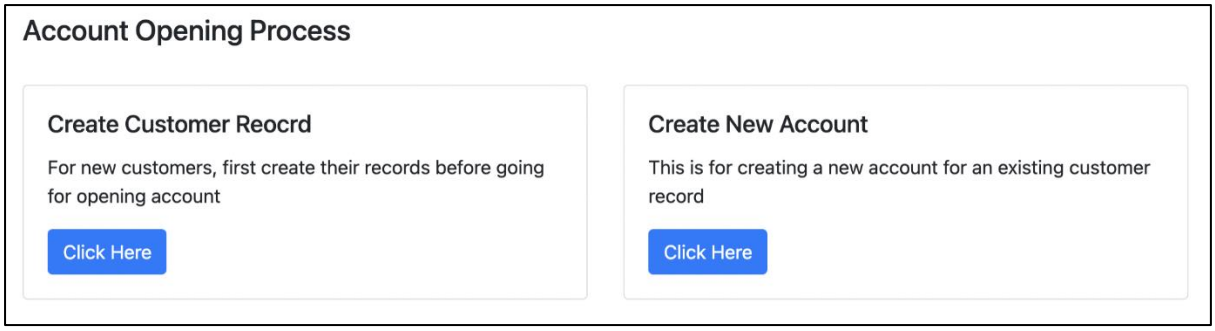
- Every employee feature either with UI or API will only be available after successful authentication.
- After login, a session of 5 minutes is created.
- ***Two - Factor Authentication feature is still in progress***

**Logout**

- After clicking on 'Logout' button, employee will be logged out and all the employee features will not be accessible.

**Create Account**

- For creating a new account for any customer, we need to make sure that specific customer exists in our database. If it's not, first creates the customer record and afterwards go for the account creation.




- Once it's made sure that customer record exists, you can go for the account creation.

**Balance Check**

- For checking the balance of an account, just give the account number and you will get the current balance.

**Money Transfer**

- For transferring money, you need to provide withdrawal and deposit account number along with amount needed to be transfer.
- During this activity, below things will be checked:

  1 - Both the withdrawal and deposit account exist in database.
  2 - Withdrawal and deposit account number cannot be same.
  3 - Withdrawal account has balance equal to or more than the amount needed to be transfer.
  4 - Amount cannot be zero.

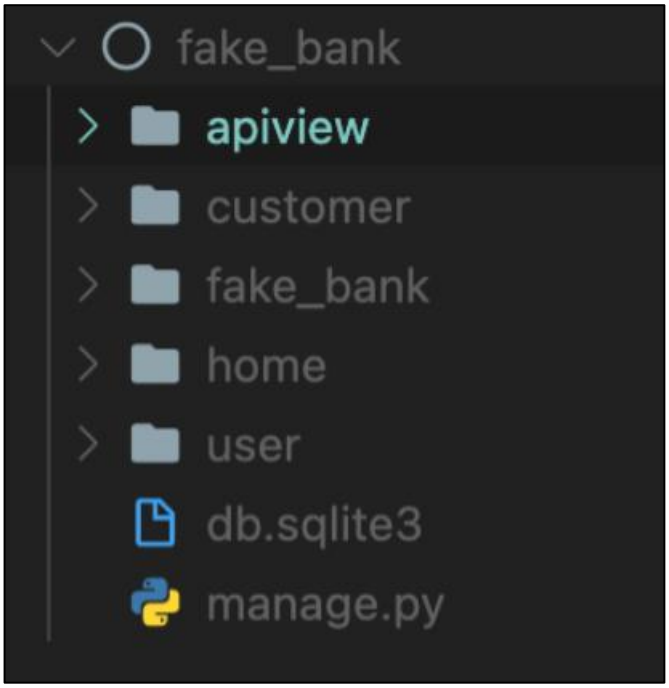
**Transaction History**

****** This feature is still in progress ******

# Implementation

## 1 - Web Application

- Below are the apps created to meet the purpose:




- *"home"* app is handling all the homepage related requests.
- *"user"* app is handling all user related tasks, for example, login, logout etc.
- *"customer"* app is handling employee features which can eventually alter customer-related data.

## 2 - API Implementation

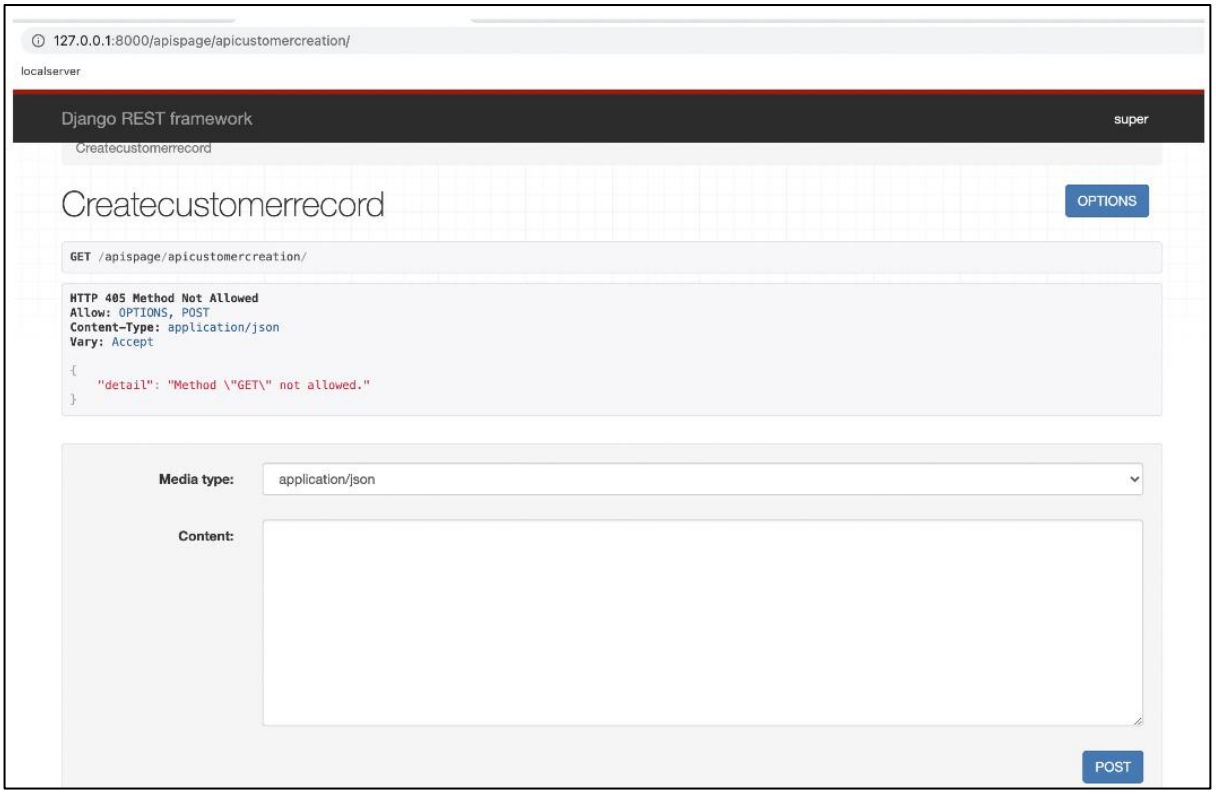
**For getting balance of a specific account**

```
Request Type - GET
API URL - /apispage/apibal/<str:pk>/
where "pk" is account number
```

**For creating a new customer record**

```
Request Type - POST
API URL - /apispage/apicustomercreation/
```

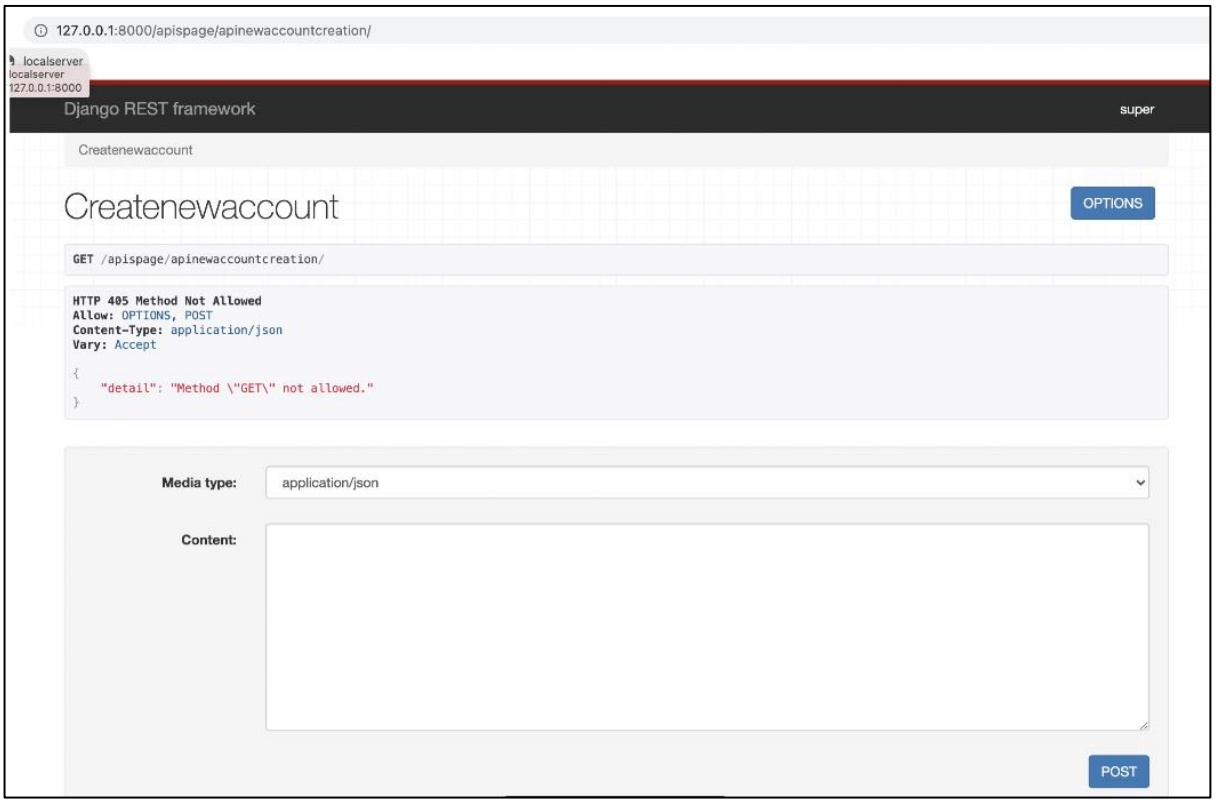
```
{
   "first_name": "",
   "last_name": "",
   "email": "",
   "phone_no": "",
   "age": <age>
}
```



**For creating a new account for an existing customer record**

```
Request Type - POST
API URL - apispage/apinewaccountcreation/
```

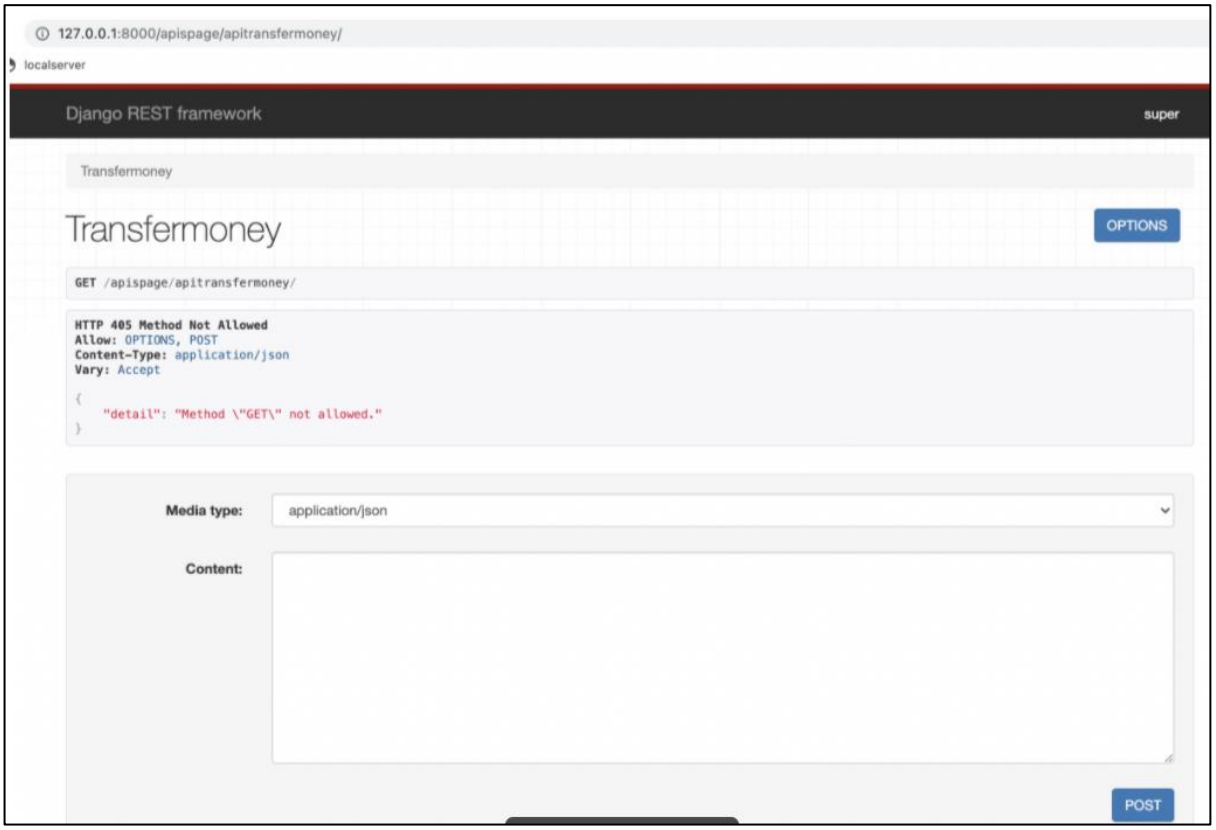
```
{
    "account_num": "",
    "account_type": "Savings/Current/Loan",
    "balance": 1000.00,
    "nominee": "",
    "customer": <cust_id>
}
```



**For transferring money between accounts**

```
Request Type - POST
API URL - apispage/apitransfermoney/
```

```
{
    "with_acc_num": "",
    "tran_acc_num": "",
    "amount": 1000.00
}
```



**For listing out all customer details**

Request Type - GET
API URL - apiviewofallcustomers/

127.0.0.1:8000/apispage/apiviewofallcustomers/

localserver

Django REST framework

super

Customers List

Customers List

OPTIONS GET

GET /apispage/apiviewofallcustomers/


```
HTTP 200 OK
Allow: GET, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

[
    {
        "id": 6,
        "first_name": "Arisha",
        "last_name": "Barron",
        "email": "arisha.barron@test.com",
        "phone_no": "8877665544",
        "age": 26
    },
    {
        "id": 7,
        "first_name": "Branden",
        "last_name": "Gibson",
        "email": "brandon.gibson@test.com",
        "phone_no": "9567832424",
        "age": 29
    },
    {
        "id": 8,
        "first_name": "Rhonda",
        "last_name": "Church",
        "email": "rhonda.church@gmail.com",
        "phone_no": "6675764532",
        "age": 23
    },
    {
        "id": 9,
        "first_name": "Georgina",
```


**For listing out all account numbers with other details**

Request Type - GET
API URL - apiviewofallaccounts/

127.0.0.1:8000/apispage/apiviewofallaccounts/

localserver

Django REST framework

super

Customer Accounts List

Customer Accounts List

OPTIONS GET

GET /apispage/apiviewofallaccounts/


```
HTTP 200 OK
Allow: GET, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

[
    {
        "account_num": "10001",
        "account_type": "Savings",
        "balance": 7950.5,
        "nominee": "Robert Barron",
        "customer": 6
    },
    {
        "account_num": "10002",
        "account_type": "Current",
        "balance": 8500.0,
        "nominee": "Robert Barron",
        "customer": 6
    },
    {
        "account_num": "10003",
        "account_type": "Savings",
        "balance": 46549.5,
        "nominee": "Laura Gibson",
        "customer": 7
    }
]
```

# Implementation Tool

Language - Python v3.9.1
Web Framework - Django v3.1.5
API Framework - Django Rest Framework v3.12.2
Database - SQLite3

***Dummy Super Account***
***username - super***
***password - welcome@123***