

## GCOA & WSIS 2021 HACKATHON PRESENTATION

# **AGEING BETTER WITH ICTs: Building a Brighter Future for Older Persons through ICT Innovation**

Team: **Pied Piper: SIDDHARTH SINHA, SANJANA SINHA**

(sid3345@gmail.com)

Country: **India**

## Some Background

The Hackathon is part of the WSIS Forum 2021 ICTs & Older Persons track, led by the Global Coalition on Aging with the support of the ITU.

The Hackathon is linked to the WSIS Action Lines and SDGs “ICT for Development”. You can learn more on [WSIS Action Lines](#) & [SDGs](#).

# Challenge Areas

The online hackathon will ideate ICT solutions that respond to challenges faced by older persons and that may have surfaced or been exacerbated by the COVID-19 pandemic. Please indicate for which area your team will develop ideas and demonstrate proof of concept. You must pick one of four challenge areas:



**1. Alzheimer's Disease and Cognitive Decline** – e.g. solutions to support early detection and diagnosis, integrated care, or quality of life for patients and their families.



**2. Frailty** – e.g. solutions to support better bone health or reduce the risk of falls.



**3. Transportation and Mobility** – e.g. solutions that support greater independence for those with vision loss or limited mobility.



**4. Financial Tools for Longevity** – e.g. solutions that support retirement planning for longer lives or protect against financial abuse.

## PROBLEM STATEMENT

So, presently, do people, especially youngsters, young adults, plan their retirements considering all the factors ?

To plan your retirement corpus, large number of factors must be considered, for eg: your current salary, expenses, current savings, your assets, liabilities, investments, etc. Apart from this, global factors such as inflation rates, location based expenses (cheap vs expensive city), stock market conditions, etc, should also be considered to evaluate what should be your retirement corpus.

But currently, there is no solution to provide complete picture of your retirement corpus / savings, that would be sufficient for you to live a comfortable retired life.

## CURRENT GAPS

- So, currently people have to evaluate their financial status manually themselves, or even if using some tools / technology, they don't get comprehensive picture of their retirement corpus / savings.
- Planning your retirement savings is not simply saving monthly or yearly, and assuming it to be enough for retirement.
- A proper, well prepared plan must consider many factors such as current financial status (assets, liabilities, investments, expenses, etc) + global financial and economic health (inflation, purchasing power index, location specific lifestyle quality and expenses (cheap vs expensive city), healthcare quality and expenses, etc)
- These factors are not generally considered while planning and can harm long term financial retirement planning of people. Even if considered, they are taken abstractly, without using accurate data points and personal financial data.

# MARKET ANALYSIS

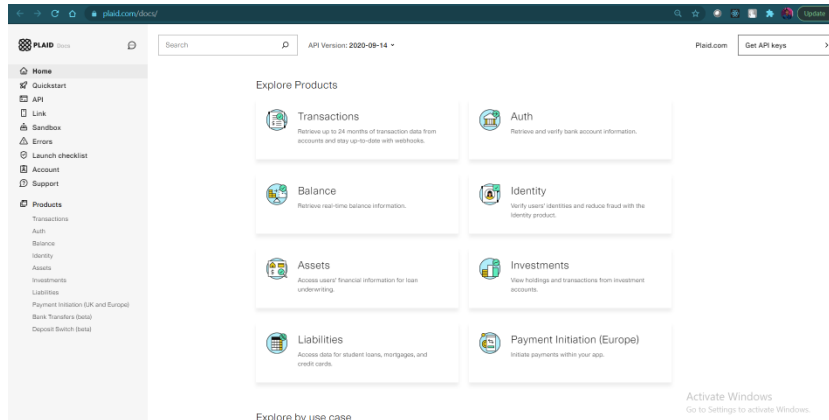
- Considering large number of fintech players, and push to digitisation in personal finance, huge amount of personal finance data is generated, which if correctly analysed can unlock large opportunities and efficiencies, helping users in planning their personal finance.
- Using current financial data points of users (assets, liabilities, investments, expenses, etc), a comprehensive user's financial profile (risky, aggressive, safe, etc) can be created, which can in turn help users in planning their future as well as retirement savings.
- With huge push to digitisation, due to Covid as well as technological progress, large number of new users are coming online, with market growing rapidly and waiting to be tapped.
- If personal financial and retirement planning is done well on a large scale individually, it does improves overall quality of lifestyle and general financial environment of country or city.

## OUR SOLUTION

Thus, my solution is to use technology (web, data analytics, etc) and create an application that takes into consideration user's current financial status such as assets, liabilities, investments, etc, and global factors (inflation, location specific lifestyle, stock markets, etc) to model user's future retirements needs and what, when, and how current savings can lead to future retirement corpus.

Data points are collected through API's and modelled to create an output and displayed in chart for easy understanding.

- Plaid API is used to collect various data points of user's bank transactions, assets, liabilities, and investments (<https://plaid.com/docs/>).



- Global factors data points are collected through Numbeo API (<https://www.numbeo.com/api/doc.jsp>).

- This data points are used to create a chart explaining user's retirement corpus year wise.

**accounts** [object]

An array containing the accounts associated with the Item for which transactions are being returned. Each transaction can be mapped to its corresponding account via the account\_id field.

Hide object

**account\_id** string

Plaid's unique identifier for the account. This value will not change unless Plaid can't reconcile the account with the data returned by the financial institution. This may occur, for example, when the name of the account changes. If this happens a new account\_id will be assigned to the account.

The account\_id can also change if the access\_token is deleted and the same credentials that were used to generate that access\_token are used to generate a new access\_token on a later date. In that case, the new account\_id will be different from the old account\_id.

If an account with a specific account\_id disappears instead of changing, the account is likely closed. Closed accounts are not returned by the Plaid API.

Like all Plaid identifiers, the account\_id is case sensitive.

```

17 }
18 ],
19 "transactions": [
20 {
21   "account_id": "BxBXxlj1s4H0XBm9WZmCWbPjX16Hwv99vp",
22   "amount": 2307.21,
23   "iso_currency_code": "USD",
24   "unofficial_currency_code": null,
25   "category": [
26     "Shops",
27     "Computers and Electronics"
28   ],
29   "category_id": "19013000",
30   "date": "2017-01-29",
31   "datetime": null,
32   "authorized_date": "2017-01-27",
33   "authorized_datetime": null,
34   "location": {
35     "address": "300 Post St",
36     "city": "San Francisco",

```

**balances**

A set of fields describing the account's current balance. The balance is cached unless the user has explicitly updated it.

Hide object

**available**

The amount of funds available for withdrawal by the financial institution.

For credit-type accounts, this is the credit limit.

**NUMBEO** Select City [Health Care]

Cost Of Living - Property Prices - Quality Of Life - Premium - Jobs -

Api Doc

**Numbeo API Documentation**

To access our API, if you want to use http connection please use URL prefix <http://www.numbeo.com:8080/api/> (this might not work in browser due to HSTS while it should work in command line clients such as wget or curl). If you want to use secure https connection please use URL prefix <https://www.numbeo.com/api/>

- Method: GET /api/cities
- Method: GET /api/price\_items
- Method: GET /api/currency\_exchange\_rates
- Method: GET /api/city\_prices
- Method: GET /api/country\_prices
- Method: GET /api/close\_cities\_with\_prices
- Method: GET /api/historical\_city\_prices

Description: Returns historical average prices (per year) in a city. Location can be specified with a query containing name or latitude,longitude (with comma separator).

Parameters:

Parameter name	Description
api_key	Your API Key

Activate Windows  
Go to Settings to activate Windows.



# CODE

GitHub repo:

<https://github.com/sid3345/financial-tech>

YouTube video created earlier (more features are added, not updated in video):

<https://www.youtube.com/watch?v=h5IV7qOqrMw>

# CHALLENGES

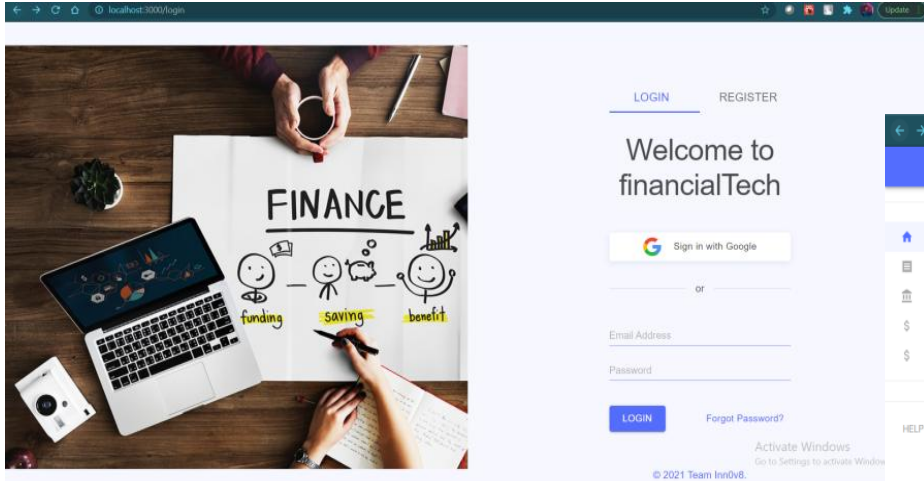
- Lone Wolf, lack of good MERN stack developers to team up, to code application, no guidance, thus, if selected, may be we can get more guidance.
- API latencies. (API's are sometimes slow in responding. Need proper test and error cases: code quality)
- Redux, 1st time. (Learned and used React-Redux for 1<sup>st</sup> time)

# TECH STACK

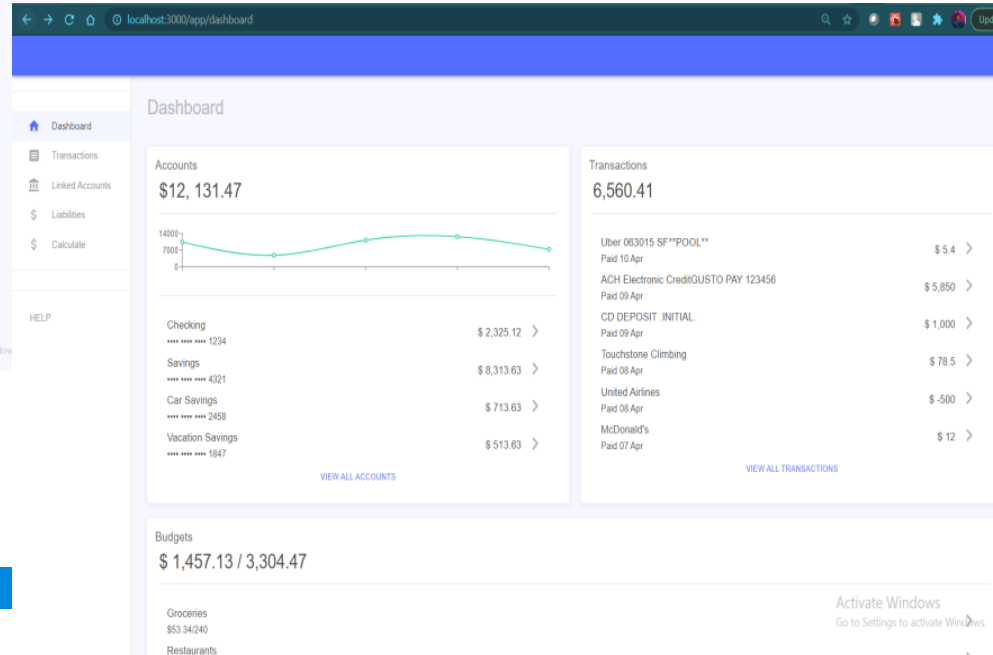
- MERN stack:
  - MongoDB (Database)
  - Express
  - ReactJS (FrontEnd)
  - NodeJS (BackEnd)
- D3 JS (chart visualization)
- Material UI
- API's (Plaid, Numbeo)

# SCREENSHOTS

## Login Page



## Dashboard



# SCREENSHOTS

## ➤ Retirement status



## ➤ Transactions

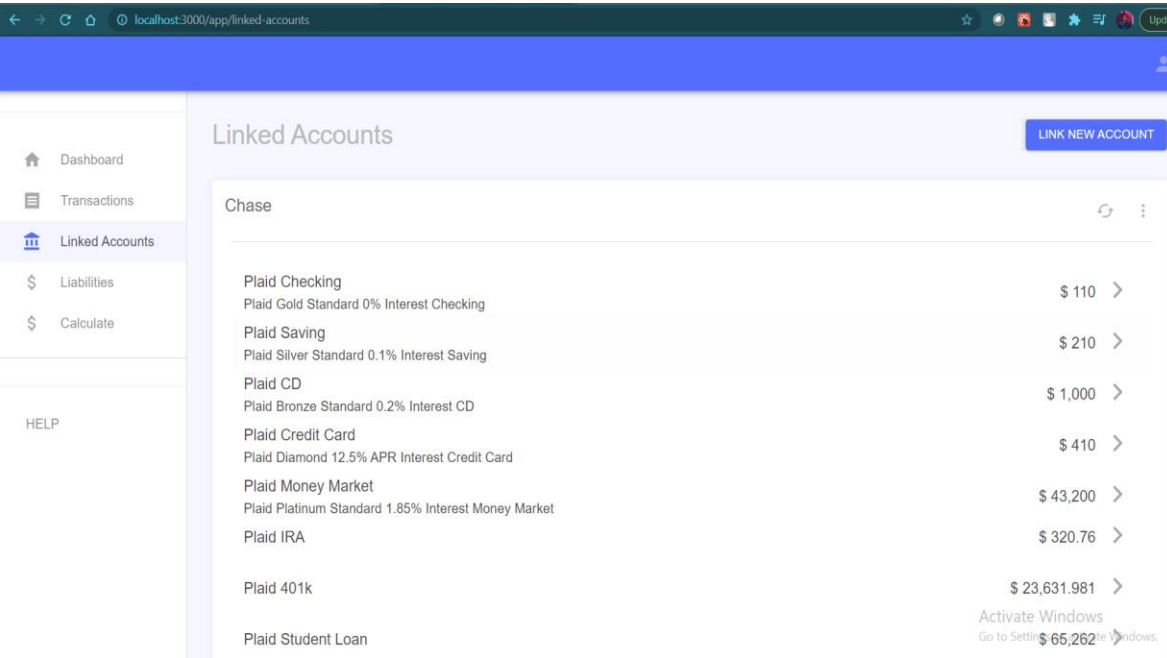
The screenshot shows the 'Transactions' dashboard. It displays a list of transactions from Chase. The table includes columns for the transaction description, date, and amount. The transactions are as follows:

Transaction Description	Date	Amount
CREDIT CARD 3333 PAYMENT **	Payment / Credit Card / Apr 10, 2021	\$ 25
Uber 063015 SF**POOL**	Travel / Taxi / Apr 10, 2021	\$ 5.4
ACH Electronic CreditGUSTO PAY 123456	Transfer / Debit / Apr 09, 2021	\$ 5,850
CD DEPOSIT .INITIAL	Transfer / Deposit / Apr 09, 2021	\$ 1,000
Touchstone Climbing	Recreation / Gyms and Fitness Centers / Apr 08, 2021	\$ 78.5
United Airlines	Travel / Airlines and Aviation Services / Apr 08, 2021	\$ -500
McDonald's	Food and Drink / Restaurants / Fast Food / Apr 07, 2021	\$ 12
Starbucks	Food and Drink / Restaurants / Coffee Shop / Apr 07, 2021	\$ 4.33

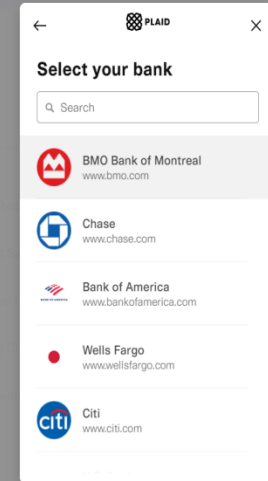
The dashboard includes a sidebar with navigation links: Dashboard, Transactions, Linked Accounts, Liabilities, and Calculate. A 'HELP' link is also present at the bottom of the sidebar.

# SCREENSHOTS

➤ Plaid bank account linking



➤ Linked Bank Accounts



## CONCLUSION

So, we hope, using our application will help people in better retirement planning, and getting insights like at what age, what monthly amount, investments, inflation rates, location specific factors such as healthcare quality and expenses, lifestyle quality, etc, to get a complete understanding of current and future financial status.

The solution uses actual data points of users and global factors, rather than abstract thinking, thus, data never lies and is quite accurate!

# THANK YOU