

# Installation and User Guide of CPF Investment Advisor (CIA)

## Part One: Installation

### Step 1: Install relevant programs

NodeJS, Python and a code editor is required. You can download and install the relevant programs as below:

NodeJS - <https://www.guru99.com/download-install-node-js.html>

Python - <https://realpython.com/installing-python/>

Code editor - <https://code.visualstudio.com/>

### Step 2: Git clone repository and change file directory

Git clone the codes from [https://github.com/kahghi/IRS-PM-2020-01-18-IS02PT-GRP08-CPF\\_Investment\\_Advisor](https://github.com/kahghi/IRS-PM-2020-01-18-IS02PT-GRP08-CPF_Investment_Advisor)

Change file directory to the folder “SystemCode/Team-8-CIA/” within the code editor.

### Step 3: Ensure Docker Compose has been installed

<https://docs.docker.com/compose/install/>

### Step 4: Fire up the engine

Within the code editor, type “docker-compose up” to initialise the database. If the logs below are run, it means the system is working.

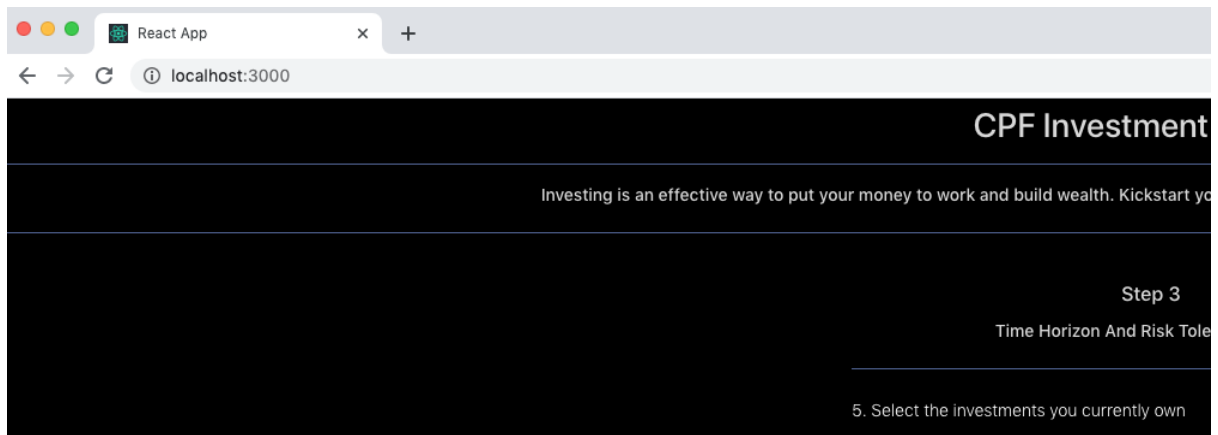
```
postgres_1 | 2020-05-10 13:18:17.292 UTC [1] LOG: starting PostgreSQL 12.2 (Debian 12.2-2.pgdg100+1) on
8.3.0, 64-bit
postgres_1 | 2020-05-10 13:18:17.292 UTC [1] LOG: listening on IPv4 address "0.0.0.0", port 5432
postgres_1 | 2020-05-10 13:18:17.292 UTC [1] LOG: listening on IPv6 address ":::", port 5432
postgres_1 | 2020-05-10 13:18:17.295 UTC [1] LOG: listening on Unix socket "/var/run/postgresql/.s.PGSQL
postgres_1 | 2020-05-10 13:18:17.306 UTC [26] LOG: database system was shut down at 2020-05-10 13:18:15
postgres_1 | 2020-05-10 13:18:17.310 UTC [1] LOG: database system is ready to accept connections
```

### Step 5: Running the application

Open a new terminal and run the following commands in the code editor:

- cd team8-portfolio-optimizer-new\_final\ copy/
- npm i
- after installation
- npm run start

A browser window will automatically start. If this does not automatically happen, input <http://localhost:3000> on your preferred web browser.



## Part Two: User Guide

### Step 1: Input personal information and click next

### CPF Investment Advisor

Investing is an effective way to put your money to work and build wealth. Kickstart your investment planning with us! Just fill up a short questionnaire below

#### Step 1

##### Basic Information

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Welcome to CPF Investment Advisor (CIA) Here we hope to aid you in your stock investments :)

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Name

Age

Are you an undischarged bankrupt?

Amount in CPF OA:

Amount in CPF SA:

NEXT

Please note that you have to be of at least 18 years old, are not an undischarged bankrupt and have more than \$20,000 and \$40,000 in your Ordinary Account (OA) and Special Account (SA) respectively.

Otherwise, error messages will be prompted as part of the rule-based validation as shown below.

Are you an undischarged bankrupt?

Yes

We are unable to proceed with your current status

Amount in CPF OA:

15000

I'm sorry, please ensure that you have the minimum amount of \$20,000 in your OA account

Amount in CPF SA:

35000

I'm sorry, please ensure that you have the minimum amount of \$40,000 in your SA account

PLEASE FILL UP THE FIELDS TO PROCEED

## Step 2 & 3: Answer the Questionnaire and click next

The questionnaire consists of a total of 7 questions, with the first two questions assessing the user's time horizon score and the next five to assess the user's risk tolerance score. The two scores are then combined to determine the user's risk profile assignment.

**Step 2**

**Time Horizon And Risk Tolerance Part I**

1. I plan to begin withdrawing my money from my investments in:

3 - 5 years

2. Once I begin withdrawing my funds, I plan to spend all of the funds in:

6 - 10 years

3. I would describe my knowledge of investments as:

Limited

4. When I invest my money, I am:

Equally concerned about my investment losing or gaining value

PREVIOUS

NEXT

Step 3

Time Horizon And Risk Tolerance Part II

5. Select the investments you currently own

Stocks and/or stock funds

6. Consider this scenario: Imagine that in the past three months, the overall stock market lost 25% of its value. An individual stockinvestment you own also lost 25% of its value. What would you do?

Sell some of my shares

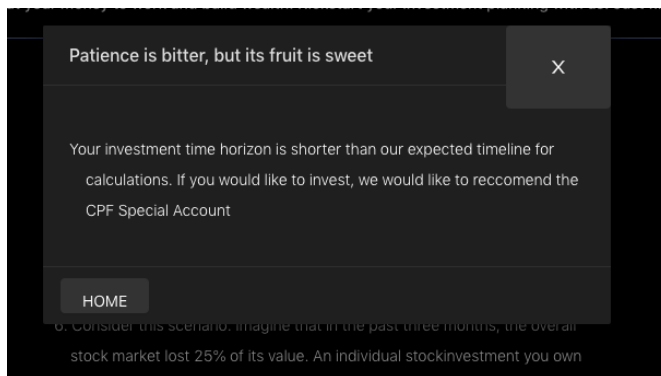
7. We've outlined the most likely best-case and worst-case annual returns of five hypothetical investment plans. Which range of possible outcomes is most acceptable to you? The figures are hypothetical and do not represent the performance of any particular investment.

Average Annual Returns: 10.4%, Best-Case: 33.6%, Worst-Case: -18.2%

PREVIOUS

NEXT

Should the time horizon score be too low, a warning message will pop-up as shown below



Step 4: Select interested sectors to invest in and press submit

Select up to a maximum of 4 sectors.

Step 4

Sectors to Invest in

Please select your sector of interest to invest in: Select up to 4 sectors

☐ Telecommunications Services

☐ Automobiles & Auto Parts

☐ Personal & Household Products & Services

☐ Software & IT Services

☐ Collective Investments

☐ Food & Drug Retailing

☐ Industrial Conglomerates

☐ Holding Companies

☐ Banking & Investment Services

☐ Real Estate

☐ Technology Equipment

☐ Healthcare Services

☐ Energy - Fossil Fuels

☐ Retailers

☐ Utilities

☐ Mineral Resources

☐ Food & Beverages

☐ Cyclical Consumer Services

☐ Insurance

☐ Industrial & Commercial Services

☐ Applied Resources

☐ Industrial Goods

☐ Transportation

☐ Chemicals

☐ Cyclical Consumer Products

PREVIOUS

SUBMIT

Step 5A: Select stocks of interest and press submit

Select a maximum of 4 stocks.

## Step 5

### Companies to Invest in

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Please select your preference of stocks to invest in: (Select up to 4 stocks in total from the displayed choices)

#### Banking & Investment Services

<input type="checkbox"/> SGX	<input type="checkbox"/> Hiap Tong	<input type="checkbox"/> UOB Kay Hian
<input type="checkbox"/> ValueMax	<input type="checkbox"/> Hotung Inv	<input type="checkbox"/> IFS Capital
<input type="checkbox"/> Spura Finance	<input type="checkbox"/> UOB	<input type="checkbox"/> OCBC Bank
<input type="checkbox"/> IFAST	<input checked="" type="checkbox"/> DBS	

#### Healthcare Services

<input type="checkbox"/> Riverstone	<input type="checkbox"/> Vicplas Intl	<input type="checkbox"/> ISEC
<input type="checkbox"/> Q&M Dental	<input type="checkbox"/> TalkMed	<input checked="" type="checkbox"/> Raffles Medical
<input type="checkbox"/> HC Surgical		

#### Retailers

<input type="checkbox"/> Maxi-Cash Fin	<input type="checkbox"/> MoneyMax Fin	<input type="checkbox"/> Cortina
<input type="checkbox"/> SK Jewellery	<input checked="" type="checkbox"/> TheHourGlass	<input type="checkbox"/> Second Chance
<input type="checkbox"/> Challenger	<input type="checkbox"/> Metro	<input type="checkbox"/> TLV
<input type="checkbox"/> Ossia Intl		

#### Transportation

<input type="checkbox"/> SIA Engineering	<input type="checkbox"/> Vibrant Group	<input type="checkbox"/> SBS Transit
<input checked="" type="checkbox"/> SIA	<input type="checkbox"/> Duty Free Intl	<input type="checkbox"/> SATS
<input type="checkbox"/> ComfortDelGro	<input type="checkbox"/> Chasen	<input type="checkbox"/> HPH Trust USD

PREVIOUS

SUBMIT

### Step 5B: Output screen of predicted yield performance of selected stocks and press submit

A pop-up screen of predicted yield performance will appear. Please ensure that at least one of the predictions shows 'High Yield'. Otherwise, our recommendation would just suggest investing in SA. You can return back to the previous screen to re-select your stocks of interest by clicking the 'X' button on the top-right hand corner. Upon pressing submit, please give some time for the backend engine to process the genetic algorithm.

Predicted Yield

X

Stock	Yield
TheHourGlass	High Yield
Raffles Medical	Low Yield
DBS	High Yield
SIA	High Yield

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**⚠** Please ensure that you have at least one high yield in the selection below to make full use of our service, if not we will just suggest investing all in CPF Special Account by default

SUBMIT

### Step 6: Output screen of recommendation

Congratulations, this is the final screen of the CIA! CIA would return the user's assigned risk profile, the total amount from OA that will be transferred/used to invest and the respective amounts to invest in each stock of interest. CIA would also output a calculated return of the portfolio with the associated risk, as well as the user's acceptable risk level. Kindly note that only stocks of predicted high yield performance will be optimized through the genetic algorithm. As such, Raffles medical is not included in the final output screen as it is predicted as low yield.



### Step 6

Based on your inputs, your risk profile is: **Moderate**. You will have to keep a minimum of \$20,000 in your CPF OA account, taking that into account, maximum investible amount is **\$55000**

We recommend you to invest a total of as an investment portfolio outlined below:

No.	Name	Price	Purchase
1	DBS	\$1729.04	INVEST
2	SIA	\$1863.82	INVEST
3	TheHourGlass	\$51225.09	INVEST
4	CPF_SA	\$182.05	INVEST

< 1 >

The expected return of this portfolio is **30.21%**, with a risk of **19.55%**, which is well within your risk appetite of **20.9%** that is calculated according to your risk profile."

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Links to the CPF Investment Scheme webpage are also provided should the user make the final decision of investing. However, this is part of CIA's future work and is currently not available.