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Minsu Bang

N10664581

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IFN666 Crypto Web APP – Client Side



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## Introduction

### Purpose & description

Despite of some people believe crypto market is dangerous and not mature enough to invest money, but according to some expert (Ralf, 2021). Crypto market is one of the promising market to invest. Crypto Analyzer will help users to get the information including the price chart , news articles and details such as all time high (ATH) price and all time low(ATL) prices. Uses can easily search the desired crypto currency and add in to the watchlist.

Crypto Analyzer is web application developed by React. During the development, I personally focused on making clean code. Clean code is important since it is directly related to readability of the programming code. In real life , most of the project is developed by multiple people, It is crucial to make clean code for the maintenance and debugging. React is especially popular and famous as functional component development. This application strictly follows the react component lifecycle by application state management(using hook). To reduce the duplicate the code, I have try to put all of repeated code block as function.

One of popular the financial platform, investing.com provide all the information , news articles and price chart as shown below figure 1.

|  |
| --- |
| Graphical user interface, text  Description automatically generated  *Figure 1 investing.com* |

This Crypto Analyzer try to mimic the features from the investing.com. Therefore, design this application to show detailed information ,chart and news articles as shown below figures

|  |  |  |
| --- | --- | --- |
| A picture containing text, document  Description automatically generated  Figure 2 Crypto Charts | Graphical user interface, text, application  Description automatically generated  Figure 3 Crypto Detail | Graphical user interface, application, table  Description automatically generated with medium confidence  Figure 4 News Articles |

These three main features will show the detail insight and information about the selected crypto currency. End users can utilize all the information to invest. In the next section , more detailed features will be discussed.

### Completeness and Limitations

Completeness of the application is shown as listed below, the list including the standard from assignment specification and features from the investing.com

|  |  |
| --- | --- |
|  | Assignment Specification Completion List |
|  | Use React Components |
|  | Use React Props |
|  | Use Hooks(useState, useEffect) |
|  | Handle Event |
|  | Query RESTful API |
|  | Use third party components – chart.js |
|  | Header |
|  | Navigation Bar (Sidebar) |
|  | Navigation |
|  | Search |
|  | Add/delete in the watchlist (using localstorage) |
|  | User friendly Interface |
|  |  |

In the other hand, there are some aspect need to be further developed and modified such as :

|  |  |
| --- | --- |
|  | Further Modification List |
|  | Sorting Data Table |
|  | Usting ag-grid to show data cleaner |
|  | Login + SingUp features |

First of all, the application didn’t use the ag-grid to show the data table clean. It would be much better looking if it implemented , however current price table has no problem for the end-user acquiring information. Moreover, personal wish to implement the login and singup function using AWS Cognito pool. Due to the time limitation the features are not able to be implemented.

Therefore for the realistic grade of this application is similar to grad 5.5~6.2. Detailed self-checking CRA is included in Appendix-A.

## Use of APIs

Coingecko API

Data market APIs for the cryptocurrency  
https://www.coingecko.com/en/api/documentation

NEWS API

News article API  
https://newsapi.org/

## Use of End Points of the chosen Stock API

All the APIs used in this application is in the postman documentation. <https://documenter.getpostman.com/view/16410236/UyxgK8h5>

This documentation shows detailed response.

GET News   
https://newsapi.org/v2/everything?q=bitcoin&from=2022-05-11&sortBy=popularity&apiKey=da6b832dcd4046f8997b1ce5eba26aee

|  |
| --- |
| Text  Description automatically generated  ***Figure 5 News API response*** |

Getting all the news article about the selected coin

Crypto Information  
 https://api.coingecko.com/api/v3/coins/markets?vs\_currency=aud&ids=bitcoin&order=market\_cap\_desc&per\_page=100&page=1&sparkline=false

Getting detailed information about the selected coin

|  |
| --- |
| Text  Description automatically generated  ***Figure 6 Crypto Detail Response*** |

Crypto price data https://api.coingecko.com/api/v3/coins/bitcoin/market\_chart?vs\_currency=aud&days=30

Getting all the price data for the chart for selected range data (1,7,30,365 days)

|  |
| --- |
| Text  Description automatically generated  ***Figure 7 Price Response*** |

### Modules used

In this section, external modules used for the application will be discussed in this section.

*Figure below show all the npm libraries installed which stored in thePackage.json file*

|  |
| --- |
| Text  Description automatically generated  *Figure 8 Package.json* |

*Most of the npm libraries shown above are related to the css. Therefore in this section only briefly introduce the main 4 modules that is related to core feature of the application.*

-Chart JS   
https://www.chartjs.org/  
Chart js is opensource javascript library for the data visualization.   
It is used to show the price chart for the selected coin

- Axios  
https://www.npmjs.com/  
Axios npm package is promise based HTTP client.   
Used for fetching data from apis

-Dotenv  
<https://www.npmjs.com/package/dotenv>  
To protect the sensitive variable, using dot env to store the environment variables  
Used to store the API keys

-React-Bootstrap  
https://react-bootstrap.github.io/  
One of the most popular front-end framework,   
Used for the css styling

## Application Design

### Navigation and Layout

As mentioned above, features from investing.com are focused and considered during designing Crypto Analyzer development. To make user friendly interface, floating side bar design is applied in the left side. Users can easily access to different pages by using it.

|  |
| --- |
| Application  Description automatically generated with medium confidence  *Figure 9 Sidebar* |

Things need to be upgrade is about going back page from the detailed page. Due to the time limitation, design consideration couldn’t reach to the going back from detail page to watch list.

User have to click to the home button or left side bar to watch list page.   
Additionally, the sidebar design is reference to Shmoji. (2019) A stylish user friendly side bar component.

## Technical Description

### Architecture

Overall architecture of this web application is based on the create-react-app. Components are divided to reduce the duplicated code. Some of the components are re-used in different pages.

Whole file tree and the detailed src folder are shown below figures. The chart configuration is reference to github repository (2020) shown in the reference list

|  |
| --- |
| A screenshot of a computer  Description automatically generated with medium confidenceA screenshot of a computer  Description automatically generated with medium confidence  *Figure 10 File Tree* |

### Test plan

Manual testing is fine and our expectations are in line with the example grid below. You can show the results through a screen shot and point us to these from the table.

Your tests should include

* Positive outcome cases
* Negative outcome cases (error scenarios)
* edge cases
* non-functional cases (ideally, but not required this time).

For example:

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Expected Outcome** | **Result** | **Screenshot(s)** |
| **Checking home page** | | | |
| Home page shows on http://localhost:3000/ | Home page displayed | PASS | Figure 11 |
| **Checking about page** | | | |
| About page and shown  http:/localhost:3000/about | Able to show about page | PASS | Figure 12 |
| About page and the links to external website. | Able to redirect to github/linkin/personal blog page | PASS |  |
| **Checking Crypto page** | | | |
| Crypto Page shown at http://localhost:3000/crpytos | Able to show the crypto page without error | PASS | Figure 13 |
| Watch list show | Successfully populate the watch list from local storage | PASS | Figure 14 |
| Coin Search with vailed name | Able to get proper coin name/ | PASS | Figure 15 |
| Coin Search with invailed name | Show not matching result | PASS | Figure16 |
| Watchlist add/delete | Able to add / delete the coin from the watchlist and get in to detailed page of the selected coin | PASS | Figure 17 |
| **Checking Detail Page** | | | |
| Detailed page at :  http://localhost:3000/crpytos/:{coinname} | Able to show the detail apge without error | PASS | Figure 18 |
| Chart | Able to show all the (1day,week,month,year chart of the coin) | PASS | Figure 19 |
| Coin info | Able to get detailed information about the coin | PASS | Figure 20 |
| News articles | Table show the news articles | PASS | Figure 20 |
| Shows Loading | When it is loading shows it is in loading | PASS | Figure 21 |
|  | | | |

Difficulties / Exclusions / unresolved & persistent errors /

In this section, will discuss about three main functions that might need further development for better usability and high quality web application.

* Better news api

*Originally the plan was to use the google rss article reader API to get news articles. It has wide variety of the news article sources. However the API blocked the CORS. At the early stage of the development, the web application using backend server by node js express framework to implement the login system but due to the time limitation, the implementation was not successful. So does the API implementation was not successful since it does not allow the axios to request the data. Therefore API change to NEWS Api but the articles are some time not related to the selected coin. This can be further developed using node js back end to get the data from the server side.*

* Search function (advanced)

*Current search function only take the vailed coin name. This can be further developed by implementing dynamic search bar. For example, use can search bit and the result automatically show the bitcoin’s symbol to add into watchlist.*

## User guide

1. Go to N10664581\_IFN666\_Assessment2/ directory
2. Npm install
3. Npm start
4. Landing page shown as Figrue 11
5. Using sidebar in the left to get the watchlist Figure13
6. Add/delete the watchlist as shown figure 17  
   - add : search coin and click the result   
   - delete: hoover over the coinlist right end show x to delete
7. Search function shown as figure 15
8. Click the list to get the detail page of the coin as shown in the figure 14
9. Get detail page of the coin as shown in the figure 18
10. Get related to article page by clicking detail button of the article figure20

## References

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Shmoji. (2021, January 31). How to Create a Navigation Bar and Sidebar Using React. *Medium*. https://codeburst.io/how-to-create-a-navigation-bar-and-sidebar-using-react-348243ccd93

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## Appendices

#### Appendix A – self-checking against CRA

|  |  |  |
| --- | --- | --- |
| Marks | Grade level (in 1- 7 scale) my work belongs to (delete the ones not suitable) | Marks I think I should get |
| **Overall Functionality**  **(30 marks)** | 7 | 30 out of 30 |
| **Application performance**  Note: balance between client and server processing  **(10 marks)** | 7 | 8 out of 10 |
| **Application Robustness**  **(10 marks)** | 6 | 7 out of 10 |
| **Application UI Design**  Note: this is purely based on function and usability. There is no direct assessment of the quality of the graphic design.  **(10 marks)** | 6 | 7 out of 10 |
| **Application architecture and Code Quality**  **(10 marks)** | 6 | 8 out of 10 |
|  |  |  |
| **Report and Reflections**  **(20 marks)** | 6 | 17 out of 20 |
|  |  |  |
| **Video demo**  **(10 marks)** | 7 | 10 out of 10 |
|  |  |  |
| **Overall Marks (100)** |  | 87 out of 100 |

#### Appendix B – Test result

|  |
| --- |
| Result for the Homepage |
| Graphical user interface, application, Teams  Description automatically generated  *Figure 11 Test result 1* |
| Result for the Aboutpage |
| A picture containing waterfall chart  Description automatically generated  *Figure 12 Test result2* |
| Result for the Cryptopage |
| Graphical user interface, application  Description automatically generated  *Figure 13 Test result3*  Table  Description automatically generated  *Figure 14 Test result 4*  Graphical user interface, application  Description automatically generated  Figure 15 Test result 5    *Figure 16 Test result 6*  Graphical user interface, text, application, email  Description automatically generated  *Figure 17 Test result 6* |
| Result for the Detail Page |
| Chart, line chart  Description automatically generated  *Figure 18 Test result7*  A picture containing text, document  Description automatically generated  *Figure 19 Test result 8*  Graphical user interface, text, application, email  Description automatically generated  *Figure 20 Test result 9*  Chart, line chart  Description automatically generated  *Figure 21Test result 10* |
|  |