

3RD YEAR GROUP PROJECT 2022  
Fintech Trader - Product Backlog

**SD3-A**

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# Product Backlog

## Identified Actors

1. Unregistered user
2. Retail investor
3. Broker

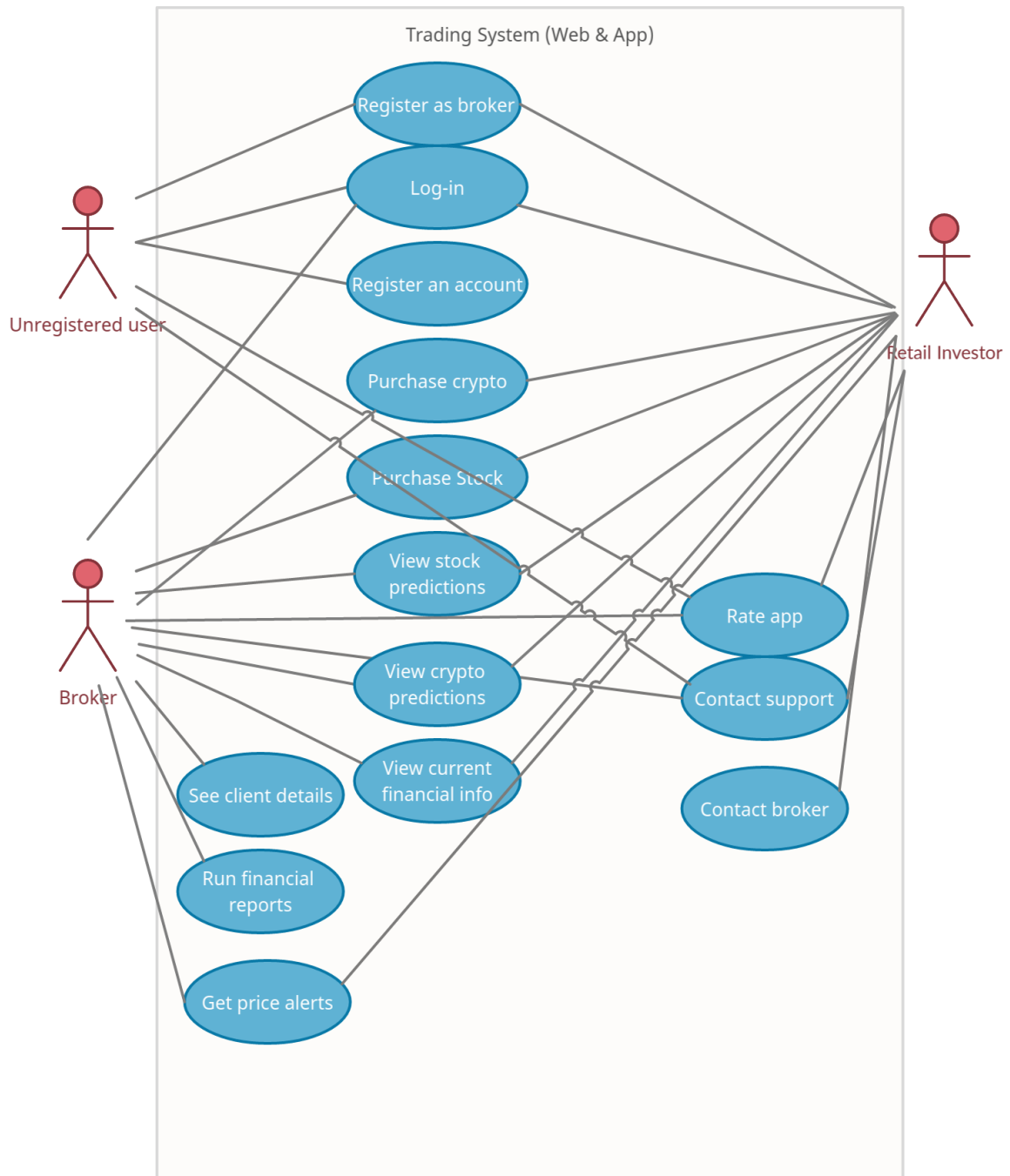
## Use Cases

Unregistered User	Retail Investor	Broker
Register as broker	Register as broker	Log in
Log in	Log in	Purchase crypto
Register account	Purchase crypto	Purchase stock
Contact Support	Purchase stock	View stock predictions
Rate App	View stock predictions	View crypto predictions
	View crypto predictions	View current financial info
	View current financial info	Rate app
	Rate app	Contact support
	Contact support	See client details
	Contact broker	Run financial reports
	Get price alerts	Get price alerts

## User Stories

As a(n):	I want to:
<b>Unregistered User</b>	As an unregistered user, I want to register as a broker so that I can work with clients
	As an unregistered user, I want to log in so that I can access my account
	As an unregistered user, I want to register an account so that I can buy and sell assets
	As an unregistered user, I want to contact support so that I can receive help
	As an unregistered user, I want to rate the app so that I can express my opinion on the app
<b>Retail Investor</b>	As a retail investor, I want to log in so that I can access my account
	As a retail investor, I want to register as a broker so that I can work with clients
	As a retail investor, I want to purchase crypto so that I can make a profit
	As a retail investor, I want to purchase stock so that I can make a profit
	As a retail investor, I want to view stock predictions so that I can see when I can possibly sell for profit or hold
	As a retail investor, I want to view crypto predictions so that I can see when I can possibly sell for profit or hold
	As a retail investor, I want to view current financial info so that I can be aware of my investments
	As a retail investor, I want to contact support so that I can receive help
	As a retail investor, I want to contact a broker so that I can be advised on buying/selling of assets
	As a retail investor, I want to get price alerts so I am notified when an asset's value changes
	As a retail investor, I want to rate the app so that I can express my opinion on the app
<b>Broker</b>	As a broker, I want to log in so that I can access my account
	As a broker, I want to I want to purchase crypto so that I can make a profit
	As a broker, I want to purchase stock so that I can make a profit
	As a broker, I want to view stock predictions so that I can see when I can possibly sell for profit or hold
	As a broker, I want to view crypto predictions so that I can see when I can possibly sell for profit or hold
	As a broker, I want to view current financial info so that I can be aware of my investments
	As a broker, I want to contact support so that I can receive help
	As a broker, I want to get price alerts so I am notified when an asset's value changes

## Use Case Diagram

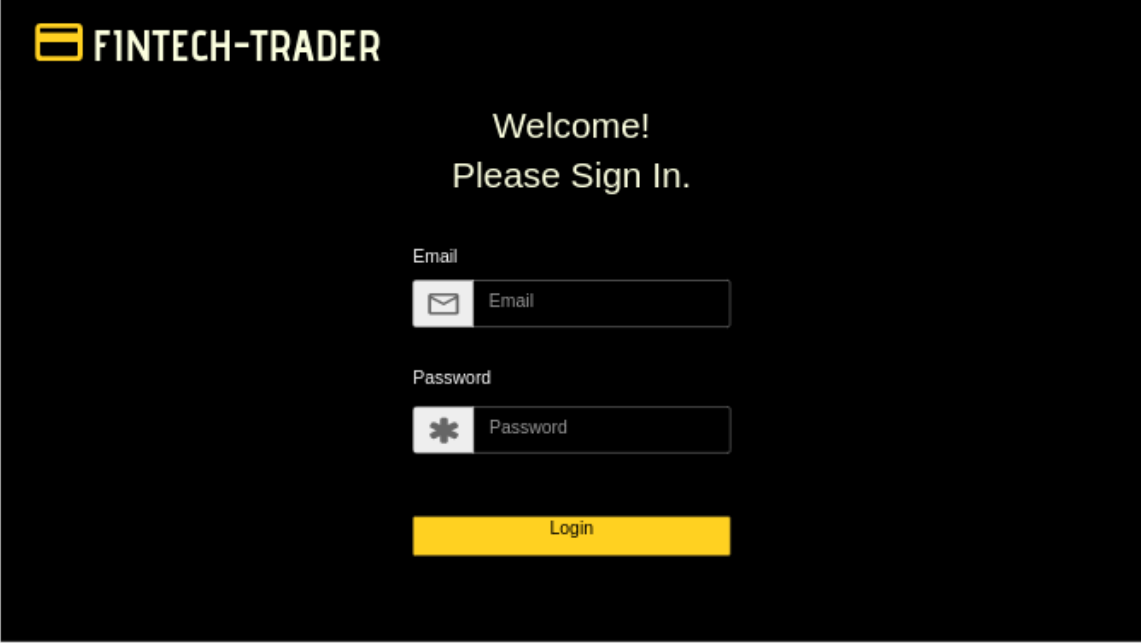


## Trello Board Link

<https://trello.com/invite/b/ccFxlal0/99ac0f7ab71d26c10346ad156e36d156/mtuyear3>

## Prototype/mockup of site/app:

(This design will vary, this is just the initial general layout)



The mockup shows a dark-themed login page. At the top left is the logo 'FINTECH-TRADER' with a yellow icon. The text 'Welcome! Please Sign In.' is centered. Below this are two input fields: 'Email' with an envelope icon and 'Password' with a star icon. A yellow 'Login' button is at the bottom.

**Website Login Page**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla quam velit, vulputate eu pharetra nec, mattis ac neque. Duis vulputate commodo lectus, ac blandit elit tincidunt id. Sed rhoncus, tortor sed eleifend tristique, tortor mauris molestie elit, et lacinia ipsum quam nec dui.

[SIGNUP NOW](#)

IMAGE HERE. Phone maybe? Like  
in Degiro???

This site is good, bro.  
Like. Really good.  
I swear

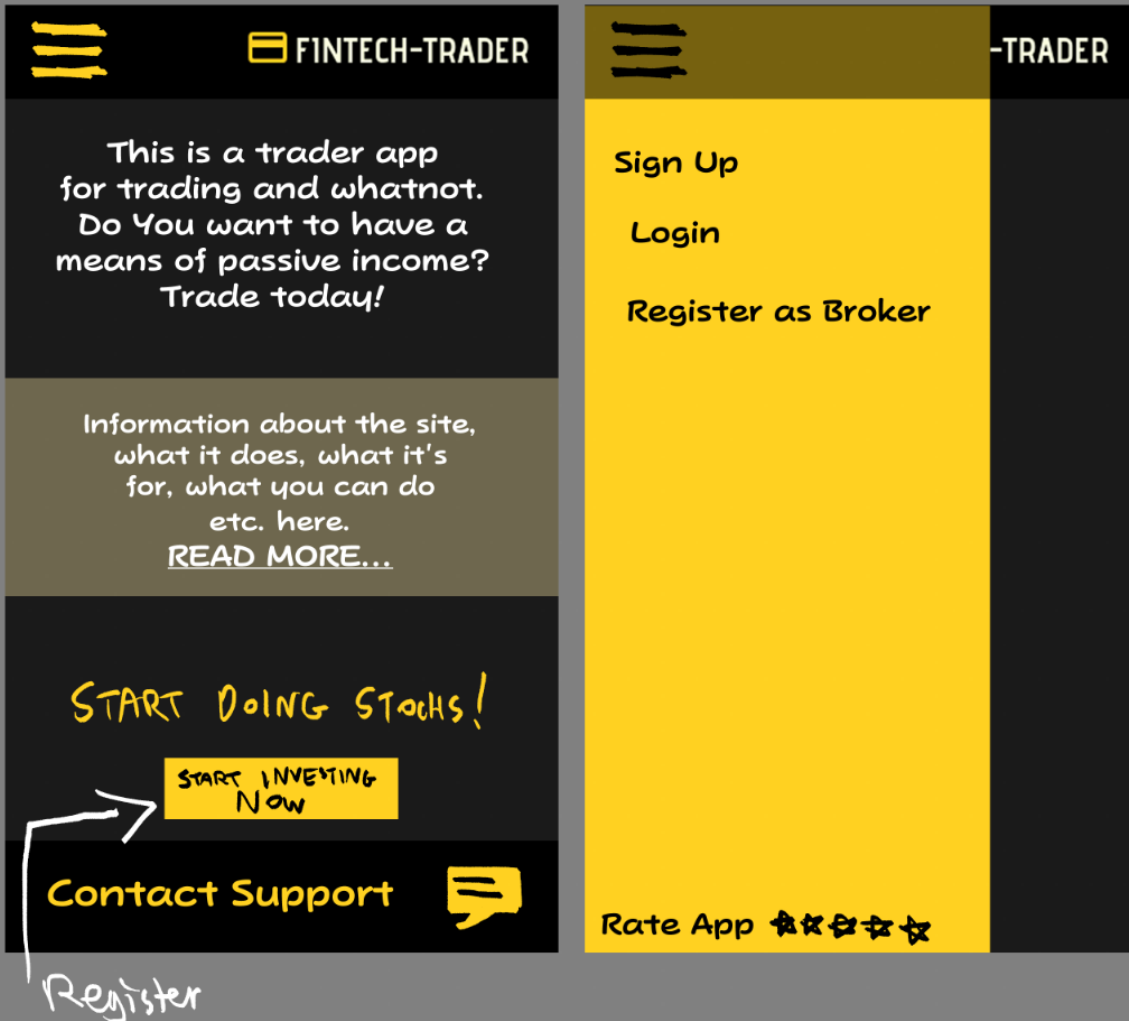
Site details as to why  
it's good.  
you know the drill.

It Simply 'Hits Different',  
your honor.  
It is simply 'Built Different'

[Start Investing Now!](#)

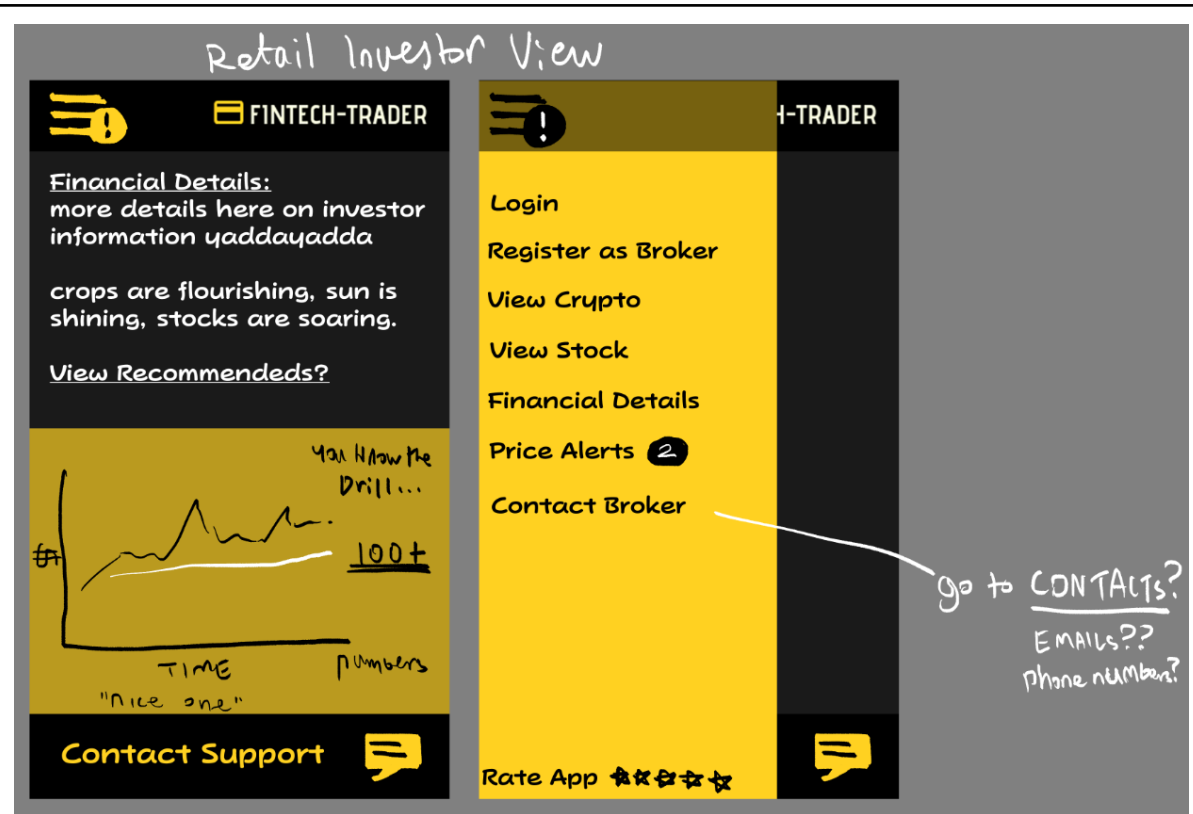
## Website Homepage

## Page for Unregistered user



Page for Unregistered User (app)





Retail Investor View (app)

## Page for Broker



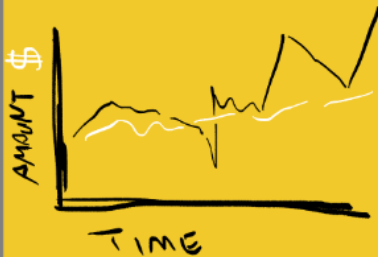
FINTECH-TRADER

### FINCANCIAL DETAILS:

blahblahblah  
moneymoney  
stocks are rising maybe

[View Recommended?](#)

### FINANCIAL REPORT:



### STOCKS STATUS:

10+  
in the last  
hour  
I guess.

Contact Support



-TRADER

Login

View Crypto

View Stock

Financial Details

Client Details

Price Alerts **2**

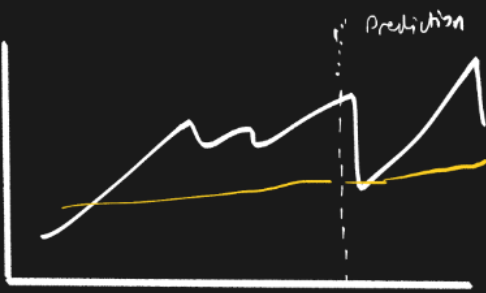
Rate App ★★☆☆☆

Broker View (app)

Looking at crypto/stock

☰ FINTECH-TRADER


list ▼ Select [Stock/Crypto] (to view)



+15...

Prediction:  
[THIS AMOUNT] HIGHER IN THE  
NEXT DAY OR TWO.

BUY? → **SELL?**

Contact Support 

Predictions

☰ FINTECH-TRADER

list ▼ Select Crypto (to view)

33 Qty.

Total. €600

**CONFIRM**

Contact Support 

PURCHASE

## Retail Investor View

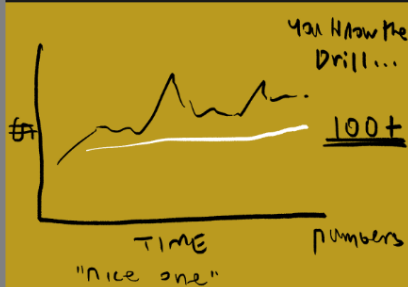


FINTECH-TRADER

**Financial Details:**  
more details here on investor  
information yaddayadda

crops are flourishing, sun is  
shining, stocks are soaring.

View Recommendeds?



Contact Support



FINTECH-TRADER

Login

Register as Broker

View Crypto

View Stock

Financial Details

Price Alerts **2**

Contact Broker

Rate App ★★★★★



go to CONTACTS?  
EMAILS??  
phone numbers?

## Automated chat-bot using AI

To facilitate the support-related use cases, an AI powered chatbot will be necessary to implement. For this, the Python programming language was used.

Starting on the chatbot, Alannah created an intents file that had a list of sample outcomes that the chatbot would respond with based on the initial message up with, e.g., a greeting -“Hello”, “Hi! How are you? Good to see you again.” The goal is to have the chatbot learn and adapt based on the input given.

A train\_chatbot.py file will also be developed that deals with training the chatbot itself, and with it, a chatgui.py file that creates an interface for the user to interact with which includes the following libraries / technologies:

- NLTK - a toolkit for working with natural language processing in Python
- Pickle - for serialisation / deserialisation of the objects within Python
- NumPy - for the mathematical operations needed for the chatbot
- Keras - the library used for deep learning (with TensorFlow)
- Random module

```
{
  "intents": [
    {
      "tag": "greeting",
      "patterns": ["Hello", "Hey", "Hi", "Good day", "Greetings", "What's up", "how is it going?", "What's the craic?", "Whats the craic?"],
      "responses": ["Hello, thanks for asking", "Good to see you again", "Hi there, how can I help?", "How are you?"],
      "context": [""]
    },
  ],
}
```

**Example of the intents (stored in a .json file)**

```

# Create Chat window
ChatLog = Text(base, bd=0, bg="white", height="8", width="50", font="Arial", )

ChatLog.config(state=DISABLED)

# Bind scrollbar to Chat window
scrollbar = Scrollbar(base, command=ChatLog.yview, cursor="heart")
ChatLog['yscrollcommand'] = scrollbar.set

# Create Button to send message
SendButton = Button(base, font=("Verdana", 12, 'bold'), text="Send", width="12", height=5,
                    bd=0, bg="#32de97", activebackground="#3c9d9b", fg='ffffff',
                    command=send)

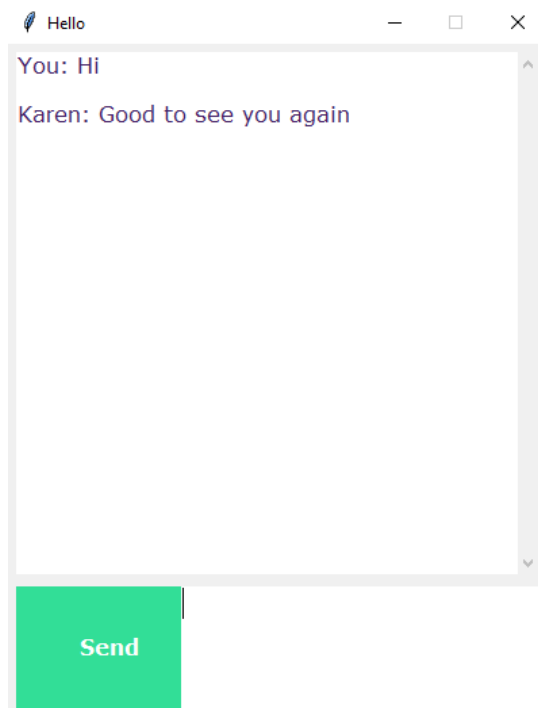
# Create the box to enter message
EntryBox = Text(base, bd=0, bg="white", width="29", height="5", font="Arial")
EntryBox.bind("<Return>", send)

# Place all components on the screen
scrollbar.place(x=376, y=6, height=386)
ChatLog.place(x=6, y=6, height=386, width=370)
EntryBox.place(x=128, y=401, height=90, width=265)
SendButton.place(x=6, y=401, height=90)

base.mainloop()

```

### Example of GUI programming

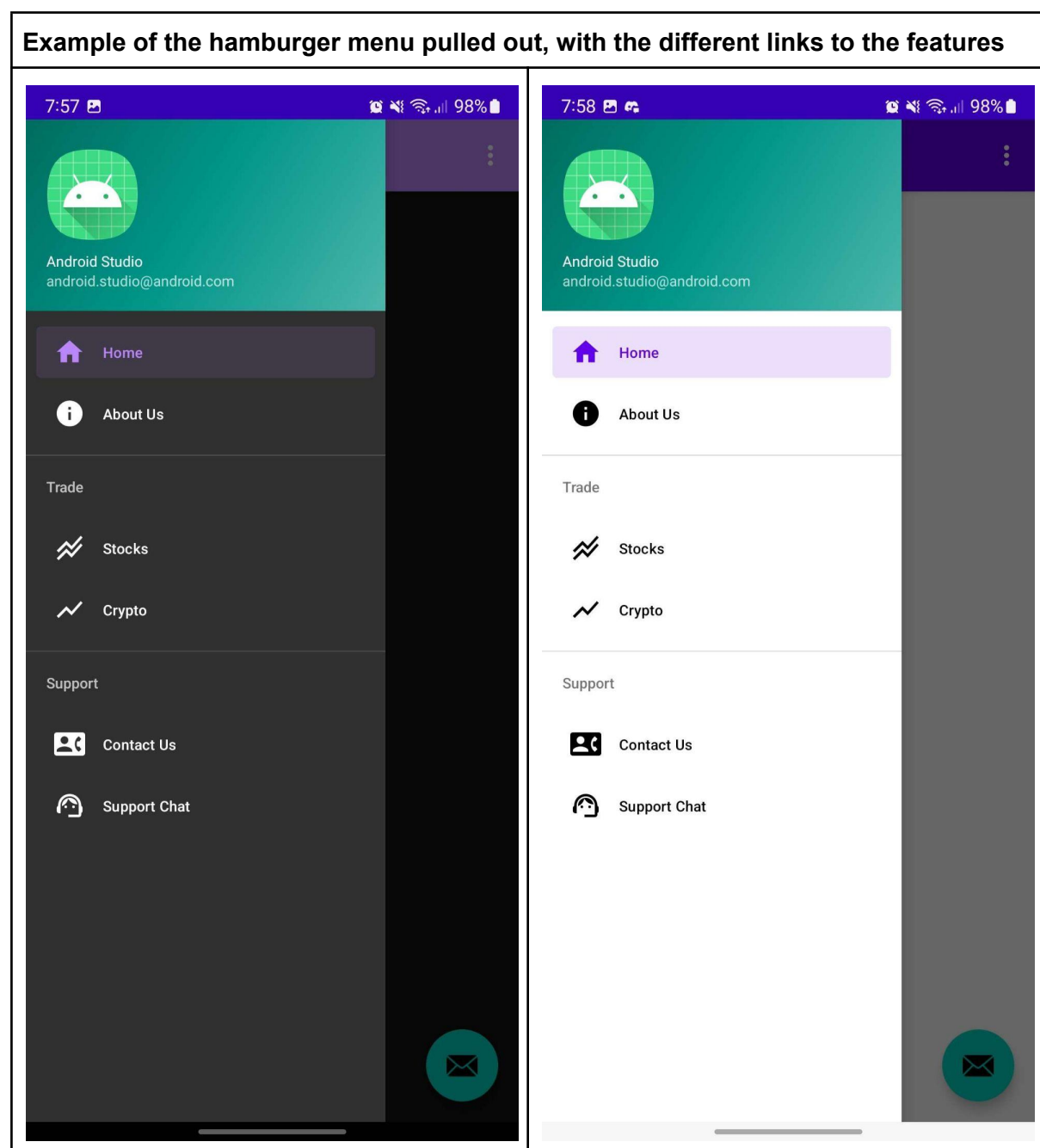


Chatbot GUI (to be finalised)

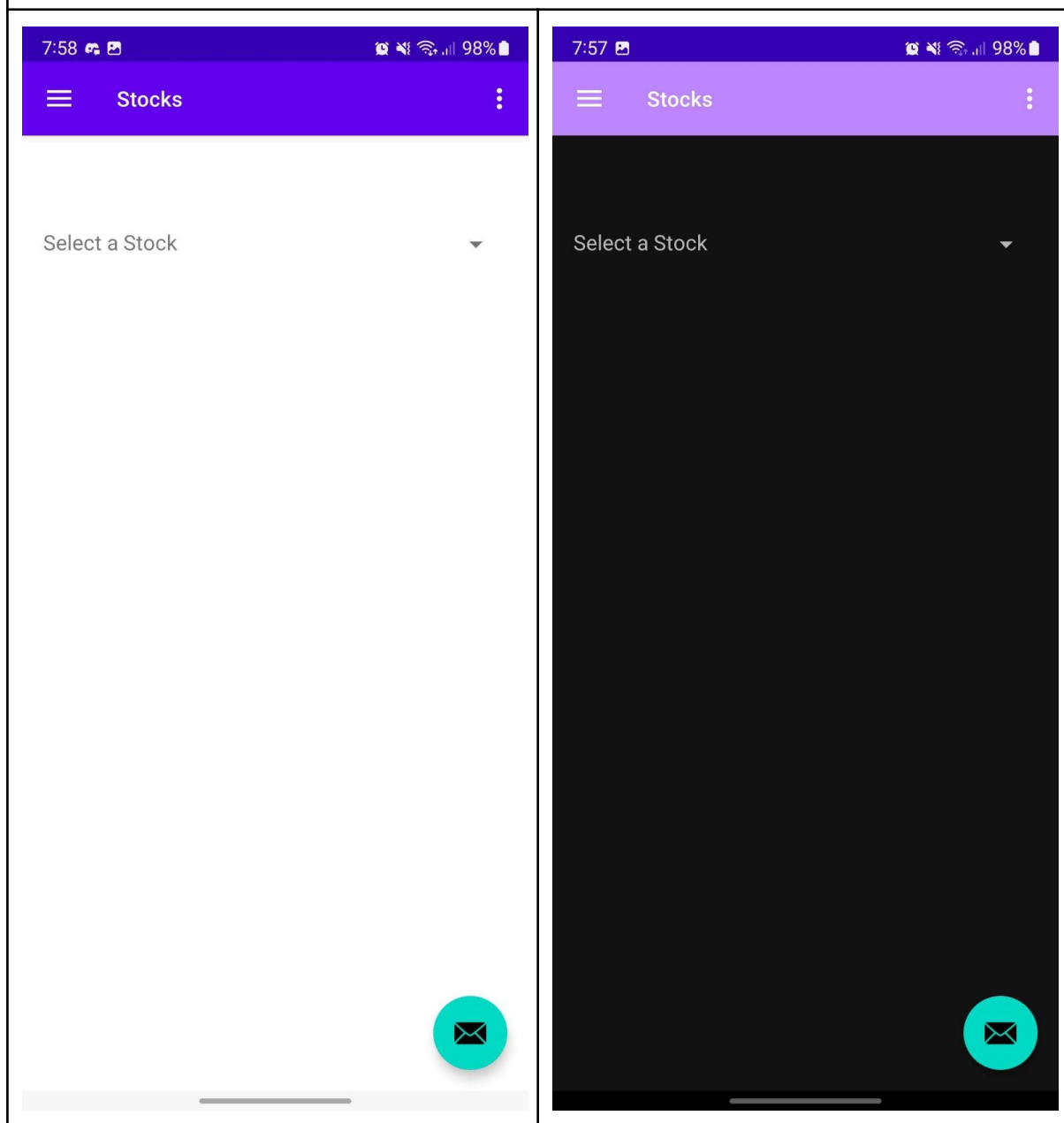
## Android app

As part of the project brief, an android app will be implemented. Android Studio is the IDE that will be used for this, using the Java language. HTML & CSS elements may be used when displaying certain features (such as the homepage which will be in sync with the website homepage). Stock & crypto visualisations that are made in Python will be implemented also. Cian implemented the homepage that features a hamburger menu with different options based on the different use cases, and depending on who it is that is accessing the app.

Two early screenshots of the app below:



## Stocks feature (with a dropdown selecting the chosen stocks to be watched)





# Sprints

This project will be divided up into 3 different sprints, dated as follows:

1. **30/10/22 Sun 23.59: Sprint 1**
2. **20/11/22 Sun 23.59: Sprint 2**
3. **11/12/22 Sun 23.59: Sprint 3**

Initial sprint layout (subject to extension / modification)

The image displays three Jira sprint boards for a project named 'GY'. Each sprint board shows a list of issues with their status and assigned users.

**GY Sprint 1** (10 Oct – 30 Oct, 7 issues)

Issue ID	Issue Description	Status	Assignee
GY-1	Create Artificial Intelligent Chatbot and implement onto website and app	IN PROGRESS	[User Icon]
GY-16	Get working visualisations of the predicted prices of 5 technology and 2 crypto assets	IN PROGRESS	[User Icon]
GY-3	Create Design and Layout for both App and Website	IN PROGRESS	[User Icon]
GY-2	Create App, connect database to app and implement features	IN PROGRESS	[User Icon]
GY-6	Create login/signup for app	TO DO	[User Icon]
GY-4	Create Website, implement features and connect database	TO DO	[User Icon]
GY-5	Create login/signup for website	TO DO	[User Icon]

**GY Sprint 2** (31 Oct – 20 Nov, 6 issues)

Issue ID	Issue Description	Status	Assignee
GY-7	Implement assets purchasing	TO DO	[User Icon]
GY-8	View relevant financial information for chosen assets on app	TO DO	[User Icon]
GY-10	Develop the contact support forms to contact support	TO DO	[User Icon]
GY-13	Brokers should only be able to see details of their own clients (website)	TO DO	[User Icon]
GY-12	Record details of the broker on the website	TO DO	[User Icon]
GY-15	Implement payment portal (PayPal)	TO DO	[User Icon]

**GY Sprint 3** (21 Nov – 11 Dec, 4 issues)

Issue ID	Issue Description	Status	Assignee
GY-11	Be able to rate the app and leave reviews within the app	TO DO	[User Icon]
GY-14	Notifications for price alerts (website)	TO DO	[User Icon]
GY-9	Ability to call broker from within the app	TO DO	[User Icon]
GY-17	Finalize testing of finished product	TO DO	[User Icon]

## Technology stack & IDEs:

- **Tech Stack:** HTML5, CSS, JavaScript, Java, Python (with NLTK, Pickle, NumPy, Keras, TensorFlow).
- **IDEs:** PyCharm, Android Studio, Visual Studio Code