Requirements Document
Digital Beginner Stock Trading

Pelican Innovations

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Contents

Revision History

Name	Date	Reason For Changes	Version
Whole Group	26/01/2023	Creation of the document	0.0.1
Whole Group	10/02/2023	Finishing the RD	1.0.0
Angus Morrison	02/03/2023	Updated the RD to reflect the changes requested in RFC	

1 Introduction

1.1 Purpose

This Requirements Document (RD) describes the initial creation and final functionality of the “Digital Abstract Stock Trading” application. This application is intended to train youth, and beginners as defined in the glossary of terms, on how to trade on the stock market so that they don’t have to lose real money while learning how the stock market works.This document is currently at the latest version outlined in the “Revision History” table located on the page above and was created to describe the whole system.

1.2 Project Scope

The purpose of the software specified in this RD is to train youth and beginners on how to trade on the stock market. This application will allow more people to gain financial stability as they age and learn about risk/benefit through an enjoyable and engaging interface.

1.3 Glossary of Terms

Term	**Definition**
Adult(s)	Potential users of the application who are aged 18+ and are experienced in trading on the stock market
API	Application Program Interface
Beginners	Users aged 18 and older who wish to engage with the system to learn how to trade stocks
Client	The company that requested the development of this application - Stock Enjoyers Inc.
Modular	Modular in this document means the code contains no “god” functions or classes, and there should be high cohesion with low coupling within the code
Stock Trading API	This will always refer to Finnhub.io
Youth	Users aged under 18 who wish to engage

	with the system to learn how to trade stocks

1.4 References

This document relies on the RFP and the RFC provided by Stock Enjoyers Inc. Both of these documents were provided through internal communication and neither are explicitly referenced but both were referred to in the creation of this document.

1.5 Overview

This document is intended to provide an overview and requirements for the development and use of the “Digital Beginner Stock Trading” application as commissioned by Stock Enjoyers Inc.

This document is broken up into four main sections starting with an overall description of the product. This overall description discusses the context of the product along with the primary features and user groups.This document then discusses the features in more detail along with what should be completed for each feature. Next the functional requirements are discussed followed by any other requirements for the system.

2 Overall Description

2.1 Product Perspective

The product being described in this document, “Digital Beginner Stock Trading”, is an extension of the existing real world stock market. This is the first product within its family at the client company and is intended to be self contained. An API is intended to be used to link the existing stock market to this application. Figure 1 below is a simple diagram to illustrate the major components of this application and how they will be connected together.

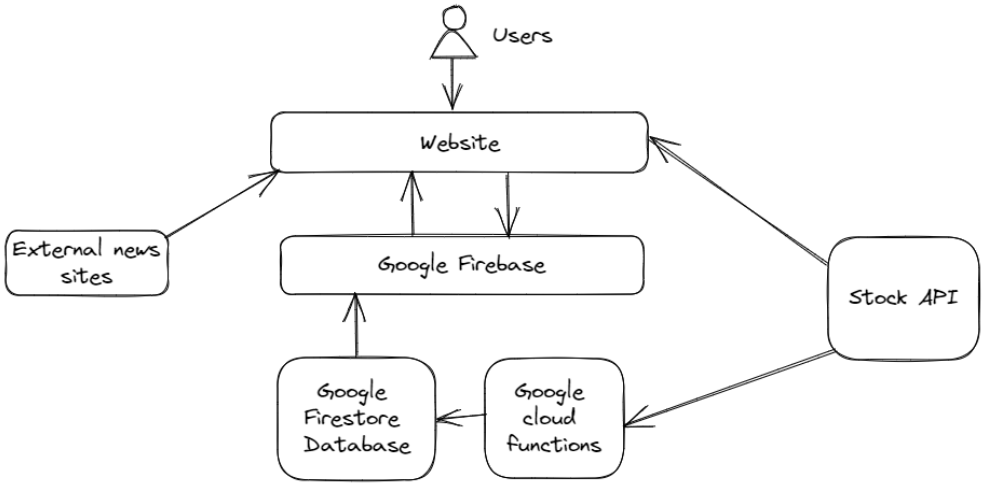

Figure 1: System architecture overview

2.2 Product Features

The primary features of the “Digital Beginner Stock Trading” application are: account login, buying and selling of the virtual “stocks”, account summary with a history of what was sold when, and graphs to show the current state of the stocks as well as a history of how they have performed. Each of these features will be described in more detail in section 3 of this requirements document.

2.3 User Classes and Characteristics

The “Digital Beginner Stock Trading” application will have one primary user group. This primary user group is intended to be youth aged 13-17. However, it is possible that beginners, as defined in the glossary of terms, wanting to learn about the stock market will also use the application. A third user group should be acknowledged but not considered at all. This third group is the ‘Adult’ user group and consists of users aged 18+ who are experienced in trading on the stock market. These user groups are

separated as the adults using the system will have more life experience and could have more knowledge about the stock market overall.

2.3.1 Youth users

This user group is the favored users of the system. The youth users will likely have the least background knowledge about the system, and the largest learning curve on how to use the system and the meaning behind the values, graphs, and charts shown. All the requirements for this application pertain to this user group as this group is the favored group of users.

2.3.2 Beginners

This user group is less important to satisfy and thus the requirements outlined in this document will not be directed towards them.

2.3.3 Adults

This user group will not be considered at all. This user group consists of users over the age of 18 and are experienced in trading on the stock market.

2.4 Operating Environment

This software will operate on a server and must be accessible from any internet connection. Hardware that will be able to interact with this application will be desktops and laptops only. Mobile connection may be possible but will not be specifically supported. The application will be able to be run on any operating system that can connect with websites. This includes Windows, MacOS, and Linnex. This application should peacefully coexist with the internet and connecting with it should not cause any harm to the users hardware.

2.5 Design and Implementation Constraints

The primary constraint to development is the implementation of the API for scraping the stock market. The API that will be used is Finnhub.io. The only hardware constraint to the system will be data storage for each of the users and the user data. This hardware constraint will not affect this stage of development but it is important to keep in mind moving forward. The software for this project must be modular and easy to understand as the client company will be responsible for maintenance of the system after the initial release. The term modular in this case is used to describe the structure of the code. This means that there should be no “god” functions or classes, and there should be high cohesion with low coupling within the code.

2.6 Assumptions and dependencies

2.6.1 Assumptions

Internet Connection

Equipment used will be internet based and therefore users having a secure internet connection will be assumed.

Stock API

This app is assuming the stock market API, Finnhub.io, used will be functional and running.

User Availability
This app assumes the users will regularly monitor their “investments” to keep track of their profit/loss and receive feedback.

2.6.2 Dependencies

Third party stock API

- Finnhub.io gives stock data with a 15 minute delay, which makes day trading not possible
- Finnhub.io imposes a request limit / hour, which limits the number of stocks that can be included in the Beginner Stock Trading Application

Firebase

- The app depends on firebase to store its data and handle other interactions such as web hosting

3 System Features

This section of the document describes in detail the four primary features mentioned in section 2.2. To repeat the features they are; account login, buying and selling the virtual stocks, account summary and account history, and visualization of the stocks history.

3.1 Account Login

This system needs to be able to allow users to create an account and allow the user to log in to the aforementioned account.

3.1.1 Description and Priority

This feature is the foundation for users being able to interact with the system in a secure way. Therefore, priority for this feature is highest.

3.1.2 Functional Requirements

The functional requirements associated with this feature are:

REQ
- Data storage

1: The system must be able to hold the account information for a TBD number of users.

REQ
- Email verification

2: The system must require the users to register with a valid email.

REQ
- Account recovery

2: The system must provide users with a way of recovering their account if they forget their password.

3.2 Buying and Selling the Virtual stocks

The “Digital Beginner Stock Trading” application must allow the user to buy and sell the simulated stocks using the simulated currency.

3.2.1 Description and Priority

This feature is the second highest priority and should be implemented once the user can create an account. Buying and selling stocks should affect the account balance of whomever is signed in.

3.2.2 Functional Requirements

The functional requirements associated with this feature are:

REQ
- Balance information

1: The system must display an accurate account balance to the user.

REQ
- Buy stocks

2: The system must allow the user to buy the simulated stocks.

REQ
- Sell stocks

3: The system must allow the user to sell the simulated stocks.

3.3 Account Summary and History

This feature regards what information is shown to the user when viewing their account portfolio information.

3.3.1 Description and Priority

The user should be able to view the value of the stocks that they currently have purchased as well as when it was purchased and what the total cost of that purchase was. Since this feature is not required for the primary functionality of the system and thus should be in the lowest priority grouping.

3.3.2 Functional Requirements

The functional requirements associated with this feature are:

REQ
- Stock purchase history

1: The system must be able to display a record of the stocks purchased by the user.

REQ
- Stock sale history

2: The system must be able to display a record of the stocks sold by the user.

REQ
- Balance

3: The system must display an accurate balance of the user's account.

REQ
- Total difference

4: The system must display the gain or loss of all the held stocks compared to the purchase price.

3.4 Stock Information

The following information must be available for the user to view and learn from when interacting with the application.

- Current Bid
- Current Ask
- The Volume

The following features must be available to advanced users to toggle on:

- P/E
- Market Cap
- Day High/Day Low

3.4.1 Description and Priority

This feature must show the user the information specified above. The basic information must be included and is of high priority as it was specifically requested by Stock Enjoyers Inc. The advanced information is of low priority as it is only intended to be used by advanced users.

3.4.2 Functional Requirements

The functional requirements associated with this feature are:

REQ
- Basic Information

1: Current Bid, Current Ask, and The Volume must be included as basic information provided on each stock for every user

REQ

- Advanced information

2: Advanced users must be able to toggle on or off information about P/E, Market Cap. and daily high/low values on the stock.

4 External Interface Requirements

This portion of the document describes the interactions that this system will have at an external level.

4.1 User Interfaces

The system will be designed with a user interface as shown on the github page.

4.2 Software Interfaces

This product will need to interface with the Alpha Vantage Stock API. This API allows the ability to connect our app to the real world stock market to be able to track stocks in real time, and give users real time updates on their portfolios.Google’s Firebase platform will be used to; hold user login information, stock information and conduct the web hosting for our application.

As development has not started in full yet the exact libraries that are intended to be used have not been specified. This will be added and updated in future versions of this document.

4.3 Communications Interfaces

To fulfill the requirements mentioned above in this document the system will need to be able to interact with users' email. Additionally, based on the fact that this system will be web hosted there will need to be interactions with web browsers and network communication protocols.

5 Other Non Functional Requirements

The non-functional requirements for the “Digital Beginner Stock Trader” are outlined below.

5.1 Security Requirements

The system developed must keep usernames, passwords, and other account information secure. The system must not have any data or memory leaks and must always be up to date with current user information regardless of any external factors ie power outages, and system maintenance periods

5.2 Software Quality Attributes

In addition the “Digital Beginner Stock Trader” application must have the following attributes:

1) The stock trading application must be maintainable over the course of one (1) year and must be maintainable by an external team.
2) The application must be modular, allowing modifications to one portion of the system without requiring the whole system to be updated. Refer to the modular definition in the glossary.

6 Other Requirements

Currently there are no other requirements for the project. This section will be updated in future iterations of the document should new requirements arise.

Appendix: Issues List

Currently there are no issues for the project. This section will be updated in future iterations of the document should new issues arise.