

DEPARTMENT OF COMPUTER SCIENCE
NORTH CAROLINA A&T STATE UNIVERSITY

SYSTEM REQUIREMENTS SPECIFICATION

COMP 496: SENIOR DESIGN II

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FINANCE GOONS

“INVEST THE BEST”

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1 PRODUCT CONCEPT

This section describes the purpose, use and intended user audience for the website Invest the Best. Invest the Best is a system that provides a service that can analyze company's stock prices and based on fluctuations. Users will be able to see trends in the industry to predict what would happen to the company separating the companies by industry.

1.1 PURPOSE AND USE

This is a service that can analyze company's stock prices and based on fluctuations, is able to predict whether in the next month the stocks will rise.

1.2 INTENDED AUDIENCE

The audience of the website would be to help anyone that is going to buy stocks so that they can better invest into a business based on data of past stock prices.

2 PRODUCT DESCRIPTION

This section provides the reader with an overview of our website Invest the Best. The primary operational aspects of the product, are a service that can analyze company's stock prices and based on fluctuations, is able to predict whether in the next month the stocks will rise. We want to create a service that can separate companies by industry. The service should be able to see trends in the industry to predict what would happen to the company. This service will be displayed as a web page. The webpage will have easy access to see any companies' stocks and the trends in the industry.

2.1 FEATURES & FUNCTIONS

They are that you can analyze company's stock prices and based on fluctuations. The service should be able to see trends in the industry to predict what would happen to the company. This service will be displayed as a web page.

2.2 EXTERNAL INPUTS & OUTPUTS

The inputs are the history and current stock prices and it will output a prediction based on the trends in the industry.

2.3 PRODUCT INTERFACES

You interface with it through the website that will be to display the companies.

3 CUSTOMER REQUIREMENTS

The product will display companies in categories that will present the stock price trends, history, and predictions. The user can use a search bar for browsing through company or search for a specific company or group of companies.

3.1 DESIGN

3.1.1 DESCRIPTION

The product will have a user friendly and simple design for ease of use.

3.1.2 SOURCE

Senior Design project specifications

3.1.3 CONSTRAINTS

Would be to keep our design from getting to complicated

3.1.4 STANDARDS

N/A

3.1.5 PRIORITY

Critical

3.2 SEARCH BAR

3.2.1 DESCRIPTION

The user can use a search bar for browsing through company or search for a specific company or group of companies.

3.2.2 SOURCE

Senior Design project specifications

3.2.3 CONSTRAINTS

They would be if it is not found it is not on the website

3.2.4 STANDARDS

N/A

3.2.5 PRIORITY

Critical

4 PACKAGING REQUIREMENTS

Our product will be preloaded onto a university hosted server and will also be available for download on a member's GitHub account. We will structure our product in a way that, if downloaded, all one would need to do is download the contents of one folder onto a host/server and our product will be able to work without the need to rearrange files and folders.

4.1 WEB BROWSER

4.1.1 DESCRIPTION

End users will need a web browser capable of running HTML, JavaScript and CSS in order to utilize our product.

4.1.2 SOURCE

Chrome - <https://www.google.com/chrome>

Safari - <https://support.apple.com/downloads/safari>

Firefox - <https://www.mozilla.org/en-US/firefox>

Opera - <https://www.opera.com/download>

Internet Explorer- <https://www.microsoft.com/en-us/download/internet-explorer.aspx>

4.1.3 CONSTRAINTS

Availability from distributor

4.1.4 STANDARDS

N/A

4.1.5 PRIORITY

Critical

4.2 PYTHON AND PYTHON PACKAGES

4.2.1 DESCRIPTION

Person(s) hosting our product will need Python and a few downloadable modules. Product was developed using Python 3.6 and the following versions of the indicated packages:

TensorFlow – version 1.14

NumPy – version 1.17.4

Matplotlib – version 3.1.2

Pandas – version 0.25.3

* Product may work with older/newer versions of Python and/or the mentioned packages*

4.2.2 SOURCE

Python - <https://python.org/downloads>

Python packages - <https://pypi.org>

4.2.3 CONSTRAINTS

Availability from python's website

4.2.4 STANDARDS

N/A

4.2.5 PRIORITY

Critical

5 PERFORMANCE REQUIREMENTS

It is our goal to provide our system with all data and models required to be displayed in real time at startup. Our models will run updates in the background of the server and update the databases on a schedule with little interaction from developers and maintainers.

6 SAFETY AND SECURITY REQUIREMENTS

The most important piece of any online device is security. We plan to make sure that there are logins which require a username and password to see your profile. This should contain a list of all your preferences and selected companies.

6.1 LOGIN FEATURE

6.1.1 DESCRIPTION

The login feature should allow people to see their protected and saved preferences for the companies that they invest in.

6.1.2 SOURCE

login vs logon - <https://writingexplained.org/log-in-or-log-on-difference>

6.1.3 CONSTRAINTS

This will need a username, password, and email address. We are also hoping to add in a first and last name standard at a later date if applicable, for information gathering. This will require a database to hold all of the login information.

6.1.4 STANDARDS

Safety is the number one priority for us, so we want to have at least the basic requirements that are our standards. The login feature will include a username, password and email address.

6.1.5 PRIORITY

Critical

7 MAINTENANCE & SUPPORT REQUIREMENTS

After the release of the website, we will provide constant checkups on the AI and the database. We will also be looking at the website to fix any problems a person could have.

7.1 UPDATES

7.1.1 DESCRIPTION

We are going to keep checking on the AI along with configuring the algorithm to keep providing a better response

7.1.2 SOURCE

N/A

7.1.3 CONSTRAINTS

We will check on the AI once a week at least to see how everything is doing while updating the website and the AI on the side.

7.1.4 STANDARDS

Weekly check ins on the AI and website to make sure it is up to date

7.1.5 PRIORITY

Moderate

8 OTHER REQUIREMENTS

The other requirements that will be required for the project to be completed are to make sure that customers are able to register for the website and add their information to the database. Decided on an interface for the website that will be easy for people to use. A simple interface will allow the users to be able to understand the website. These features will make the website more accessible to experienced pros in the stock market to people who are just getting into stocks.

8.1 CUSTOMER/USER REGISTRATION

8.1.1 DESCRIPTION

Create a customer registration system that will allow customers to create a profile and be logged into the database of accounts.

8.1.2 SOURCE

N/A

8.1.3 CONSTRAINTS

We are going to show a graph of the stock prices that will update every hour, so that users are able to see the prices update constantly.

8.1.4 STANDARDS

Make sure the login has a username, password and extra information

8.1.5 PRIORITY

Critical

9 FUTURE ITEMS

The goal is to optimize the performance of the website so that it can run more optimized depending on the device that is being used. Make sure the autonomous updates to the software runs smoothly and there are no bugs. These could be used to improve the project after the requirements have been met and if functioning correctly.

9.1 PERFORMANCE IMPROVEMENT

9.1.1 DESCRIPTION

Work on different devices such as Apple and Linux products to improve the performance of the website on both of those platforms.

9.1.2 SOURCE

N/A

9.1.3 CONSTRAINTS

We would like the to make sure the website does not crash on each of the devices.

9.1.4 STANDARDS

N/A

9.1.5 PRIORITY

Minor

9.2 UPDATES

9.2.1 DESCRIPTION

Improve the autonomous update program for the server and database so that it is more efficient and will increase update speed.

9.2.2 SOURCE

Update software and algorithm.

9.2.3 CONSTRAINTS

Make sure that the update program is able to fix the bugs and errors that the program has so it improves the server of the website and the database that hosts it.

9.2.4 STANDARDS

N/A

9.2.5 PRIORITY

Moderate