P & S Stock manager.

Peter Moorhead s3602584 Scott Djuric 3600531

Summary:

Our project goal was to create a website that allows users to research and follow different stocks, as well as being brought related news to what financial situations they want to know about. Using various apis and other websites P & S Stock manager brings information from different sources and wraps them together in one spot.

Introduction:

Recently I've become interested in the stock market and how my superfund is being managed and I thought this would be a great opportunity to build a site that catered to what I thought I needed to be able to follow the market. P&S Stock Manager is a web based financial information hub. We've drawn inspiration from the UI of the app Stake, which enables you to trade American Stocks, as well as more information based systems such as the website Market Watch. Users are able to login and follow certain stocks to see their OHCL (open, high, close, low) charts as well as general financial news or more specifically news surrounding certain stocks they want to keep an eye on. As well as the general market, e.g. currency conversion rates and the price of gold/silver etc.

Related Work:

MarketWatch
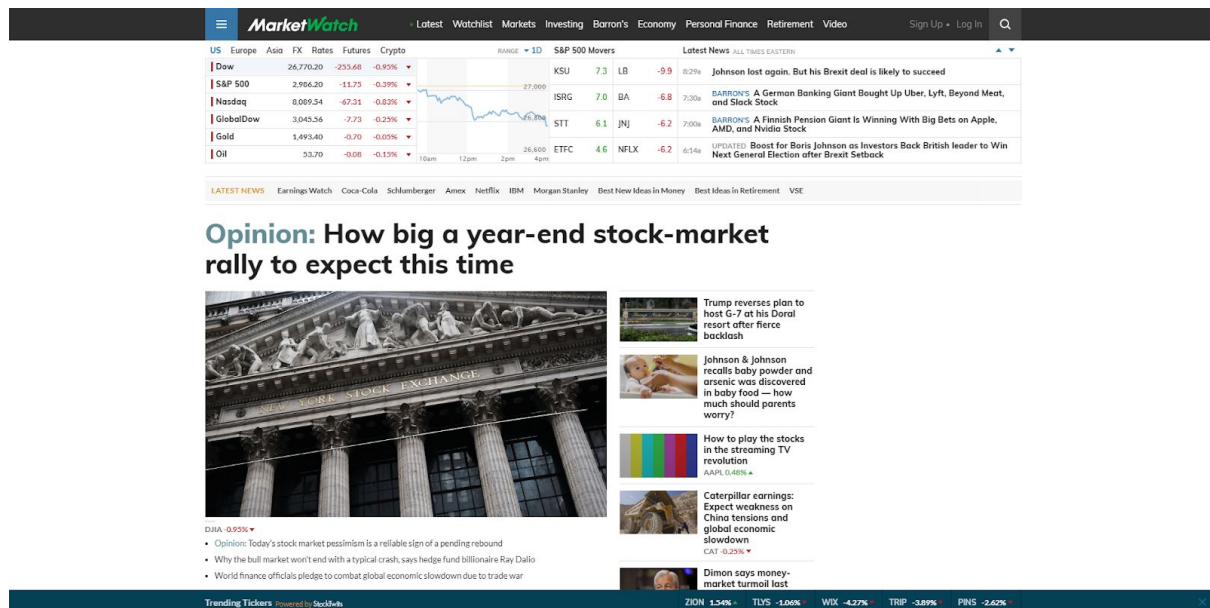
MarketWatch is very similar to our own website where they feature the ability to look at current trading news and also to see the popular stocks status. They feature a wide variety of features which we have taken a liking to such as the ability to register and login to track stocks that the user is interested in. Their overall layout is impressive to the eye but can also be daunting, while all the information is valid and useful it can feel a little cluttered at times.

Upon taking inspiration from MarketWatch we wanted to have a simple and easy experience for our users and for them to also come back and continue using our services.

Software Design/Architecture:
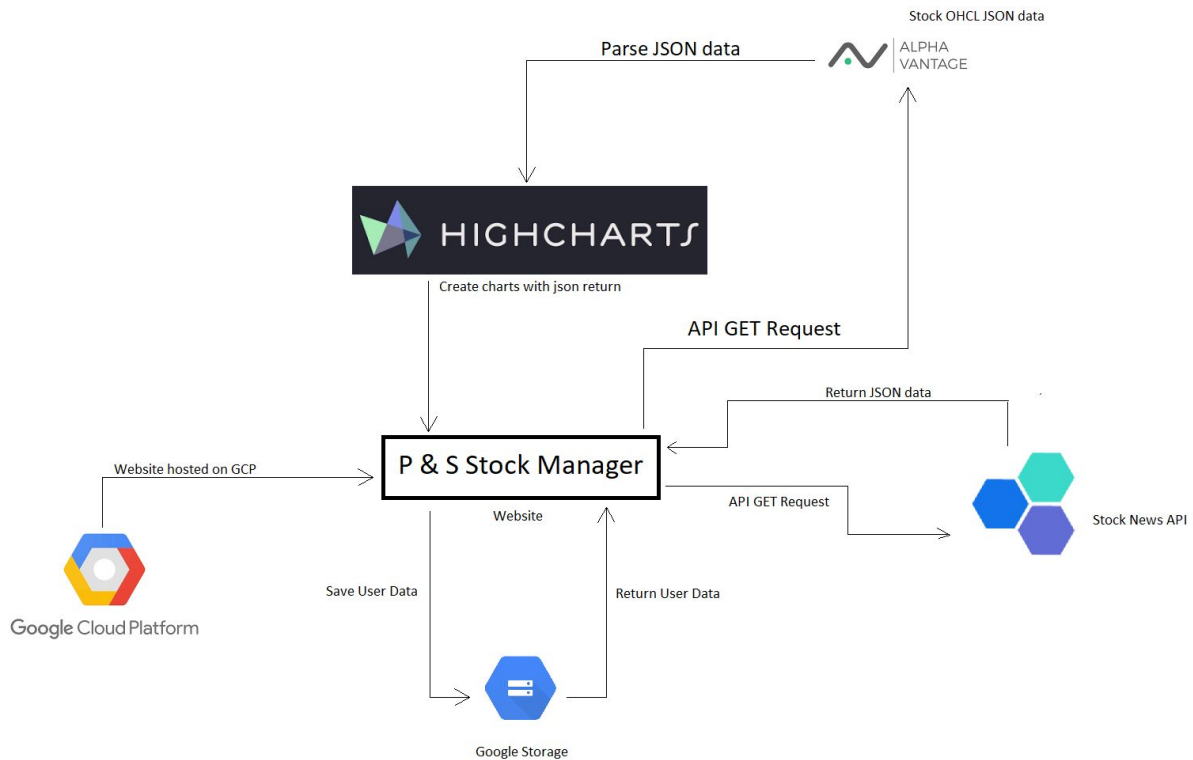
HighCharts:

A public API used for creating charts capable of handling large amounts of data. Used with the JSON data received from Alpha Vantage to map the ups and downs of stocks.

Alpha Vantage:

Another public rest api that is used for getting data from the financial market in real and post time.

Stock News API:

A news api which returns news articles about different stocks that can be useful for researching and performing due diligence.

Google Cloud Platform:

A computing services platform used for a variety of tasks to solve developers problems.

Google Cloud Storage:

Bundled in the Google Cloud Platform, storage provides a place to keep data from and used in the website.
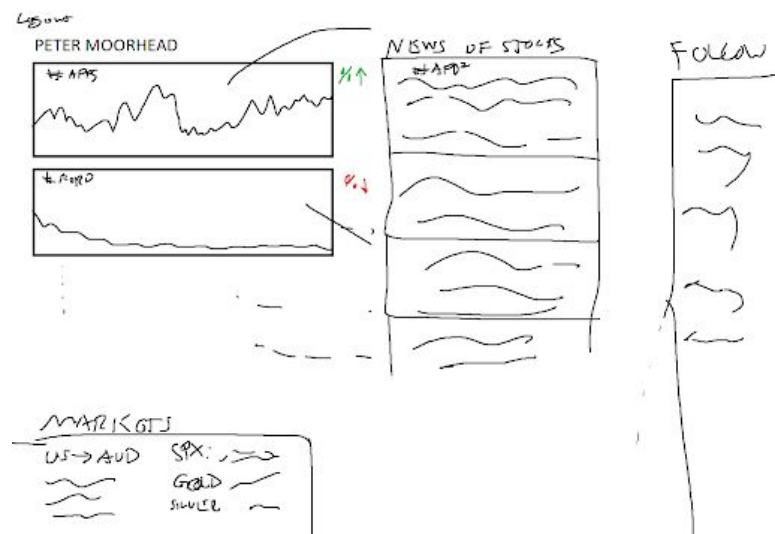
Implementation:

Initial Planning:

My first initial planning where I drew up what features I thought the site could implement, not all features shown made it into development.
Charts, news and the markets all made it into the final product.
A variation of following stocks also made it in but not as shown.

Building the base website:

Screenshot of the html for the side bar and scrollbar in the heading.

```
<div class = "sideNav">
    <a href="#header">Home</a>
    <a href="#stocks">Stocks</a>
    <a href="#news">News</a>
    <a href="#markets">Markets</a>
</div>


<div id="header">
<div class="marquee">
    <p id="marqeeText"></p>
</div>

    <div id="heading">
        <h1>P & S Stock Manager</h1>
        <hr width="40%">
    </div>

    <div id="subheader">

    </div>
</div>
```

Different sections you can scroll to on the page.

Div for the news scrollbar.

Page title.

The accompanying css for the sidebar.

```
html {
    scroll-behavior: smooth;
    overflow:auto;
}

.sideNav {
    overflow-x: auto;
    height: 200px;
    width:130px;
    position: fixed;
    z-index: 1;
    top: 30%;
    left: 0;
    padding-top: 20px;
    overflow:auto;
}

.sideNav a {
    padding: 6px 8px 6px 16px;
    text-decoration: none;
    font-size: 17px;
    color: #818181;
    display: block;
    overflow:auto;
}

.sideNav a:hover{
    background-color: #e6e6e6;
    color: black;
    overflow:auto;
}

.sideNav a:active {
    background-color: #blue;
    color: white;
```

```
$(function () {
var urls = concatURL;
$.ajax({
url: urls,
dataType: 'json',
contentType: "application/json",
success: function (data) {
    console.log(data['Time Series (Daily)']);
jsonData = data;

var ohlc = [],
    volume = [],
    dataLength = data.length,
    i = 0;

var ohlc = [],
    volume = [],
    dataLength = data['Time Series (Daily)'].
    i = 0;
    for(var time in dataLength)
    {
      var stock_info = dataLength[time];
      ohlc.push([
        time,
        Number(stock_info["1. open"]),
        Number(stock_info["2. high"]),
        Number(stock_info["3. low"]),
        Number(stock_info["4. close"])

      ]);

      volume.push([
        time,
        Number(stock_info["5. volume"])
      ]);
    }
}
```

A sample of some of the API requests used on this website.
Here we are getting the OHLC data from alpha vantage and splitting it into different arrays for HighCharts to display in a visually aesthetic way.

This section and other api request functions were taken from and developed upon from the HighStocks and Alphavantage Documentation and examples.
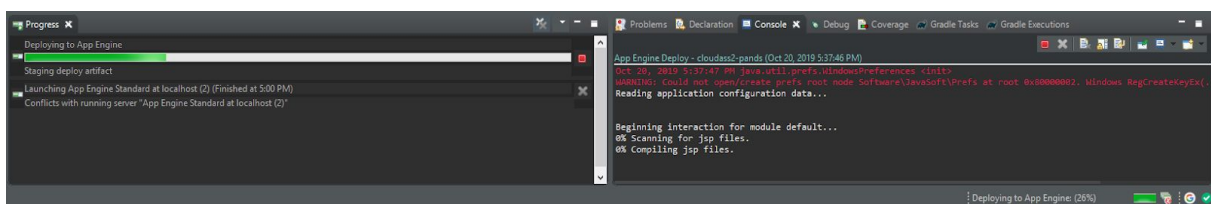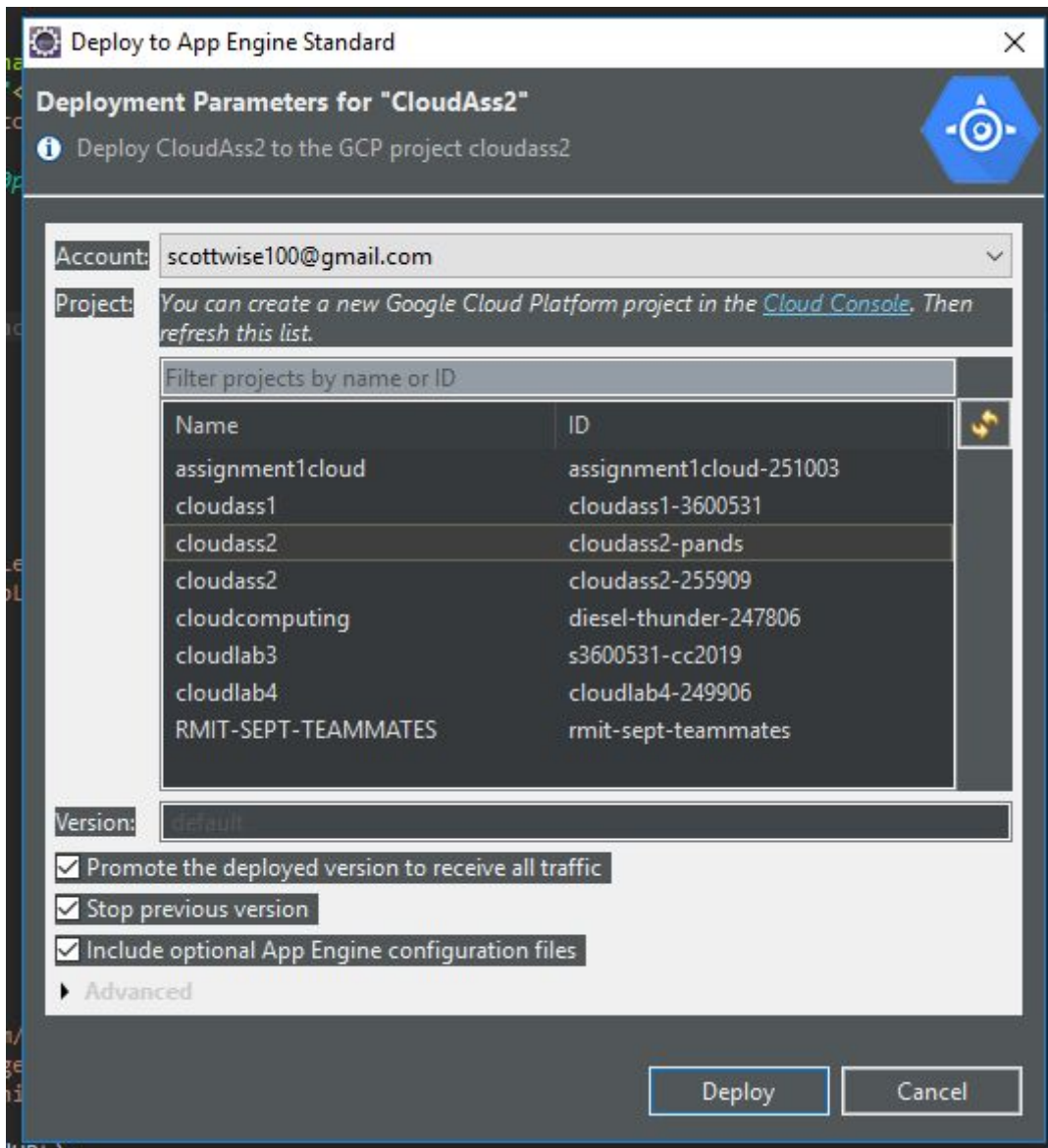
Development Guide:

Download the project files from the github here.

Open files and deploy using Eclipse.
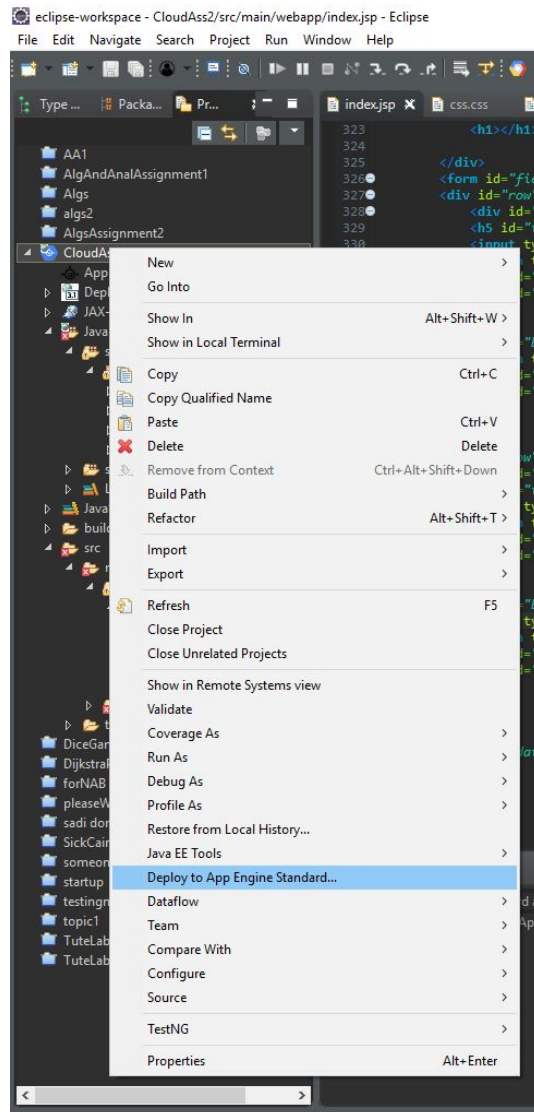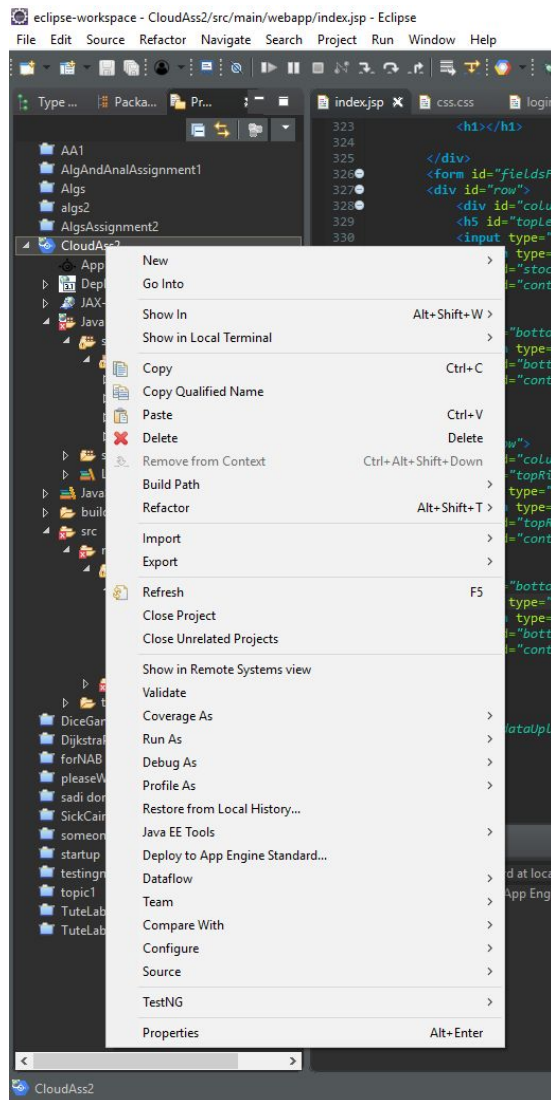
P & S Stock Manager

Home

Stocks

News

Markets

G Sign in

AAPL

[   ] Get

Zoom 1m 3m 6m YTD 1y **All**

Progress ✖

Launching App Engine Standard at localhost (2) (Finished at 5:00 PM)
Conflicts with running server "App Engine Standard at localhost (2)"

Problems Declaration Console ✖ Debug Coverage Gradle Tasks Gradle Executions

<terminated> App Engine Deploy - cloudass2-pands (Oct 20, 2019 5:37:46 PM)
Setting traffic split for service [default]...
.........done.
Deployed service [default] to [https://cloudass2-pands.appspot.com]

You can stream logs from the command line by running:
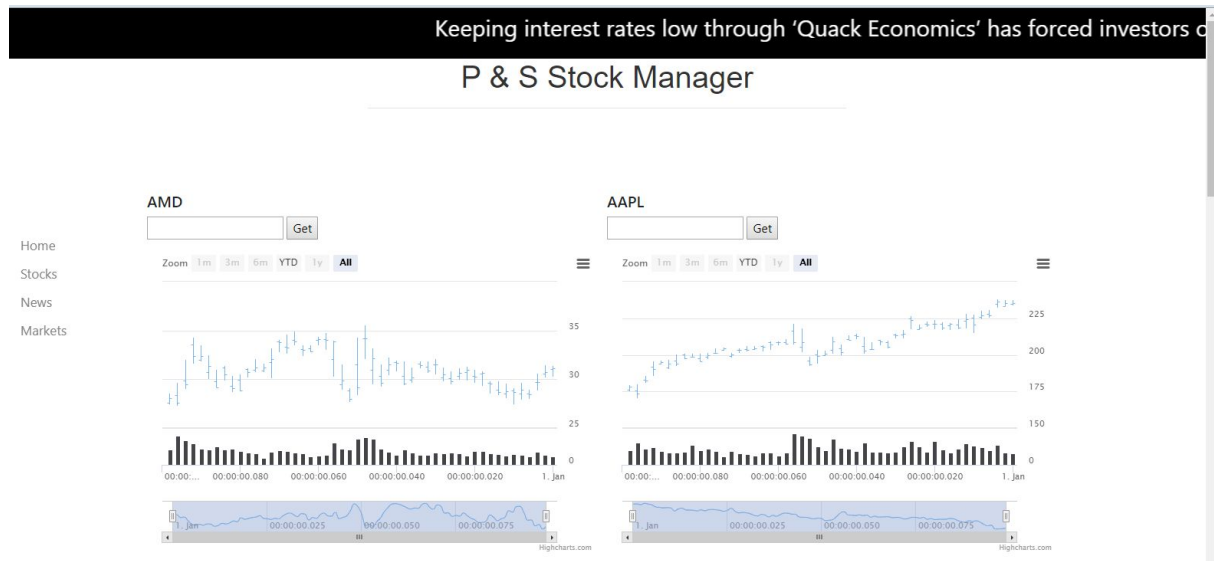 $ gcloud app logs tail -s default

To view your application in the web browser run:
  $ gcloud app browse

User Manual:

The first section of the website.

Here you'll see a scrolling news real with general news about the stock market and the financial sector. This is filled by an api get request to Stocknewsapi.com which returns a list of general market news articles.

IIf you click on 'Stocks' in the sidebar you'll scroll slightly further down to where a group of charts are. These charts display the last 100 days of a particular stocks movement, if you write in a stocks ticker into the text field and click get, the chart will update with that particular stocks data.
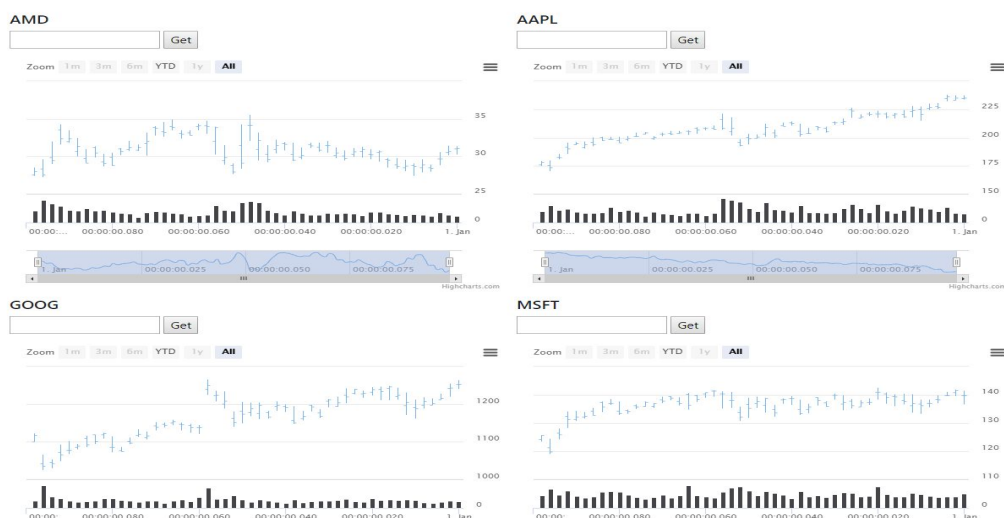
These charts are constructed using the HighStocks api and filled with the data from an api get request from alphavantage.com which returns the OHLC of stocks.

In the 'News' section, the user will see a table filled with news surrounding a specific stock or company. The user is also given the ability to choose which news articles show up when they input another ticker into the search bar. The table displays the ticker searched, the title and link to the news article, and the date and time it was published.

	Enter Ticker	
Ticker	Title	Date
GOOG	Alphabet's Wing launches first commercial drone delivery	Fri, 18 Oct 2019 19:38:00 -0400
GOOG	Alphabet's Wing begins making first commercial drone deliveries in the U.S.	Fri, 18 Oct 2019 14:49:59 -0400
AAPL	Cloud Ventures Look To Upend The Traditional Video Game Business	Fri, 18 Oct 2019 12:39:46 -0400
GOOG	Google Abandons Its Oddball Attempt to Challenge GoPro	Fri, 18 Oct 2019 12:00:00 -0400
GOOG	We Really Like Alphabet	Fri, 18 Oct 2019 11:58:15 -0400
GOOG	Google's iMessage alternative is still struggling, not supported by Verizon in new Pixel 4	Fri, 18 Oct 2019 07:40:45 -0400
GOOG	Bull of the Day: Alphabet (GOOG)	Fri, 18 Oct 2019 07:00:00 -0400
GOOG	Google appoints former Obama health official Karen DeSalvo to new chief health officer role	Thu, 17 Oct 2019 20:09:00 -0400
GOOG	How Google Stadia Will Be More Powerful Than Any Gaming Console	Thu, 17 Oct 2019 16:20:00 -0400
GOOG	Google Stock Stages October Rally Ahead Of Third-Quarter Earnings	Thu, 17 Oct 2019 11:44:55 -0400

Home
Stocks
News
Market

This section again uses stocknewsapi.com to dynamically fill a table with different stock news articles.

And finally at the bottom of the page under 'Markets' there are the general market movements updated in real time showing the exchange rates for certain currencies, as well as the movements of the S&P500 and the NASDAQ and other general markets such as mineral values.

SPX500USD · S&P 500	2987.6	−0.30% −9.0		ES1! · E-Mini S&P	2988.25	−0.33% −9.75
NAS100USD · Nasdaq 100	7864.7	−0.89% −70.4		6E1! · Euro	1.12040	+0.33% +0.00370
DJI Dow 30	26791.0	−0.86% −232.0		GC1! · Gold	1494.1	−0.28% −4.2
NKY · Nikkei 225	22492.68	+0.18% +40.82		CL1! · Crude Oil	53.87	−0.11% −0.06
DEU30 · DAX Index	12633.60	−0.17% −21.35		NG1! · Natural Gas	2.320	+0.09% +0.002
UK100GBP · FTSE 100	7144.1	−0.57% −40.7		ZC1! · Corn	391'0	−0.95% −3'6

Markets

ES1! · E-Mini S&P	2988.25	−0.33% −9.75		EURUSD · Euro / U.S. Dollar	1.11696	+0.41% +0.00454
6E1! · Euro	1.12040	+0.33% +0.00370		GBPUSD · British Pound / U.S. Dollar	1.29739	+0.65% +0.00836
GC1! · Gold	1494.1	−0.28% −4.2		USDJPY · U.S. Dollar / Japanese Yen	108.383	−0.23% −0.249
CL1! · Crude Oil	53.87	−0.11% −0.06		USDCHF · U.S. Dollar / Swiss Franc	0.98407	−0.39% −0.00384
NG1! · Natural Gas	2.320	+0.09% +0.002		AUDUSD · Australian Dollar / U.S. Dollar	0.68568	+0.48% +0.00329
ZC1! · Corn	391'0	−0.95% −3'6		USDCAD · U.S. Dollar / Canadian Dollar	1.31233	−0.10% −0.00130

These are just simple widgets imported from TradingView.

Contribution:

Peter 60%
Scott 40%

References:

[1]"Stock News API - A JSON API for stock market news", *Stocknewsapi.com*, 2019. [Online].
Available: https://stocknewsapi.com/. [Accessed: 20- Oct- 2019].

[2]"Interactive JavaScript charts for your webpage | Highcharts", *Highcharts.com*, 2019. [Online].
Available: https://www.highcharts.com. [Accessed: 20- Oct- 2019].

[3]A. Vantage, "Alpha Vantage - Free APIs for Realtime and Historical Stock, Forex (FX),
Cryptocurrency Data, Technical Analysis, Charting, and More!", *Alphavantage.co*, 2019. [Online].
Available: https://www.alphavantage.co/. [Accessed: 20- Oct- 2019].

[4]"W3Schools Online Web Tutorials", *W3schools.com*, 2019. [Online]. Available:
https://www.w3schools.com/. [Accessed: 20- Oct- 2019].