

# Stock Sensei

## Team Members (name-identikey-github)

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- Noah Turner - notu5412 - @nojay5
- Davis Olson - daol3974 - @davis-olson
- Elizabeth Coleman - elco5414 - @elco5414
- Robert LaChausse - rola9958 - @RobertLBarron
- Jose Garcia -joga2910 - @jgarciaupczak

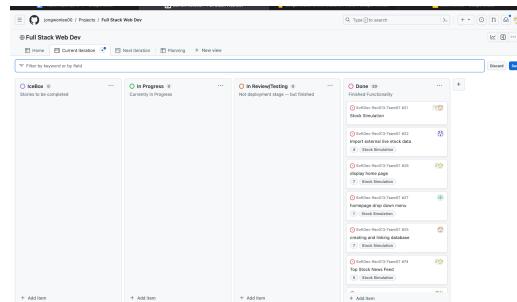
## Project Description:

StockSensei is a comprehensive stock trading simulator designed for individuals eager to delve into the world of finance without the fear of financial loss. If you have ever wanted to explore the stock market but are not confident in your knowledge, or if you are worried about financial risk then this is the platform for you. A user begins by registering so that their information can be stored in our database, and from there they can log in and begin to explore the platform. From the home page a user can use the menu to navigate around after looking at features such as a real-time news bar, account balance, market status, and trending stocks. The learning page offers a variety of informational pages as well as another news bar, and a quiz feature that is interactive and allows users to test their financial knowledge, providing an educational aspect to the platform that makes it less intimidating for those with less financial background, making it more accessible to all audiences. The invest pages offer the stock trading simulation where a user can buy and sell stocks, and switch between stocks by using the search bar on the bottom right of the page. The user can simulate how that stock will do and see the results of investment in that. The account page displays a pie chart of portfolio information as well as user information, and a change password feature. Finally, when a user is done they can log out and exit the platform after gaining knowledge and experience with the stock market through StockSensei.

## Project Tracker - GitHub project board:

<https://github.com/users/jongwonlee00/projects/1>

## Screenshot:



## Video:

<https://drive.google.com/file/d/14s6uumFYD6uFGizqdaAMs5WmXWpLw22B/view?usp=sharing>

VCS:

<https://github.com/jongwonlee00/SoftDev-Rec013-Team07>

### **Contributions :**

[Jongwon Lee]

- **Project Board Management / Weekly Scrum meetings**
  - **Authentication Framework**
  - **Optimization of User Session Handling** - managed user session correctly so that it stores user data on the server side across requests.
  - **Mocha/Chai automated testing on Login and Register**
  - **Search Bar using stock symbol with dropdown menu** - implemented a search bar in menu partial so users can retrieve a dropdown data of price history over time from the navigation bar. Since API change, this feature was no longer present.
  - **Pie chart implementation linked with user database** - using chart.js, implemented a doughnut chart displaying user stock portfolios that reflects total account balance from the account API call.
  - **Hosting Webpage in Azure**

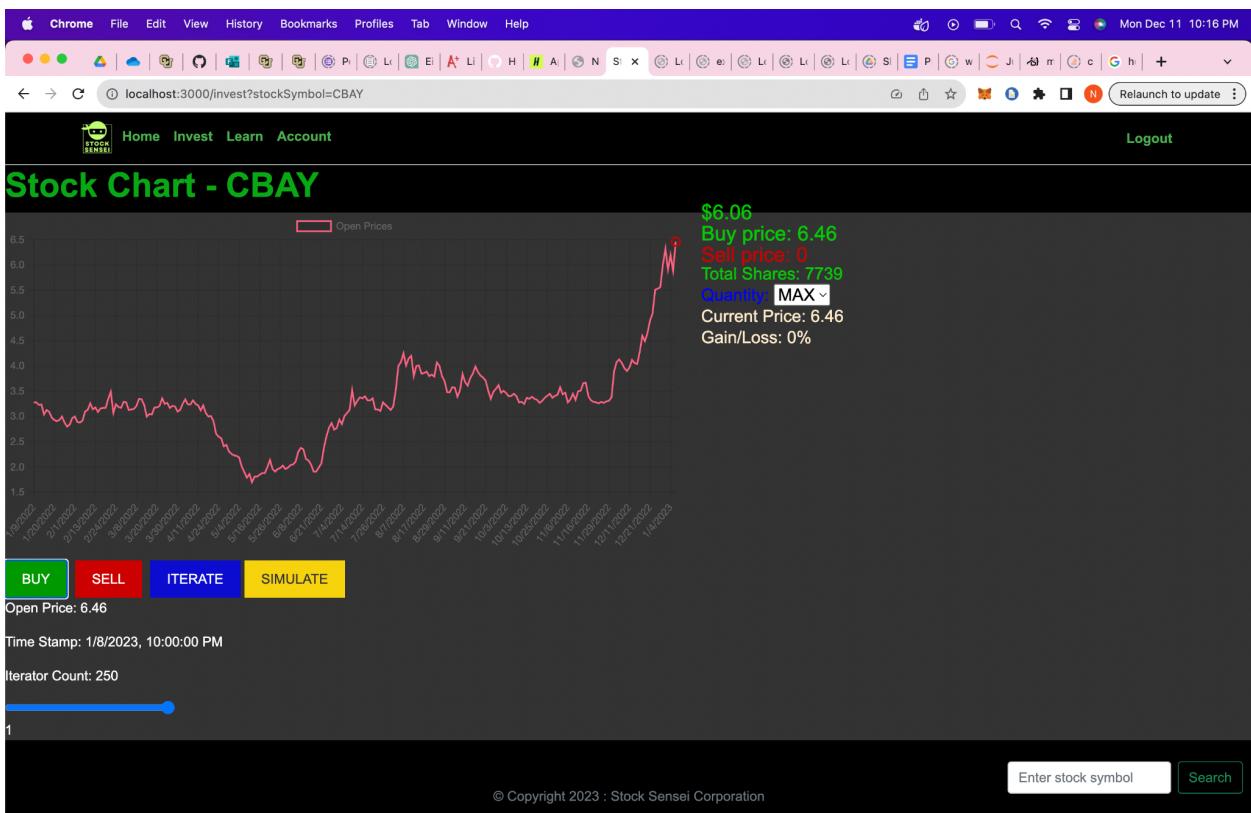
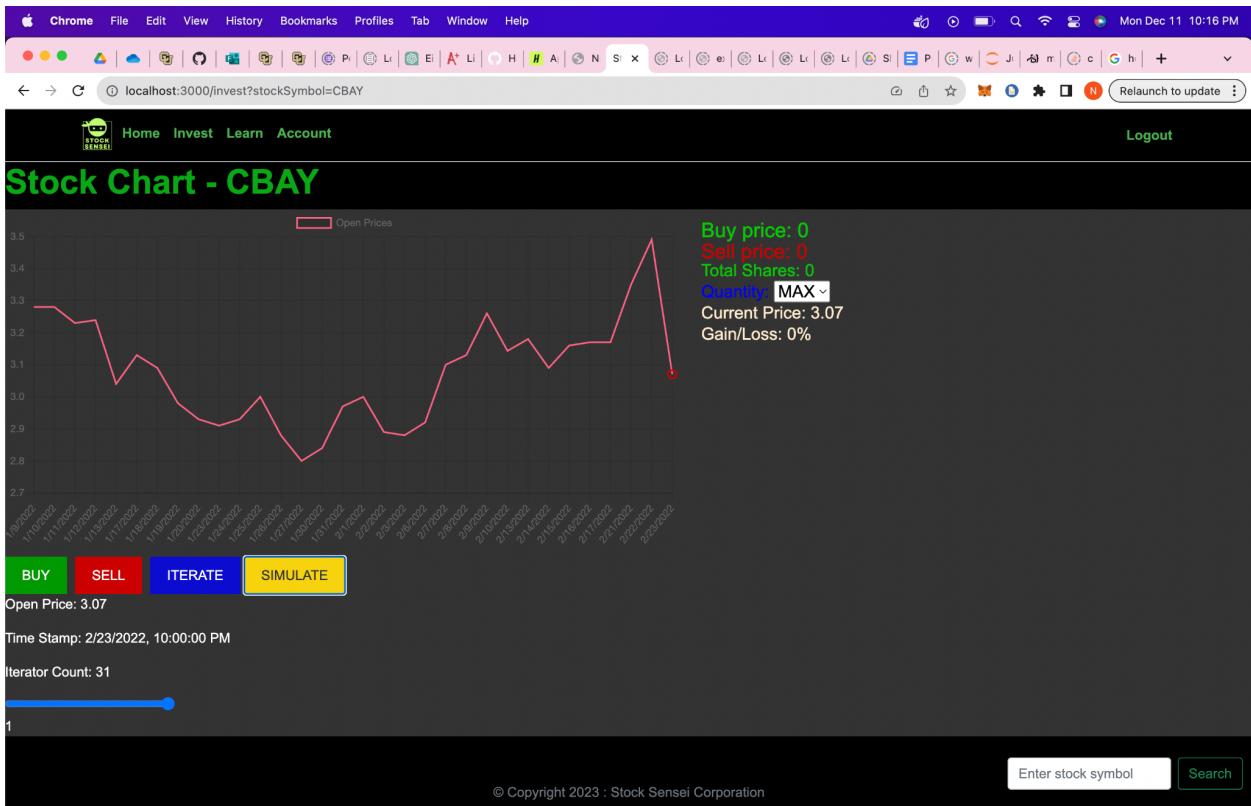
[Davis]

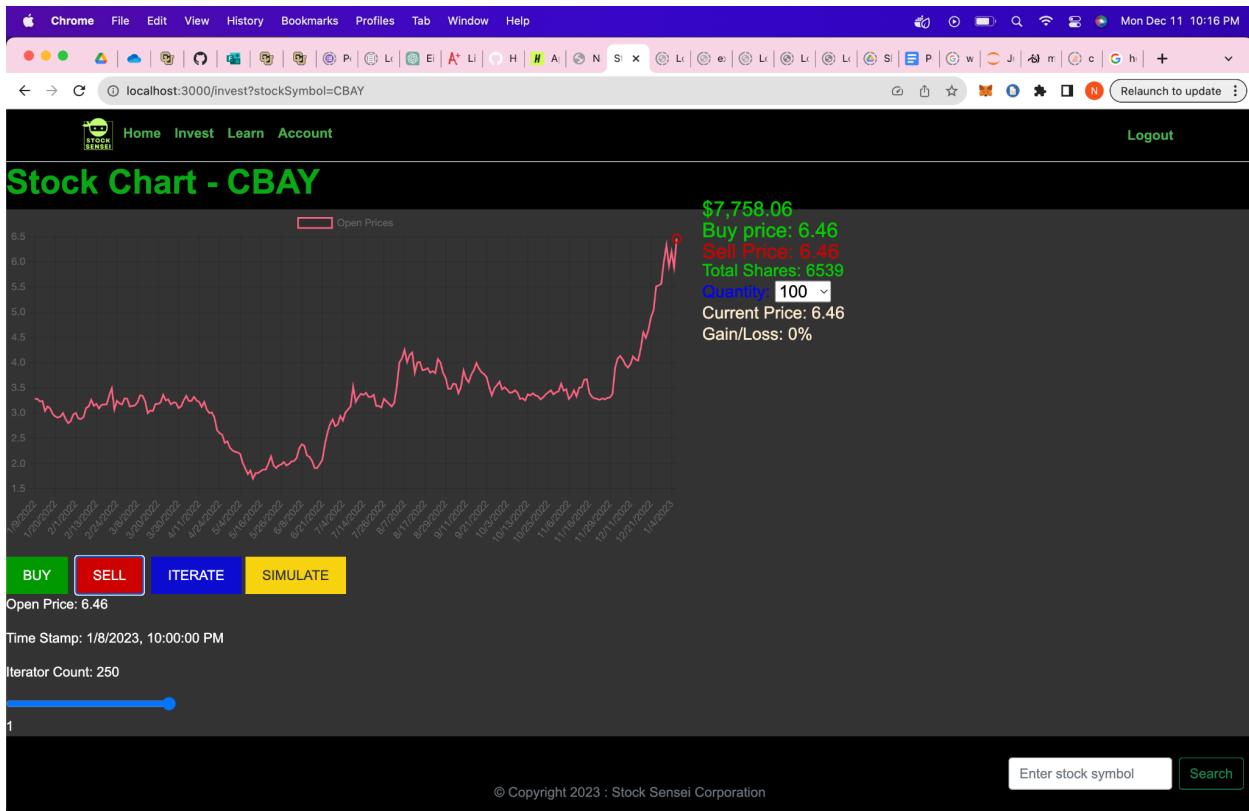
- Account page (excluding pie chart)
  - Designed and created database

- Implemented change password feature
- Wrote API endpoints for: trending stocks, user info/balance, transacting shares, and updating password based on user session and stored data.

[Noah]

- Invest page
- These three images show the page at an index in the middle of the data and at the end of the data. As well as an account having no shares, max shares which shows the program stops buying shares if one cannot afford them and finally an account who has sold a number of shares to reflect the implementation of tracking the buy and sell price as well as account value and share withholdings.

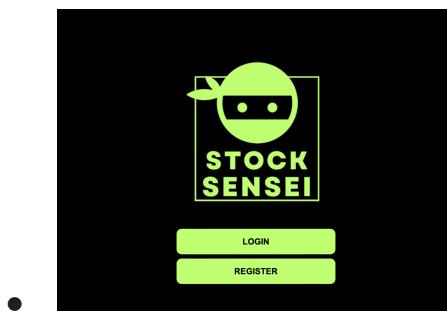




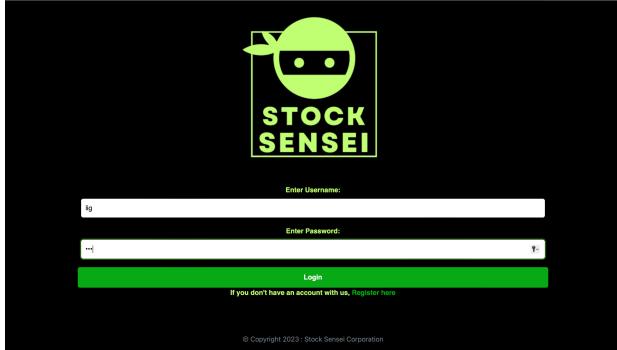
- External finnhub axios call
- External polygon axios call
- Using array of open prices and timestamps to build chart with chart.js
- Implemented buy, sell button
- Implemented iterate and simulate buttons
- Implemented functions to simulate chart and track buy price and percentage change

## [Elizabeth]

- Landing page - created and designed the landing page for the website, screenshot included below



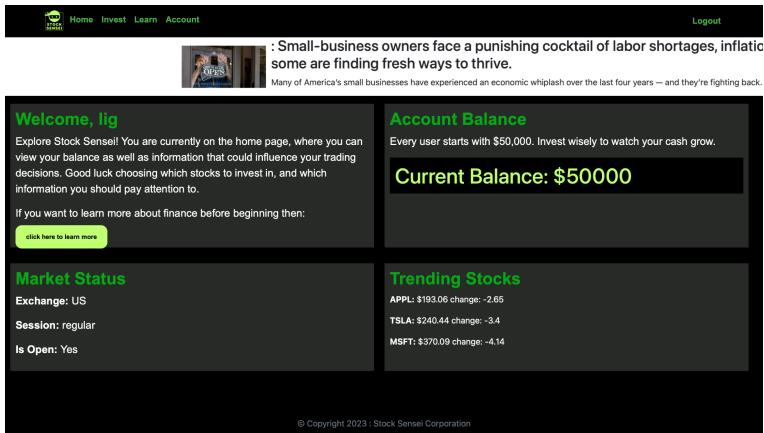
- **Authentication** - after a rough framework was implemented for the authentication, I changed a lot of it, got it to be functional which involved debugging the previous framework as well as the database to make everything cohesive, and then also added the styling for that, screenshots below:



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- **Menu** - created the menu partial, implemented it on all pages, and made sure that the redirection to each page was correct and fully functional



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- **Home page** - Created the sliding news bar across the top of the page, created the API call using the Finnhub market news function. I then formatted this so that the news slides across the top of the page, and restarts the slide once it has run through. I then created a second API call that pulls from the Finnhub market status and displays that as well.



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- Market Status API call to correctly reflect on market opening/session status
- News bar API call to retrieve real time latest stock related news

## [Robert]

- **Learning page** - joint effort between myself and Jose, and I was in charge of the CSS and implementation of the news bar in the page. Debugged partials and reformatted.
- **Quiz** - this functionality took the majority of my time during the last sprint, and used only javascript and ejs.

- **Bug Control** - fixed a multitude of bugs within and outside of my pages and functionalities.
- **Azure** - set up and managed the remote VM needed to host the site.

The image consists of two vertically stacked screenshots of a web-based financial quiz or news application. The top screenshot shows a question card with a teal header. The header contains the text 'Score : 0 / 10' on the left and 'Question : 1 / 10' on the right. Below the header is a text box containing a word problem about Ashley's Accessory Shop. At the bottom of the question card is a 'Next Question' button. The bottom screenshot shows a news article with a red background. The article title is 'We are downgrading Oracle and cutting our price target after another bad quarter'. To the right of the title is a blue button labeled 'Original Article'. Navigation arrows are visible on both sides of the article.

[Jose]

**Fundamentals of Companies** - In this file, I covered the basics of stock trading and fundamental analysis, including topics like different types of stocks, understanding stock ticker symbols, financial statements, key financial ratios, and methods of company valuation.

**Portfolio and Risk Management** - I created content focusing on investment portfolio management and understanding the financial regulatory environment. This included explanations about the roles of regulatory bodies, ethical investing, diversification, asset allocation, and tax considerations in trading.

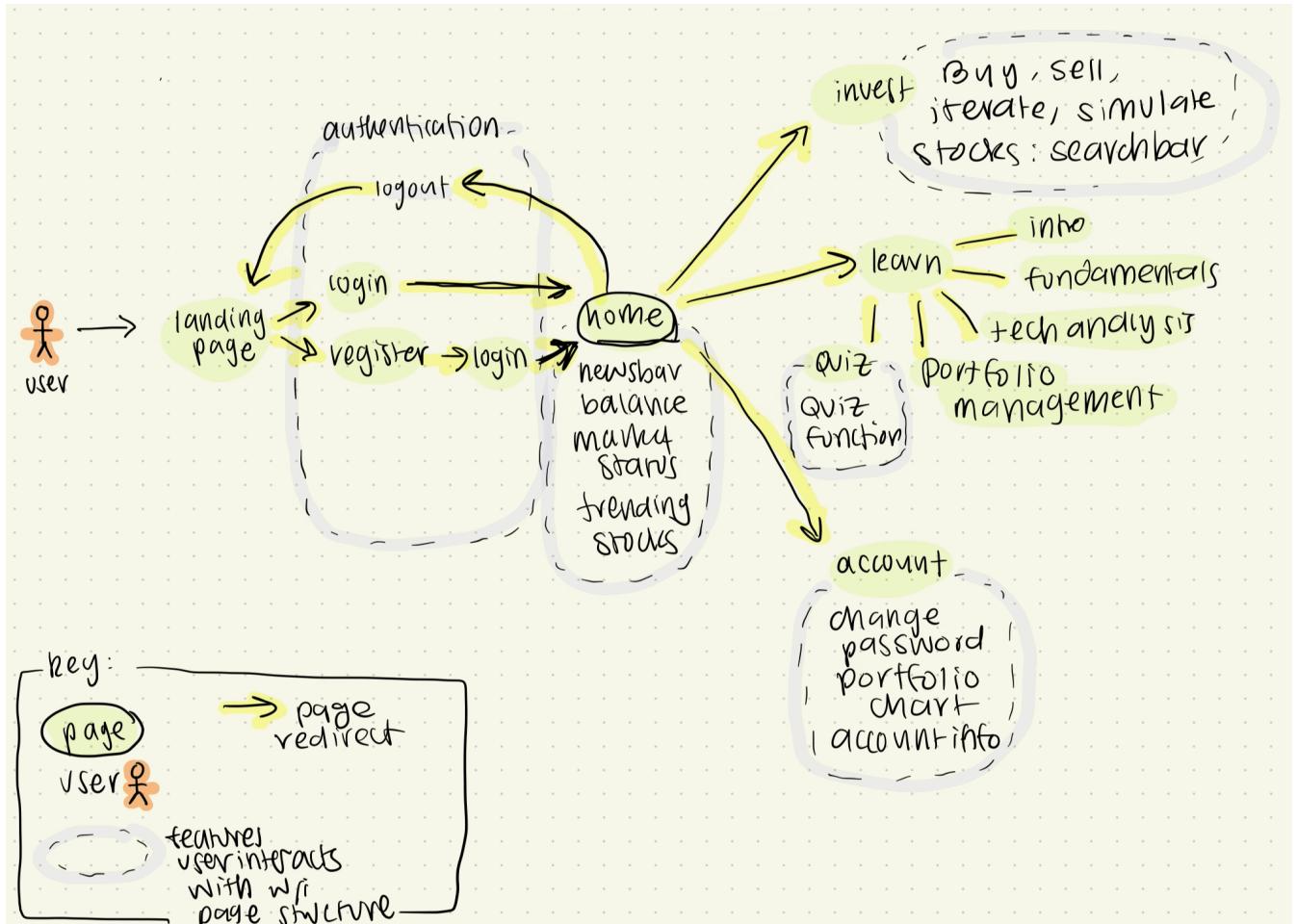
**Introduction to the Stock Market** - I provided an overview of the stock market in this file. It included discussions on the history and role of stock markets, operations of stock exchanges like NYSE and NASDAQ, various market participants, and major stock indices.

**Statistical Analysis and Technical Studies in Trading** - In this final file, I delved into the technical aspects of trading. This encompassed technical analysis, different trading

styles, risk management, the psychology of trading, and advanced concepts like derivatives and leveraged trading.

My goal in creating these HTML files was to add valuable educational content to the Stock Sensei platform, helping users to better understand and navigate various financial topics.

- Use Case Diagram:



- **Test results**

Feature	Info needed	test cases	acceptance criteria	how to test	results
register	username password	Successful registration, Duplicate Username	Anyone is able to register a new user as long as the username isn't a duplicate.	In case of successful registration, redirects to login. If not, it prints a statement and returns to registration.	New successful registration will populate username and hashed password into user database
change password	new password	User has submitted a form to update their password.	The user can log in using their new password	After logging in, navigate to the account page and fill out the change password form.	Logging in will now require the user to use the new password instead of the old one
login	username password	Successful login, Username not found	The user is able to login with username and password registered before	After successful login, user is taken to the home page. Otherwise, error message is printed and redirected to registration	Logging in requires correct username and password, proceeds internal API call to retrieve data from the user database
Buy button	Buy price	User has enough money – User doesn't have enough money –	able to purchase shares  Not able to buy shares	Try to buy shares with not enough money and buy shares with enough money until you do not	If the result of the user money is negative the test failed otherwise the test has passed

				have enough to see whether the value goes negative.	
Sell button	Sell price	User has enough shares to sell – User does not have enough shares –	the user can sell shares and get money from the corresponding sell price  therefore user cannot sell any shares	Try to sell shares with shares in portfolio to see if shares go negative and try to sell with shares	If the share number does not go negative then the test case has passed
Iterate button	Current index	Index is at the end of the data –  Index is not at the end of the data –	the index increments by one  resets to 0th index	Try to iterate not at end of list and see if index increments by one try to iterate at end and see if index resets to 0th index	When iterating the index increments by one and goes back to the start of the dat when at the final data point
Cross-browser Testing	Different browser	Tests web page in different browsers to ensure compatibility. Check for any inconsistencies in rendering or functionality.	The web page renders and functions correctly	Use different browsers to access the web page	Web page should render correctly

- Deployment:

- Register Azure
- Azure Virtual Machine Setup
- Provision a virtual machine on Azure, ensuring it meets the necessary requirements for hosting your application.
- SSH Key Configuration:
- Download the SSH key (csci3308\_key.pem) provided by Azure, which will be used for secure access to the virtual machine.
- Linux Terminal Access (terminal shown below) and securely connect to Azure Virtual Machine
- Clone Git Repository
- Build and run docker container
- Access the deployed application
- Link : <http://recitation-13-team-7.eastus.cloudapp.azure.com:3000/>

^ Essentials

Resource group ( <a href="#">move</a> )	: <a href="#">csci3308_group_04011727</a>	Operating system	: Linux (ubuntu 22.04)
Status	: Running	Size	: Standard B1s (1 vcpu, 1 GiB memory)
Location	: East US	Public IP address	: <a href="#">20.185.252.207</a>
Subscription ( <a href="#">move</a> )	: <a href="#">Azure for Students</a>	Virtual network/subnet	: <a href="#">csci3308-vnet/default</a>
Subscription ID	: eae76b2c-2961-45ec-854e-323500f3feaa	DNS name	: <a href="#">recitation-13-team-7.eastus.cloudapp.azure.com</a>
		Health state	: -
Tags ( <a href="#">edit</a> )	: <a href="#">Add tags</a>		

```
Last login: Mon Dec 11 12:43:02 on ttys000
[jongwonlee@econ2-193-120-dhcp ~ % cd downloads
[jongwonlee@econ2-193-120-dhcp downloads % ssh -i csci3308_key.pem azureuser@recitation-13-team-7.eastus.cloudapp.azure.com
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1018-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

 System information as of Mon Dec 11 21:49:57 UTC 2023

 System load: 0.0          Users logged in:          0
 Usage of /:   6.2% of 61.84GB  IPv4 address for br-fb562d6514cc: 172.18.0.1
 Memory usage: 60%
 Swap usage:  0%          IPv4 address for docker0:    172.17.0.1
 Processes:   121          IPv4 address for eth0:      10.1.1.4

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
 just raised the bar for easy, resilient and secure K8s cluster deployment.

 https://ubuntu.com/engage/secure-kubernetes-at-the-edge

 Expanded Security Maintenance for Applications is not enabled.

 5 updates can be applied immediately.
 To see these additional updates run: apt list --upgradable

 Enable ESM Apps to receive additional future security updates.
 See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Mon Dec 11 19:43:12 2023 from 128.138.65.65
[azureuser@csci3308:~$ cd SoftDev-Rec013-Team07
[azureuser@csci3308:~/SoftDev-Rec013-Team07$ cd "Project Code"
[azureuser@csci3308:~/SoftDev-Rec013-Team07/Project Code$ cd src
[azureuser@csci3308:~/SoftDev-Rec013-Team07/Project Code/src$ sudo docker-compose up -d
src_db_1 is up-to-date
src_web_1 is up-to-date
```