BIT$ Finance

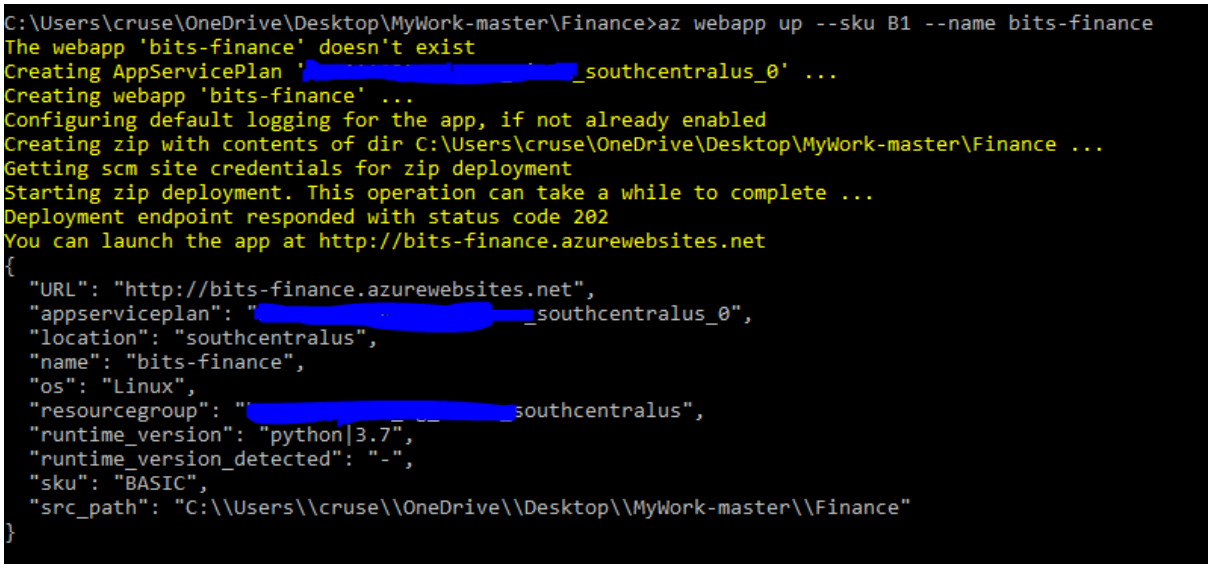
This is virtual trading application, a web app via which you can manage portfolios of stocks. Not only will this tool allow you to check real stock's actual prices and portfolio's values. It will also let you buy and sell stocks by querying IEX (https://iextrading.com/developer/) for stock's prices.

Once User registers he/she will get $10000 (virtual) credited into his/her portfolio. It can be used to learn trading if you are new to stock market, as experimenting with real money in stock market without gaining proper knowledge can result in loss.

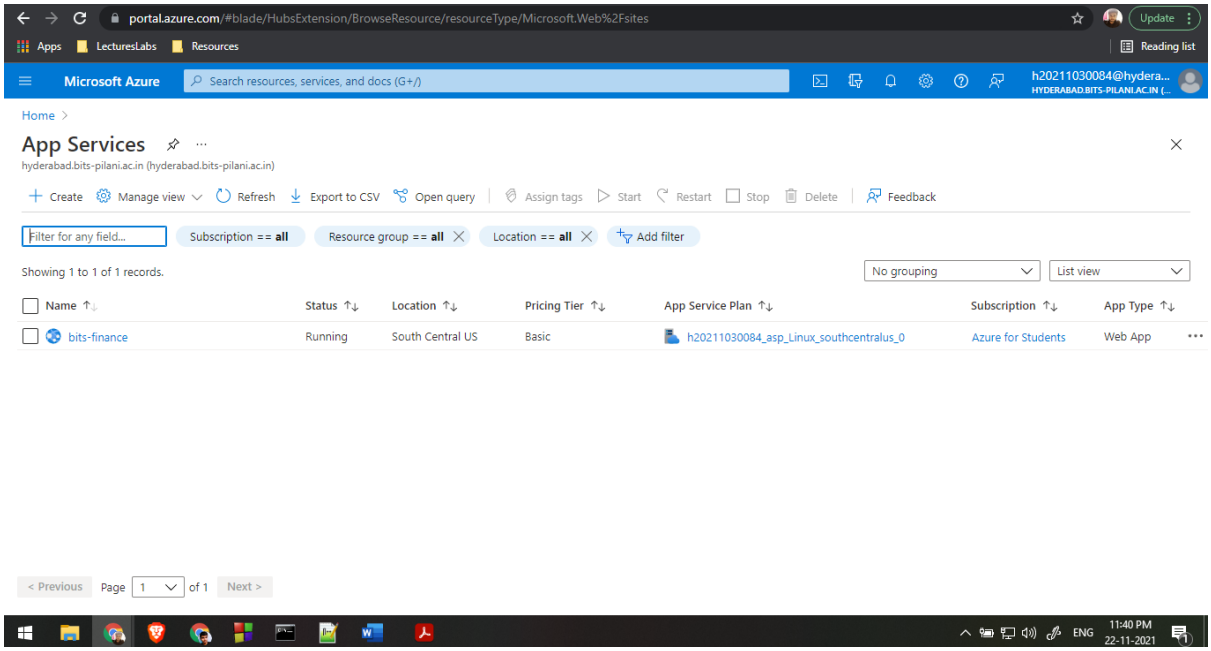
The application is deployed and tested on **Azure Cloud** and can be accessed using below link -

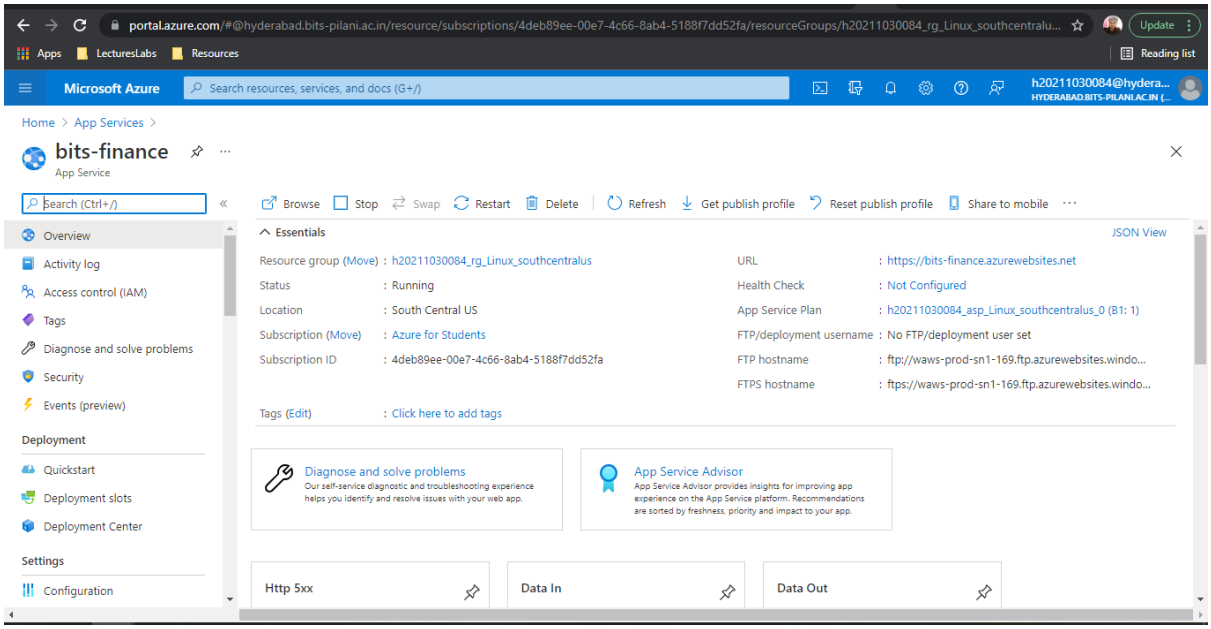
https://bits-finance.azurewebsites.net/

Azure CLI for deployment

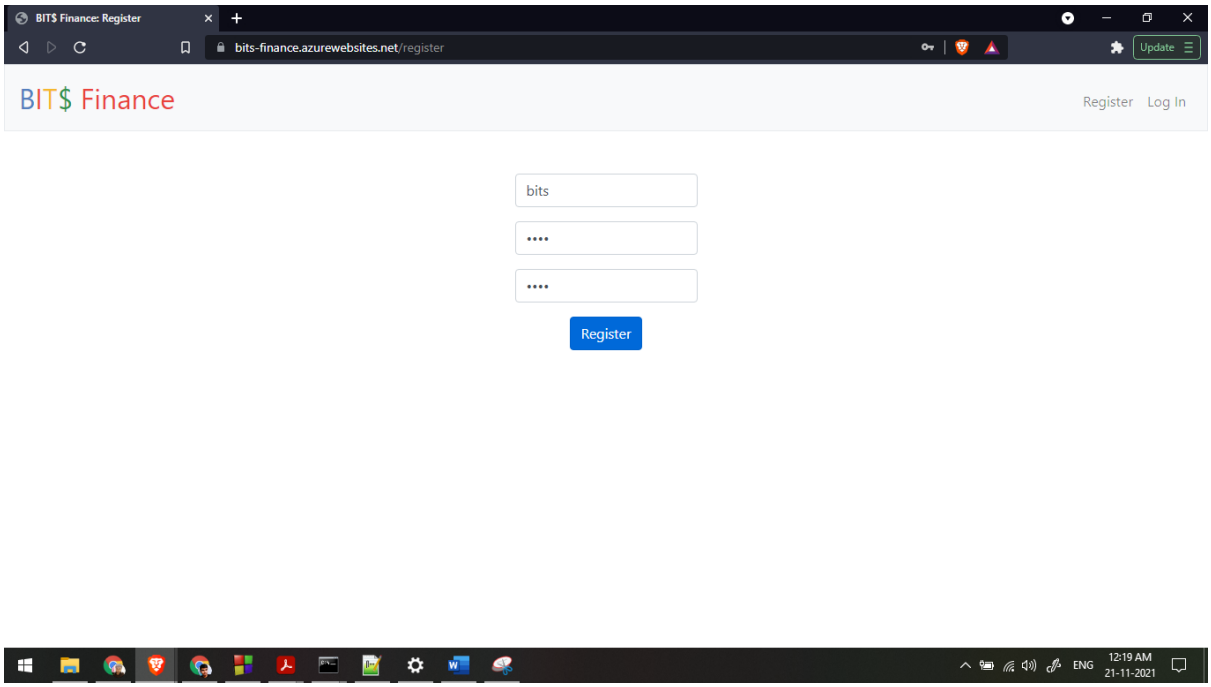


We can see status of app as **running** on Azure Portal after successful deployment.

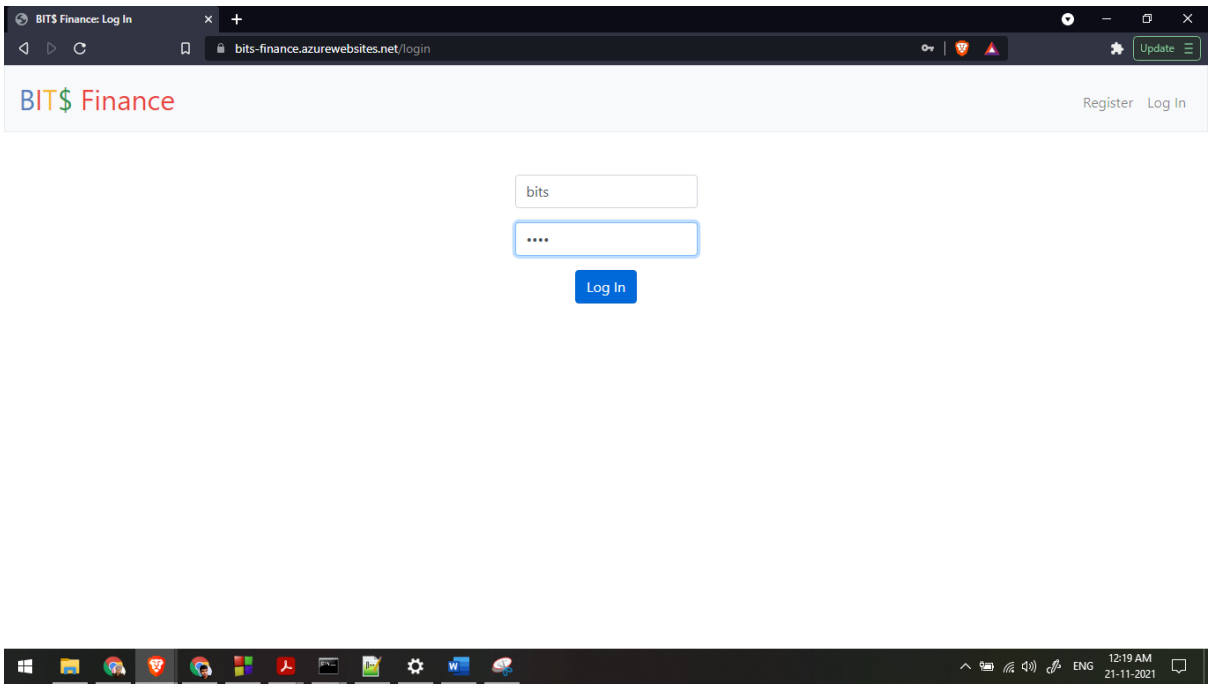




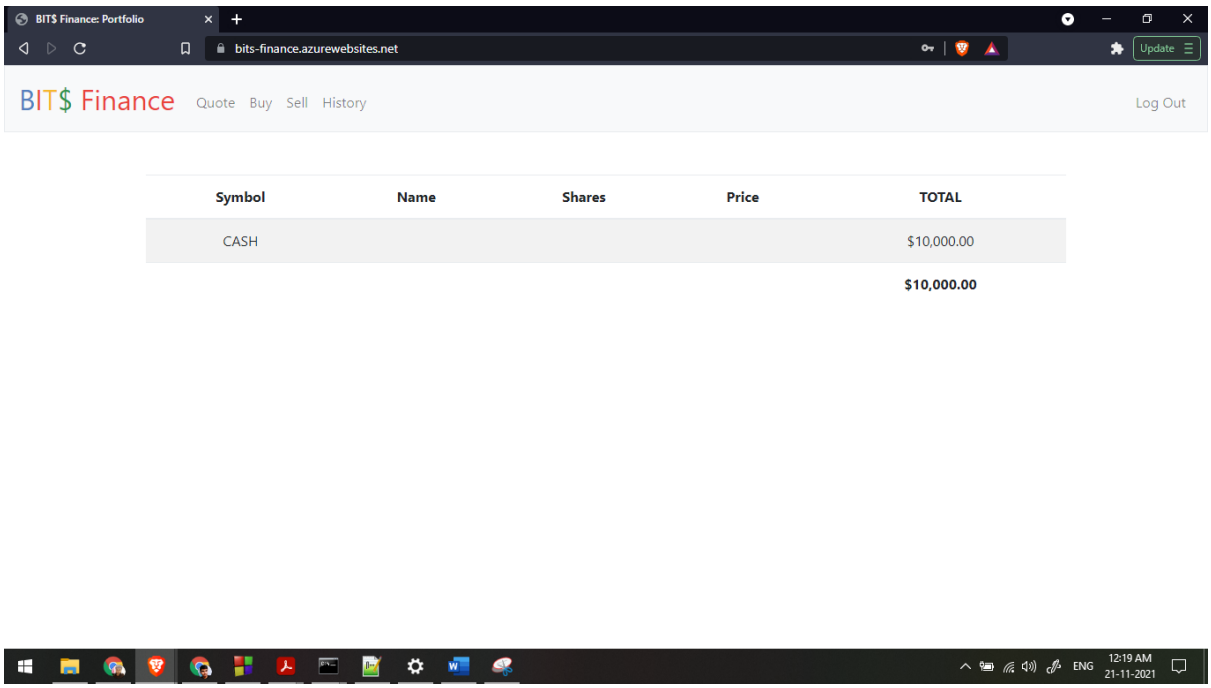
To Register



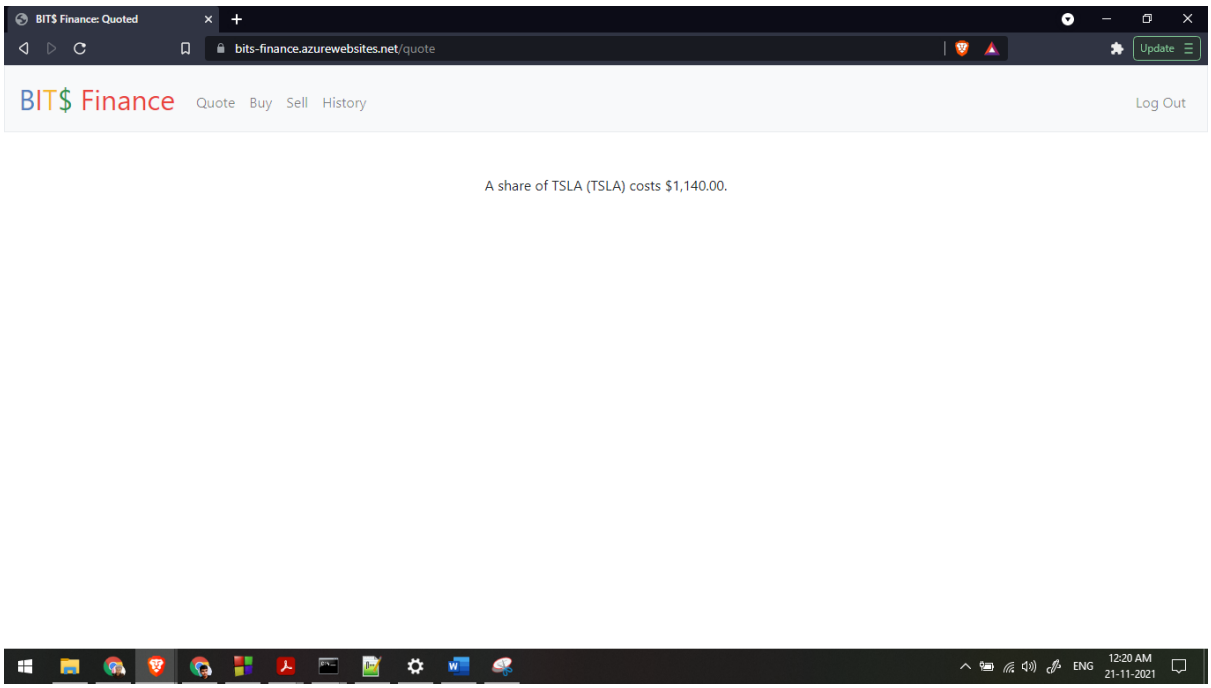
To Login



Once Registered (Portfolio Page)

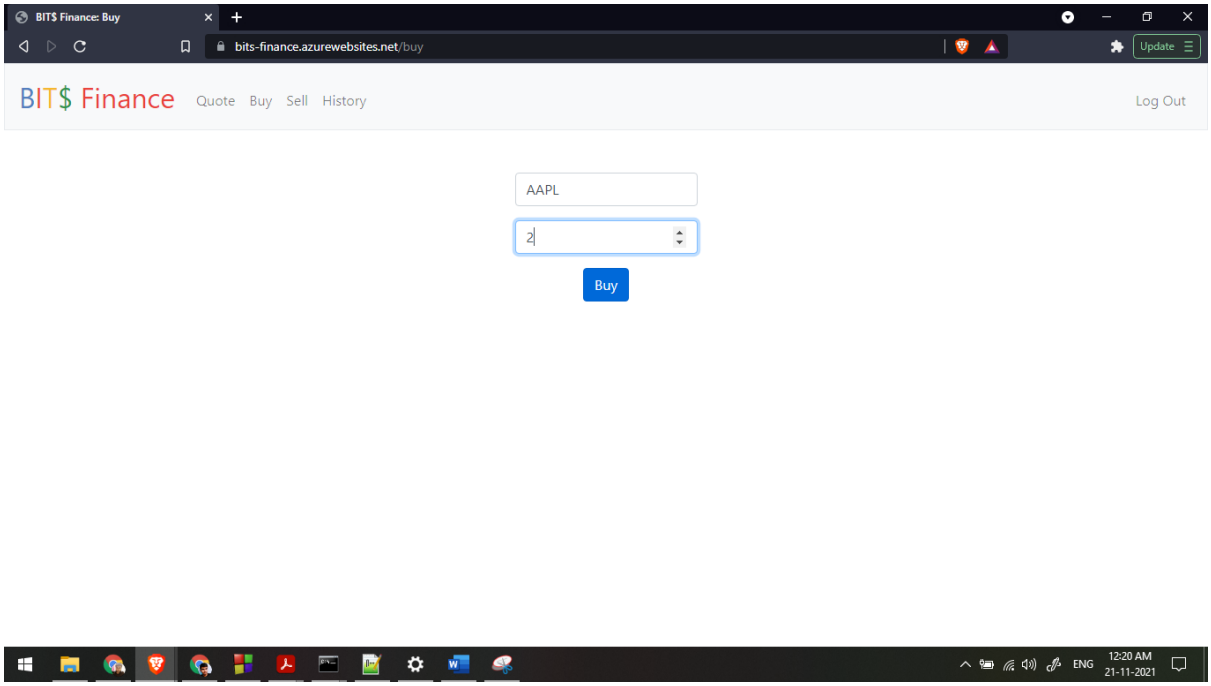


QUOTE (To Check the price (real) of share)



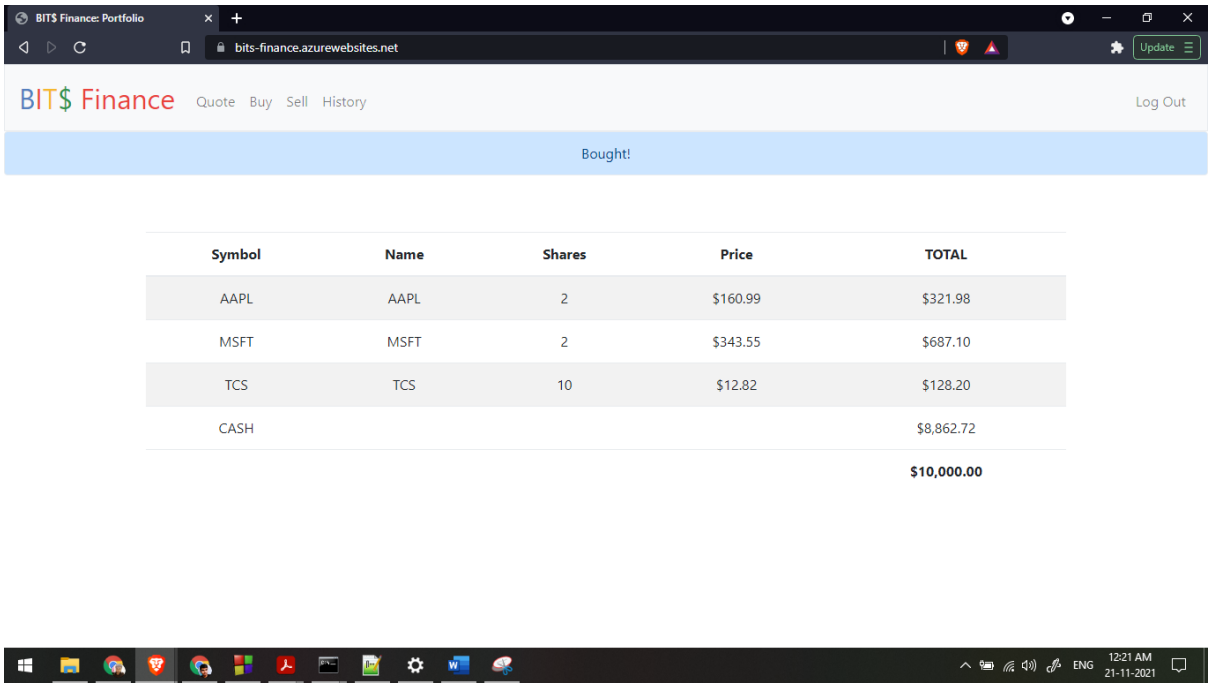
Try to Quote MSFT, TSLA, AAPL, NFLX, TCS any other stock you know.

BUY

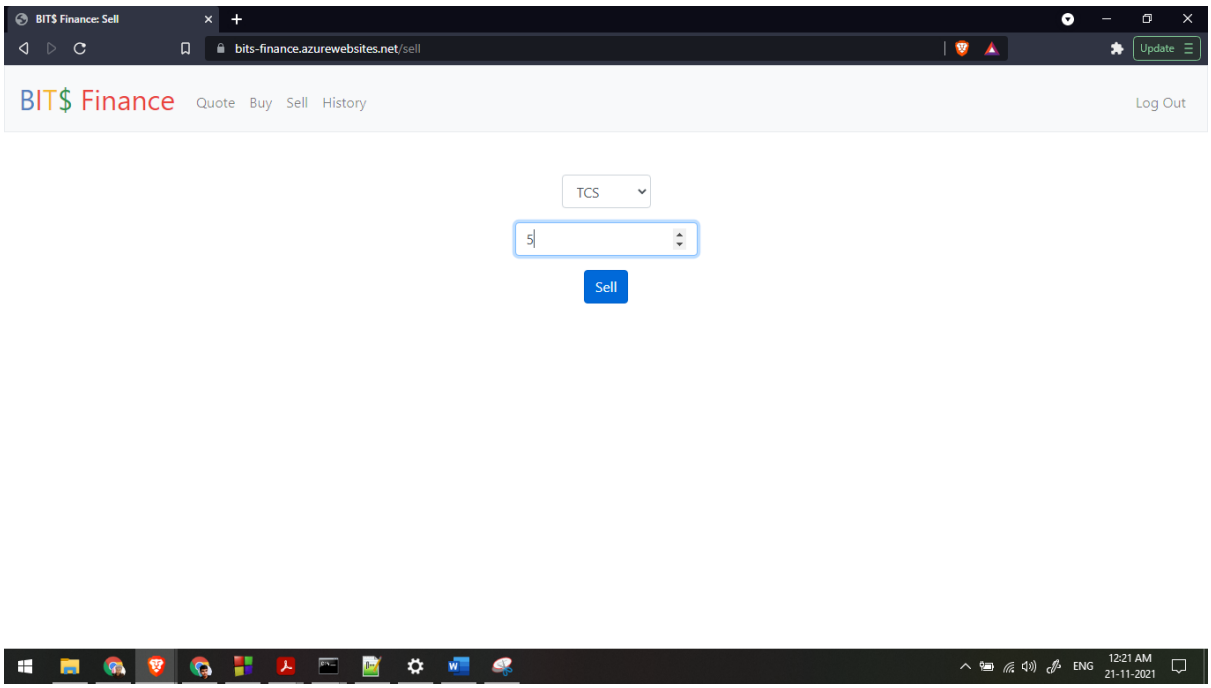


Try buying (MSFT, TSLA, AAPL, NFLX, TCS any other stock you know) and holding shares for 1-2 days before selling check if you are in loss or profit on portfolio page.

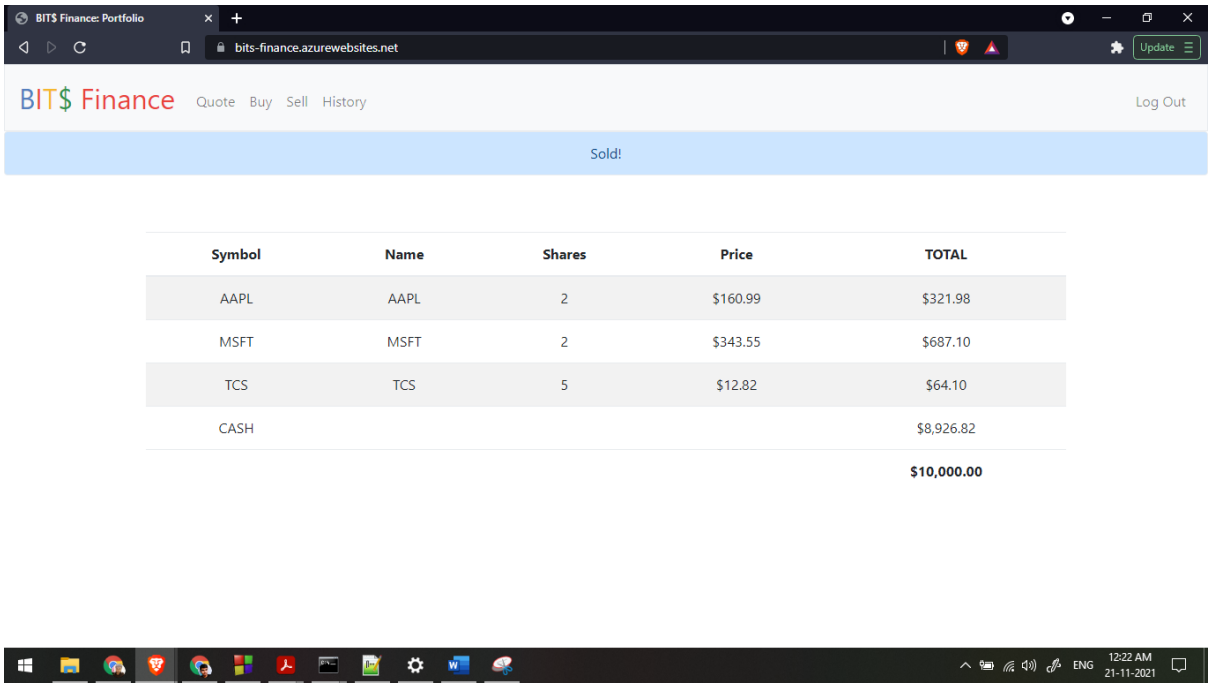
Portfolio (After Buying)



SELL



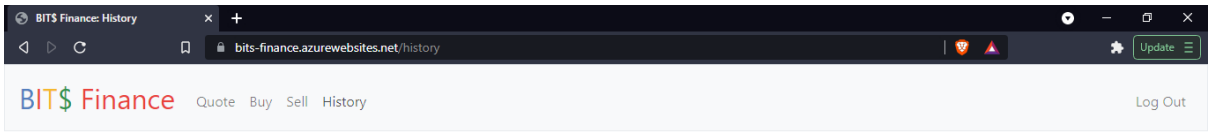
Portfolio (After Selling)



Symbol	Name	Shares	Price	TOTAL
AAPL	AAPL	2	$160.99	$321.98
MSFT	MSFT	2	$343.55	$687.10
TCS	TCS	5	$12.82	$64.10
CASH				$8,926.82
				$10,000.00

HISTORY

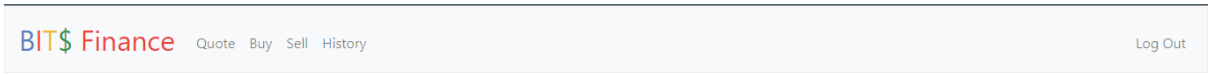
Shows the transactions done by user.



Symbol	Shares	Price	Transacted
AAPL	2	$160.99	2021-11-20 18:50:39
MSFT	2	$343.55	2021-11-20 18:51:07
TCS	10	$12.82	2021-11-20 18:51:19
TCS	-5	$12.82	2021-11-20 18:51:58

After 2 Days

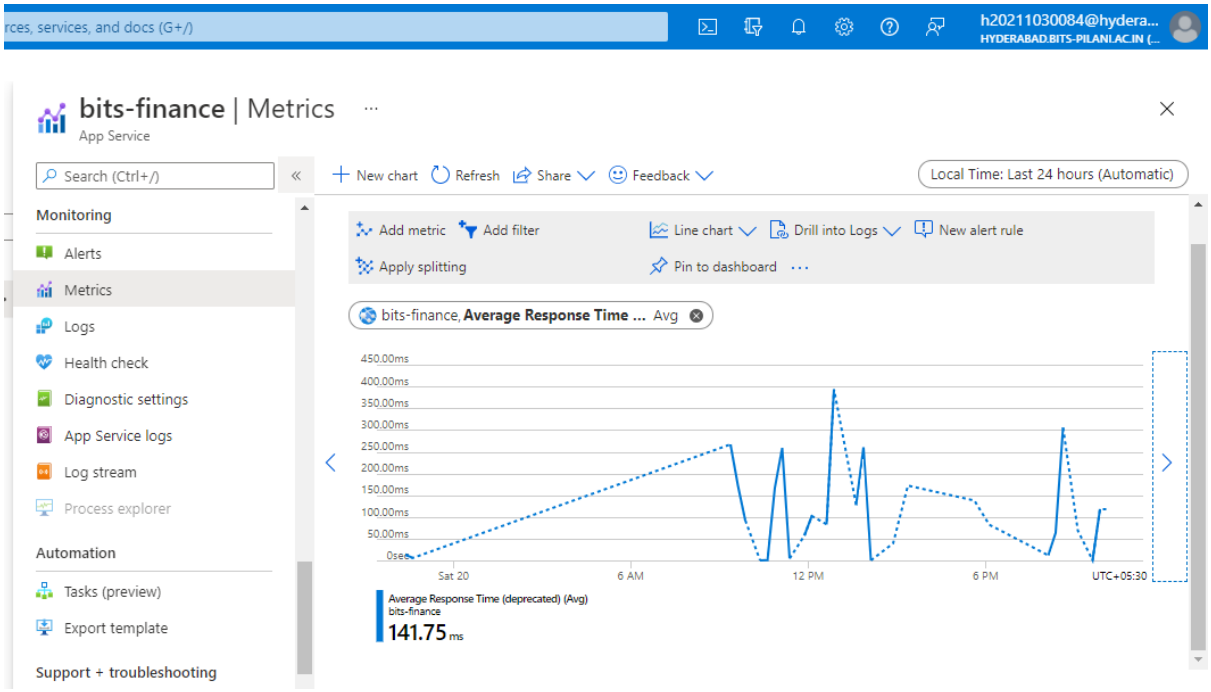
We can see that prices of shares that are bought before 2 days have changed and we can see that overall portfolio value decreased by around $5.2.



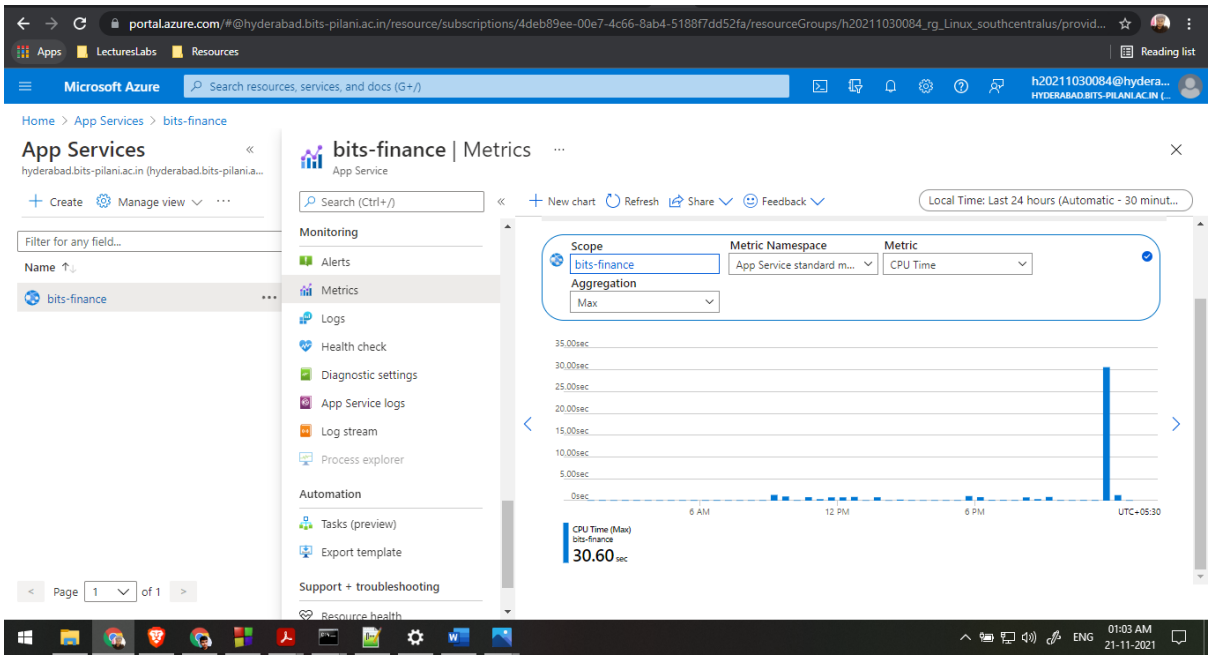
Symbol	Name	Shares	Price	TOTAL
AAPL	AAPL	2	$161.50	$323.00
MSFT	MSFT	2	$340.12	$680.24
TCS	TCS	5	$12.95	$64.75
CASH				$8,926.82
				$9,994.81

Performance Measures

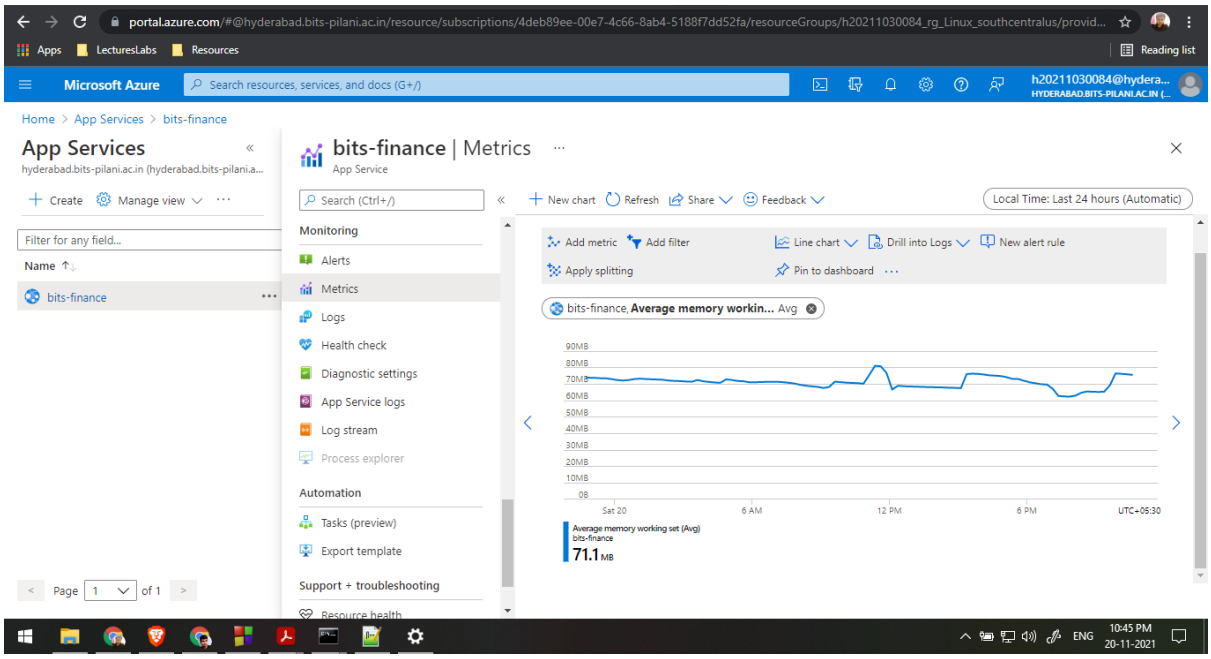
Average Response Time



CPU Time (max)

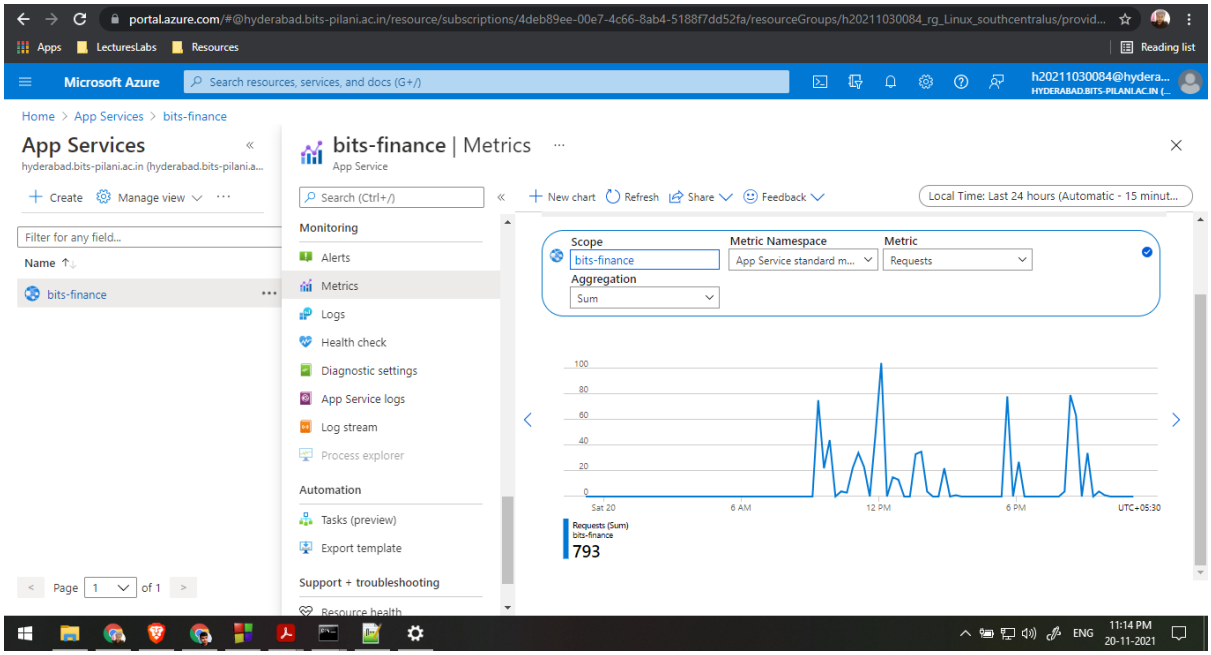


Average Memory Working Set

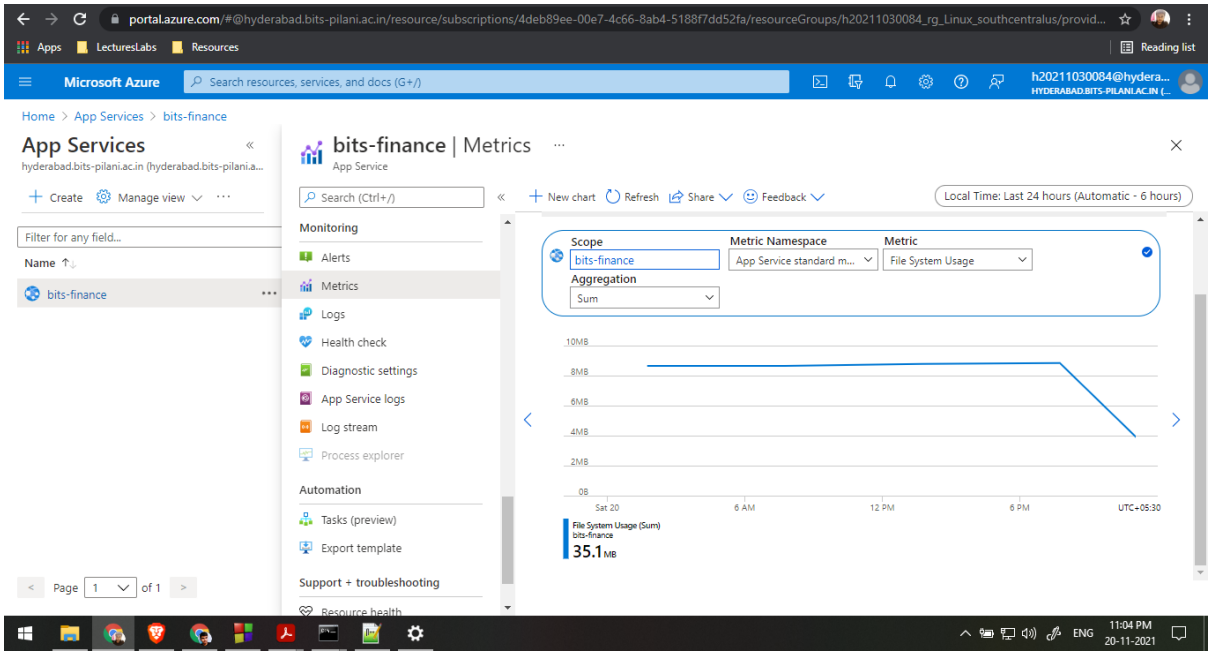


USAGE STATISTICS

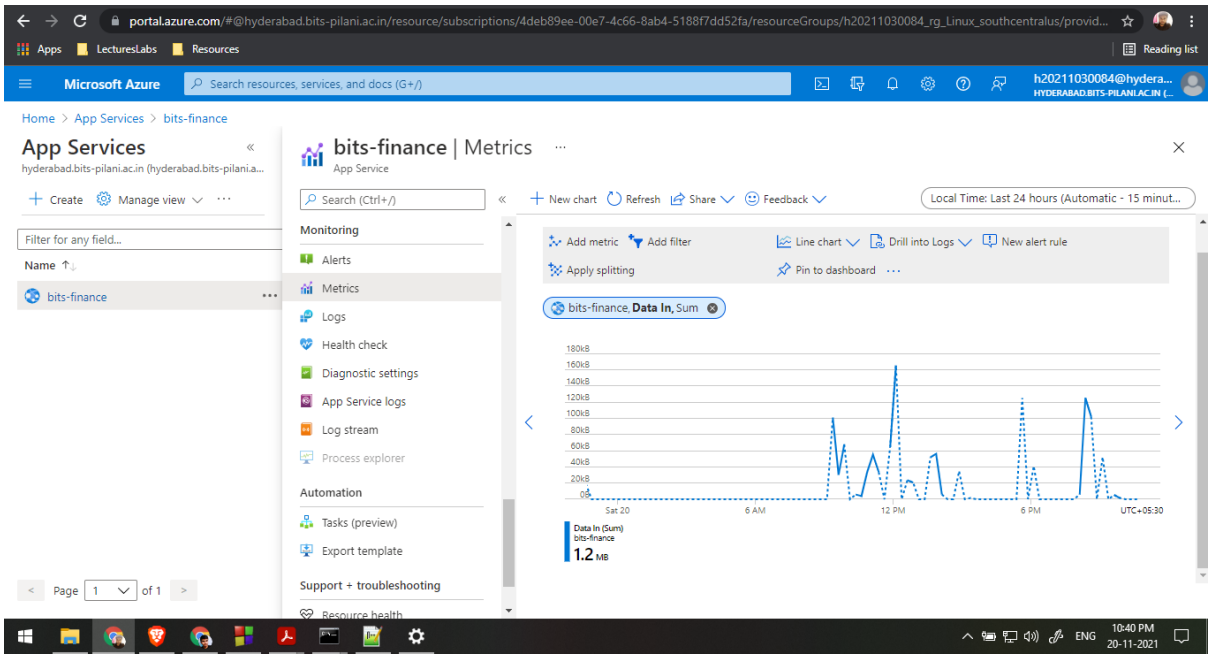
Total Requests (Single Day)



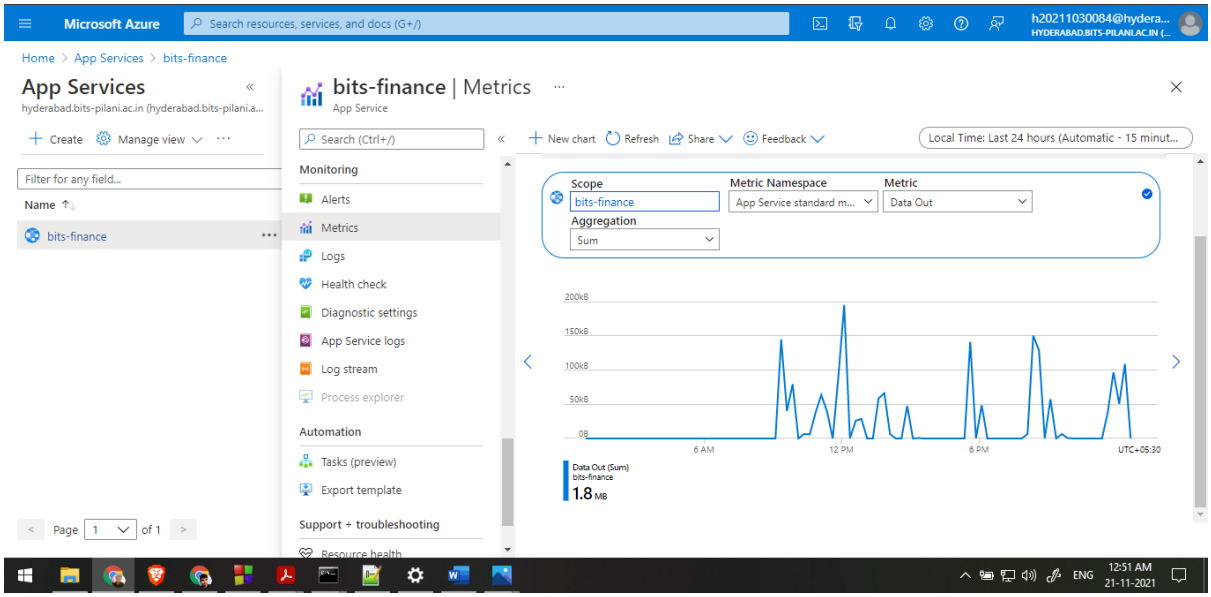
File System Usage



Data IN



Data Out



CHALLENGES AND RESOLUTIONS

1. Defining Requirements for BIT$ Finance

As this application contains different functionalities it was important to define all the requirements beforehand and plan the development accordingly. Defining all the functionalities to be developed beforehand and following the plan to develop all these functionalities was challenging for me. As the application involves designing functionalities of registration, login, portfolio of users, quote page for price checking, functionalities of buying and selling stocks, checking transaction history it was difficult to clearly define all the functionalities and plan its development well.
To overcome this challenge, I properly followed all the **Software Development Lifecycle** paradigms defined for the development of any software and application.

2. Choosing Technology Stack

This is another challenge that I faced before starting the implementation, it's about choosing the programming language and framework suitable for the application being developed. After exploring about different frameworks and based on my familiarity with the framework I have finally decided to develop application using **Python and Flask** (MVC framework).

3. Choosing the Database

According to requirements defined initially application requires to store data of users in the database. So, choosing the right database is another challenge I had to overcome. After exploring different databases and their suitability I have chosen the **SQLite Relational Database** for this application.

4. Testing of BIT$ Finance

After developing the application to ensure that the application is working as intended or as per the requirements is challenging task. I needed to test all the functionalities of BIT$ Finance to make sure that they are working as per the requirements defined initially. To complete the functional testing, I used **Selenium IDE** which provides different tools (like playback) and libraries for supporting web browser automation. It helped me for recording the test cases and playback of those test cases for testing the application.

5. Deploying On Cloud

Choosing between available cloud platforms is one of the challenges I have overcome during the entire project. As all the cloud providers provide everything to deploy the application just the method to follow is different. As I was more familiar with Microsoft Azure, I have chosen azure for the deploying the application and followed the documentation provided by azure for the same.
https://docs.microsoft.com/en-us/azure/app-service/quickstart-python?tabs=bash&pivots=python-framework-flask