

Assignment 3

Date: 03 Oct 2022

Due date: Thursday, 6th October 2022

Instructions:

- All questions must be in single notebook.
 - You must follow the file naming conventions, submission file should be named as RollNo.ipynb/.py (i.e. i20-xxxx.ipynb where xxxx is your Roll Number)
 - Make use of headings for each question in notebook.
 - Any question with Error is not acceptable.
 - Late submissions are not allowed and will be marked zero.
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You have to read the stock data for the list of companies using the api (quandl).

Detailed documentation: <https://github.com/quandl/quandl-python>

List of companies=[HBL,ABL, UBL, BOP]

API key: k5hpQXTQmkr3f2cBYTDb

Your data must be from 1-1-2011 to 30-7-2021

Dataset sample:

Date	Open	High	Low	Turnover	Close
1/3/2011	121.94	121	116.8	510969	121.94
1/4/2011	119.49	122.3	119.5	627959	119.49
1/5/2011	121.87	126.45	121.4	1506848	121.87
1/6/2011	124.93	125.89	123.75	773913	124.93
1/7/2011	124.98	126.06	124.69	376749	124.98
1/10/2011	124.99	126.8	123	166214	124.99
1/11/2011	123.56	124.5	122.75	329849	123.56
1/12/2011	123.01	128.9	123.89	788687	123.01
1/13/2011	127.87	128.97	126.25	156709	127.87
1/14/2011	127.6	128.48	126.45	278339	127.6
1/17/2011	126.7	128	126.34	195832	126.7

Answer the following questions from the dataset. You are only allowed to use NumPy, Pandas and Matplotlib. Do these for all listed companies using subplots.

- Visualize the total turnover of stock being traded each day for all companies using subplots.
- Visualize the daily price change in stock? Formula (open price – previous close price)
- Plot the monthly and yearly mean of close price.
- Plot the Daily Returns. Formula (previous close/close)-1
- What dates each bank stock had the best and worst single day returns. Just Display those dates.
- Which bank stock would you classify as the riskiest over the entire time period? (**standard deviation - indicates the risk**). Make the bar chart for it.
- Make a line plot showing the Close price for each bank for the entire time in a single graph
- Make another 3 interesting visualizations on this stock data and write down your findings in markdown.