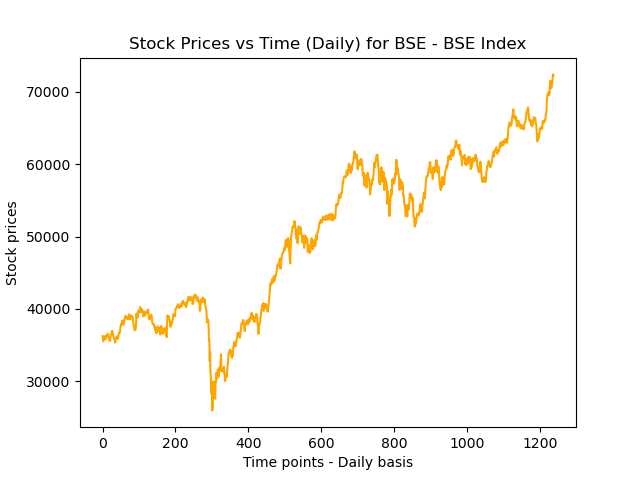
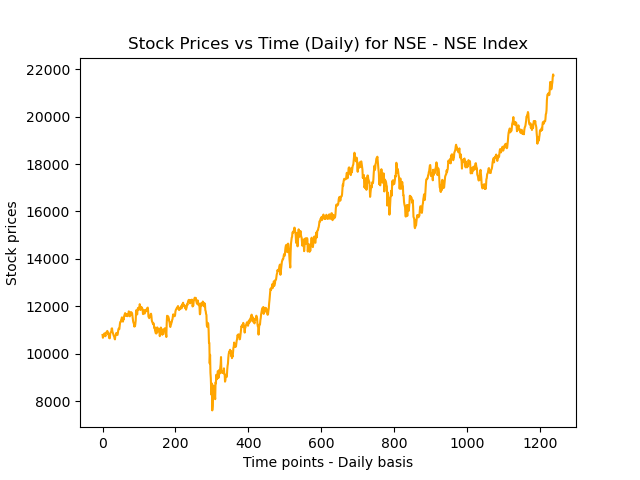
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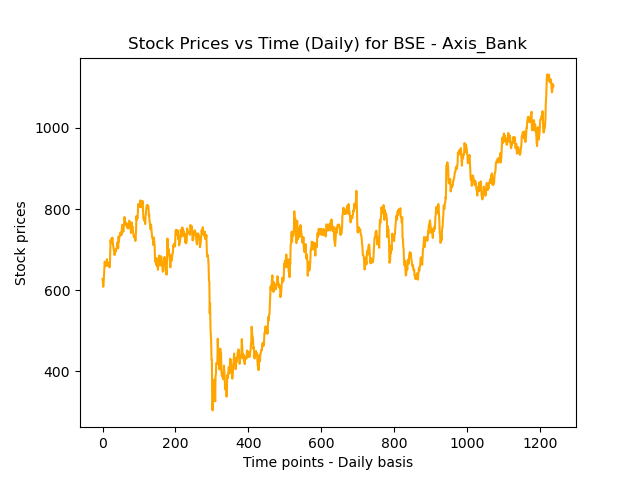
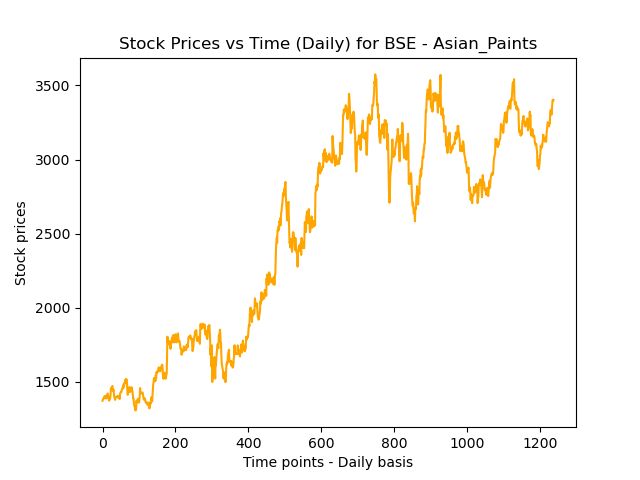
Lab – 06

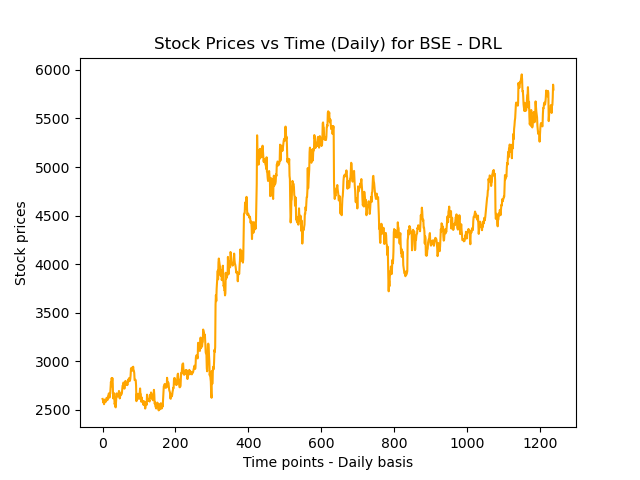
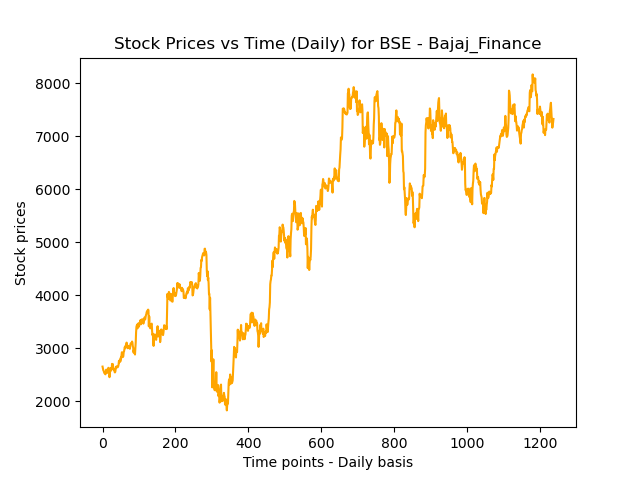
Dipanshu Goyal 210123083

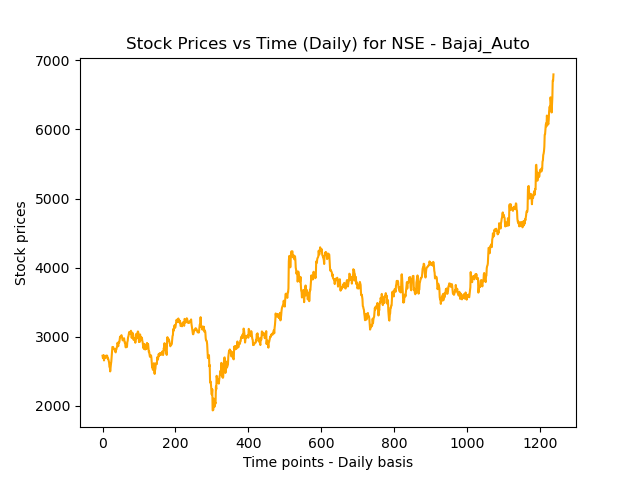
# Instead of putting each and every plot in the report, I’m putting plots for the BSE Index, NSE Index, 4 stocks from BSE and 4 stocks from NSE. Other plots follow similar behaviour and can be found in the Plots folder for every question for each category (daily, weekly, monthly).

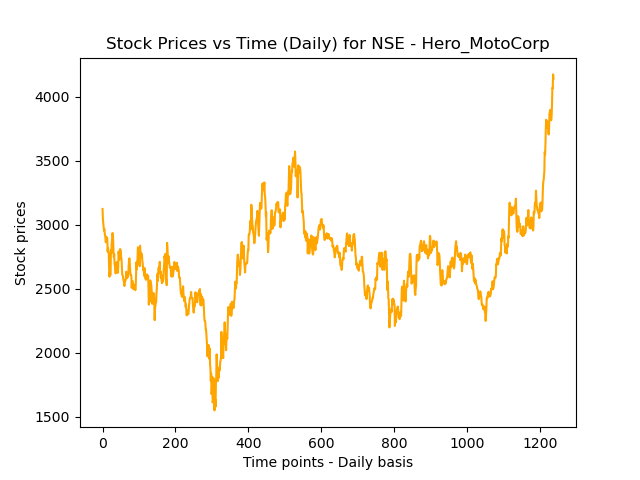
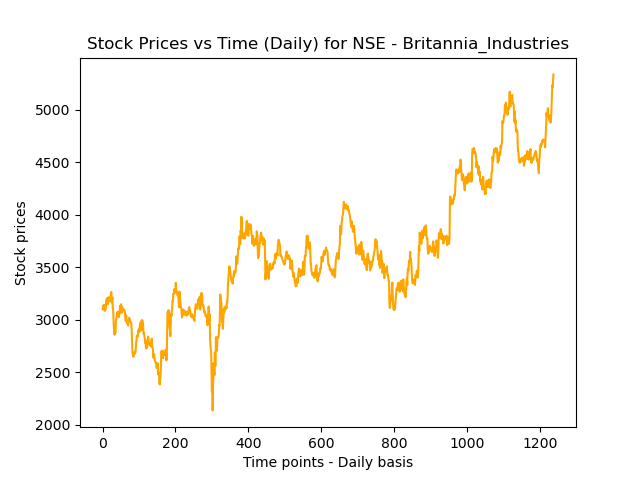
# Ques – 1

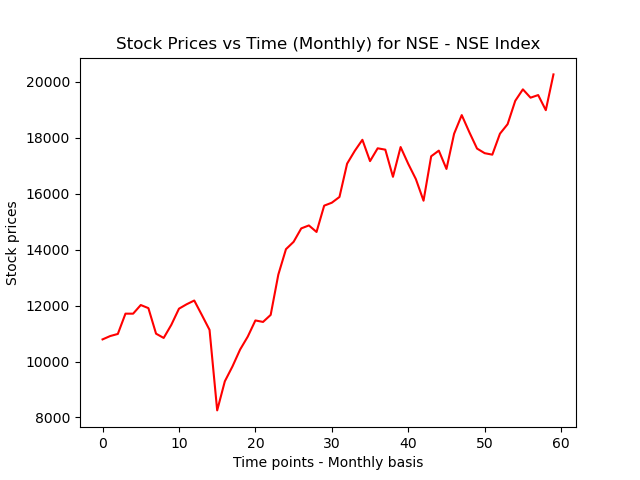
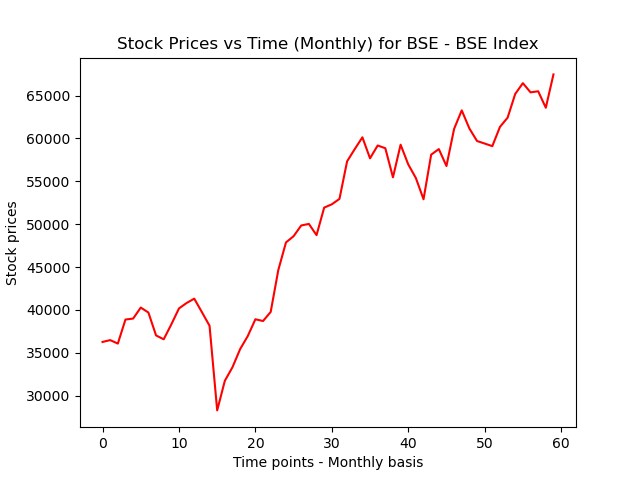


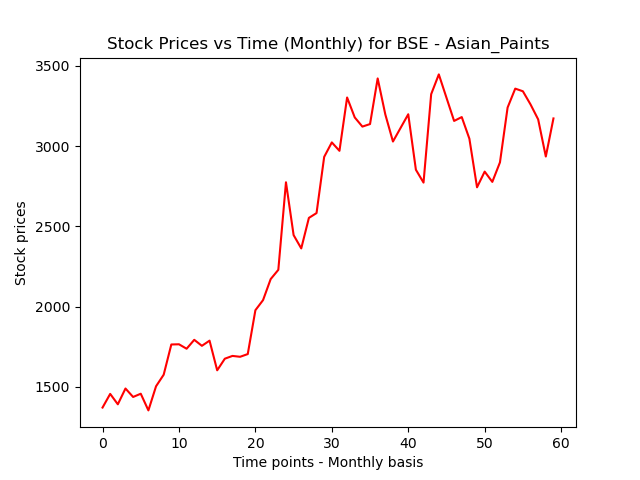


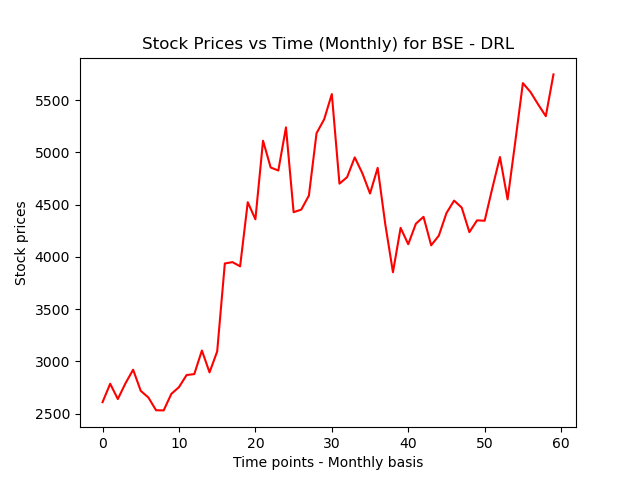


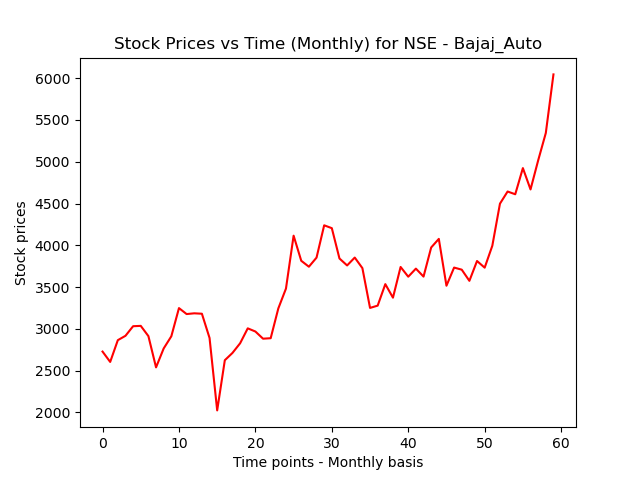
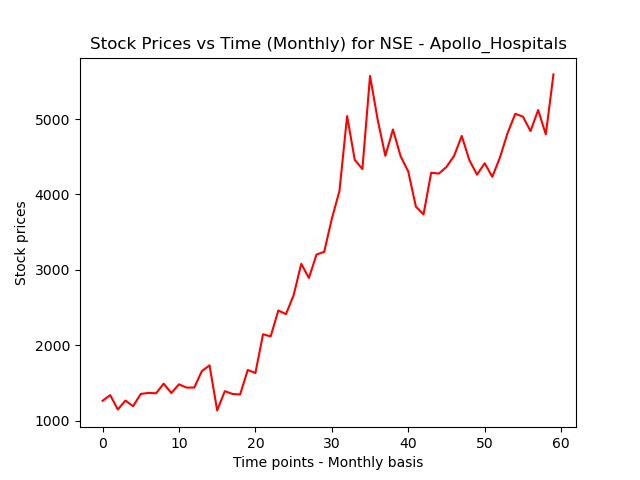


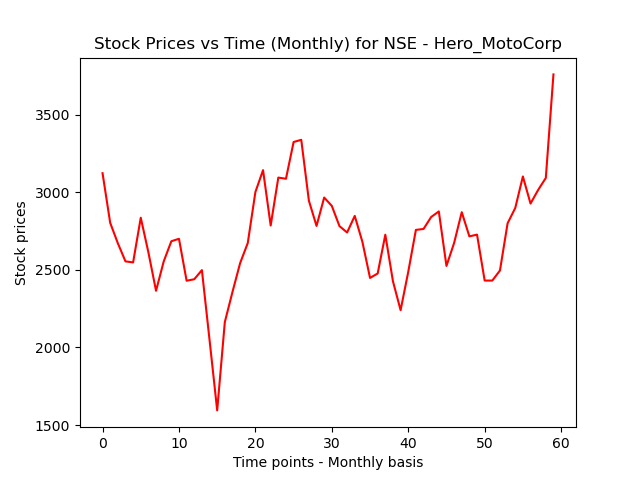
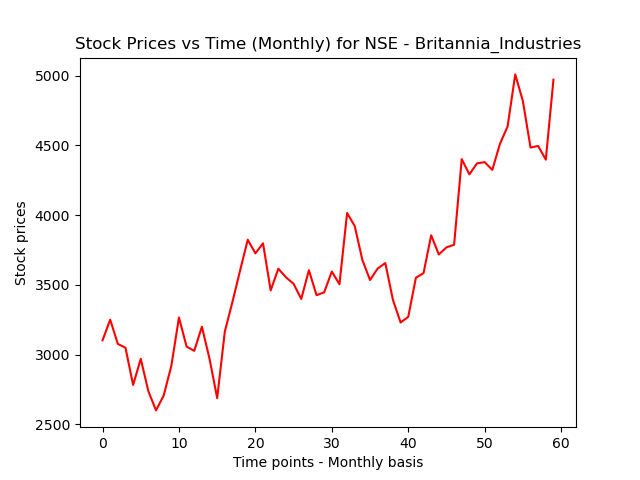


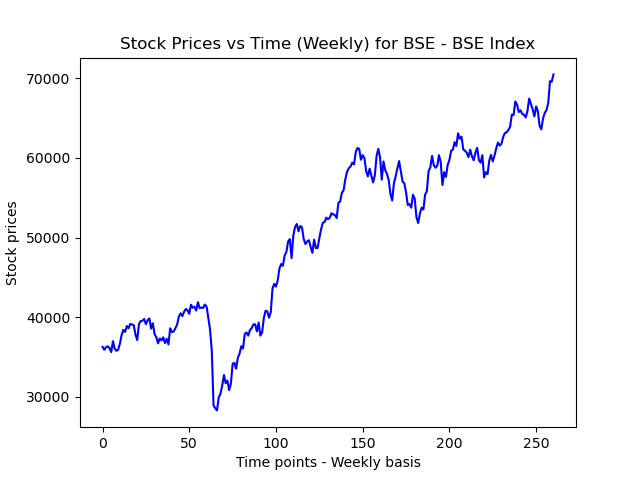
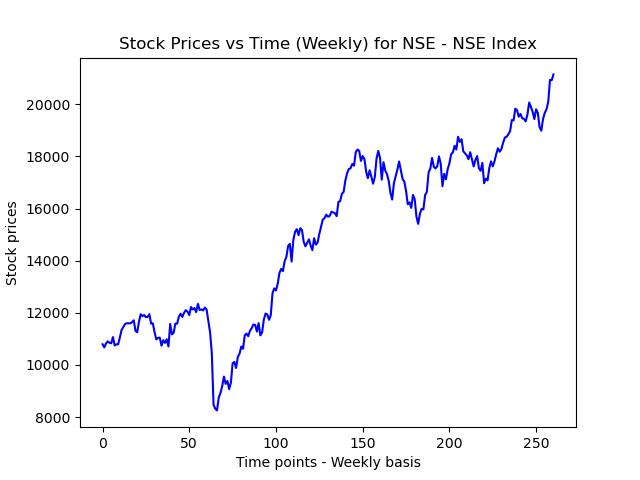


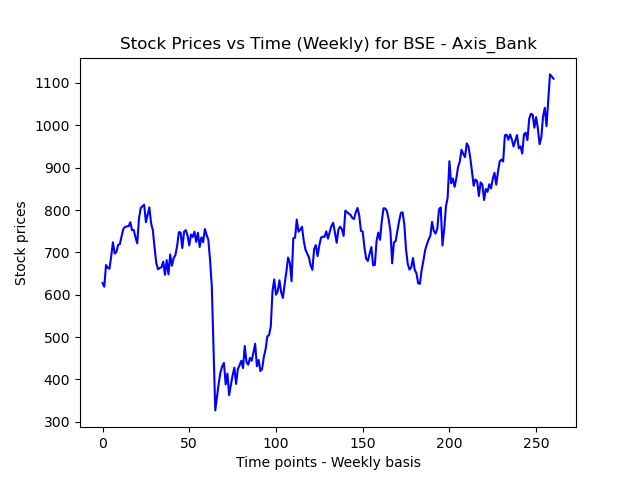
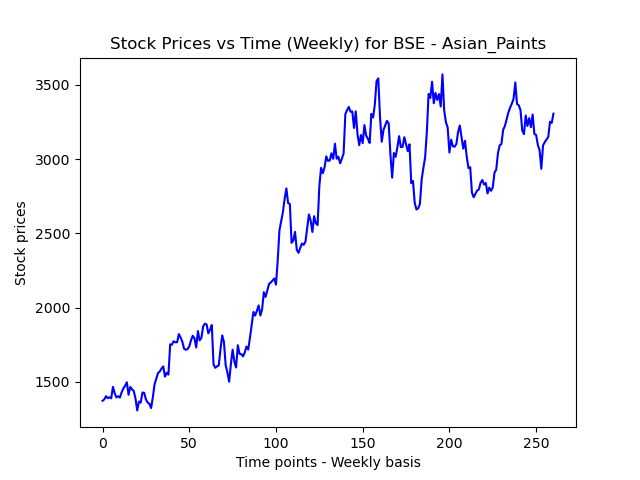


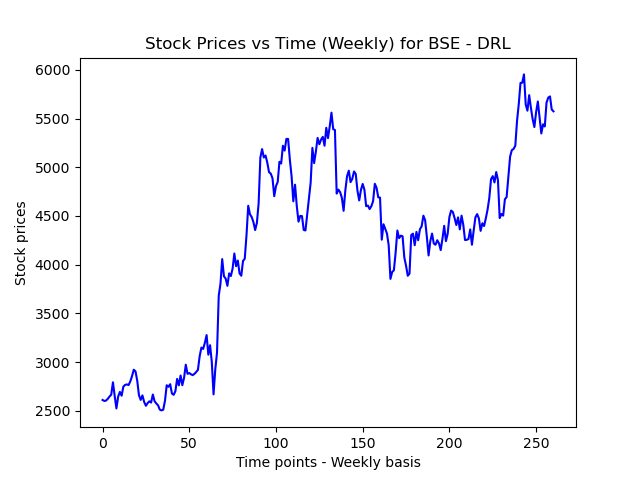
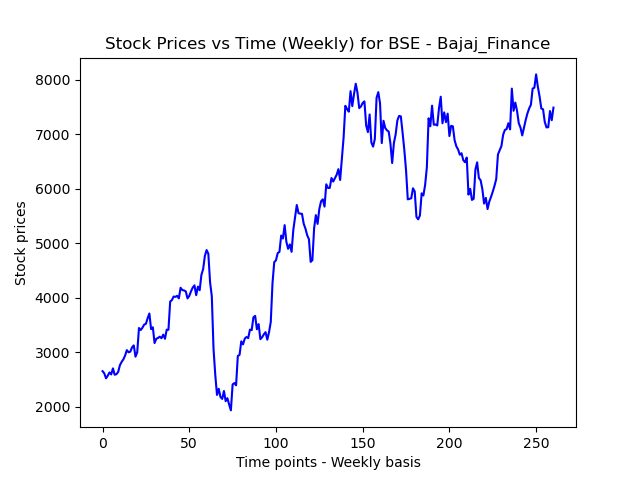


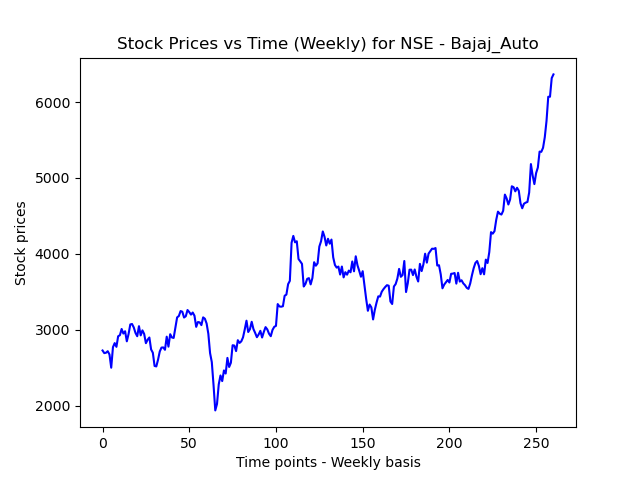
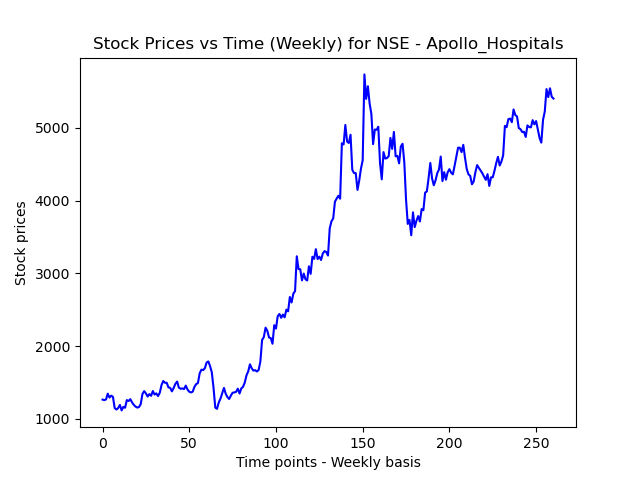


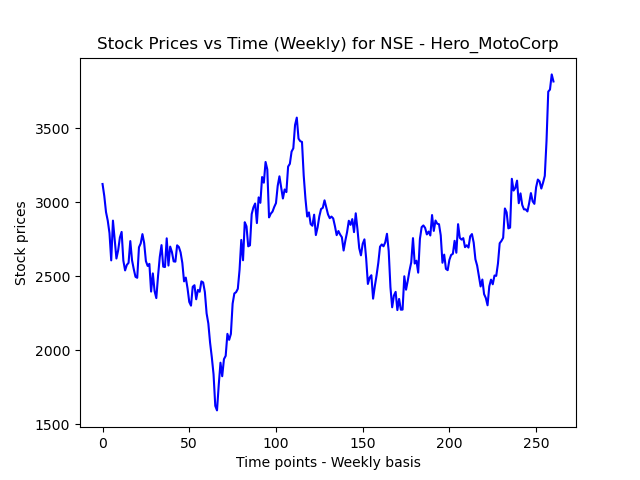
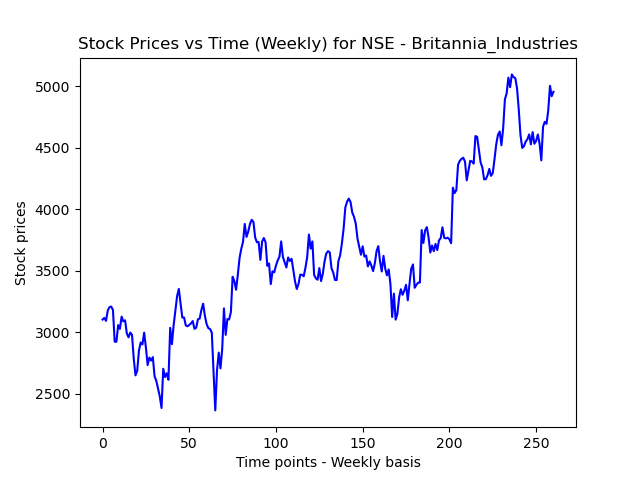










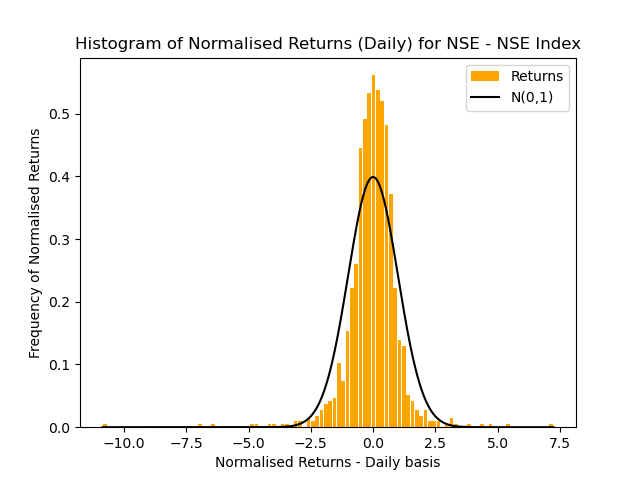
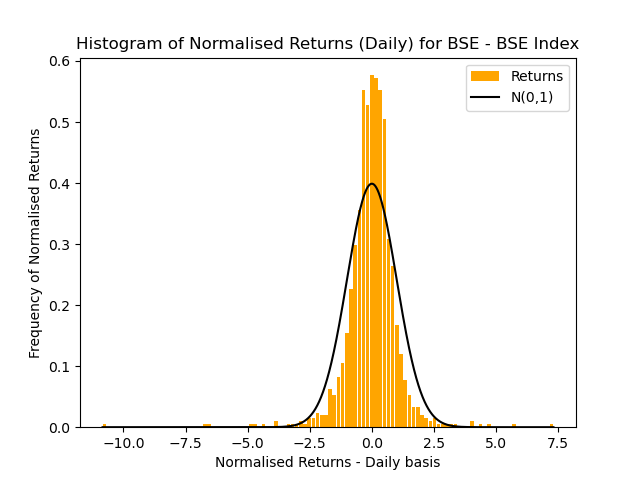


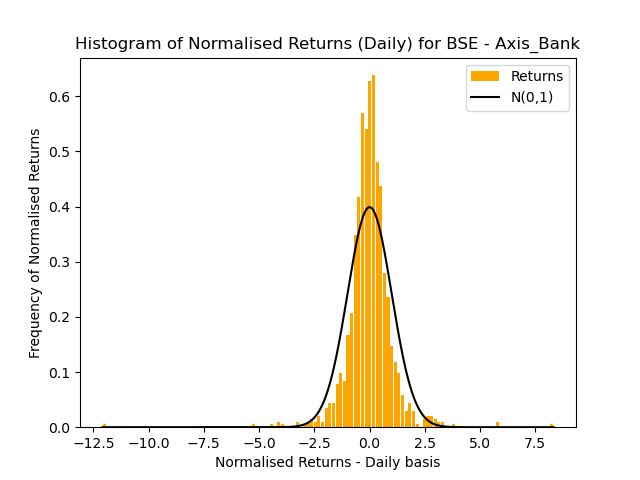
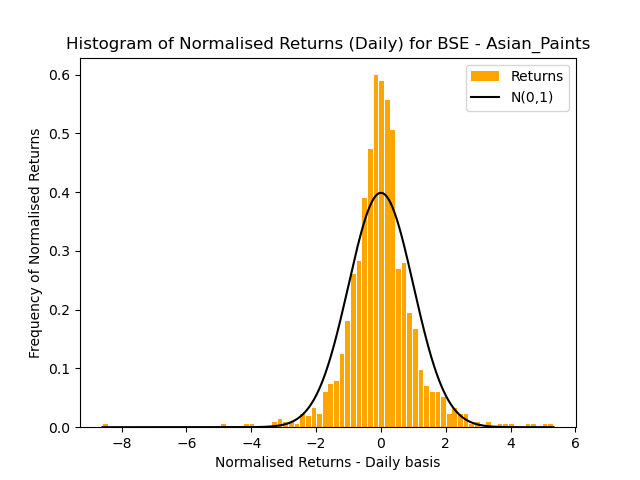
# Ques – 2

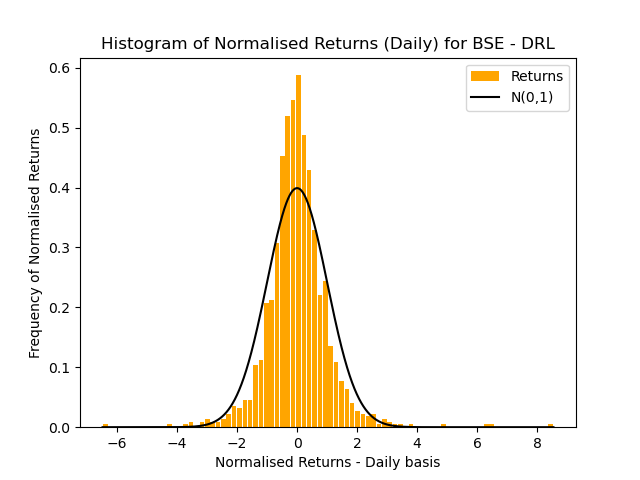
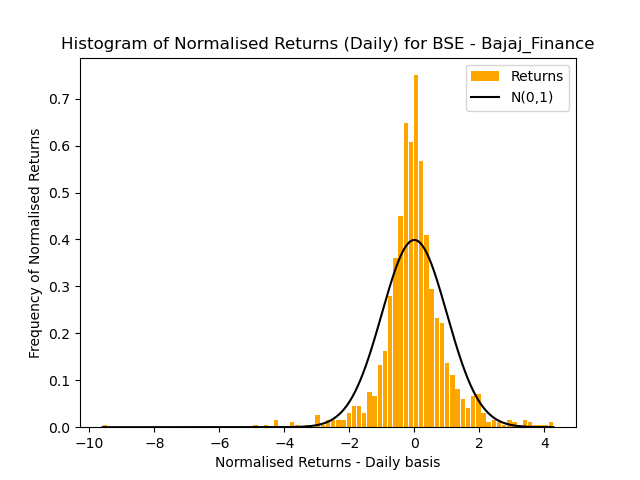
Observations:

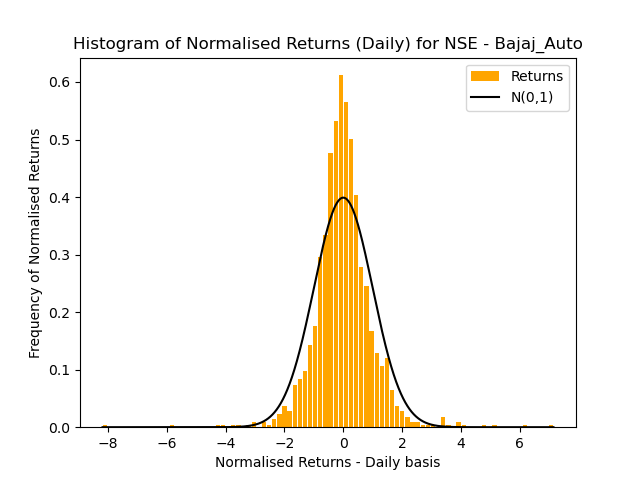
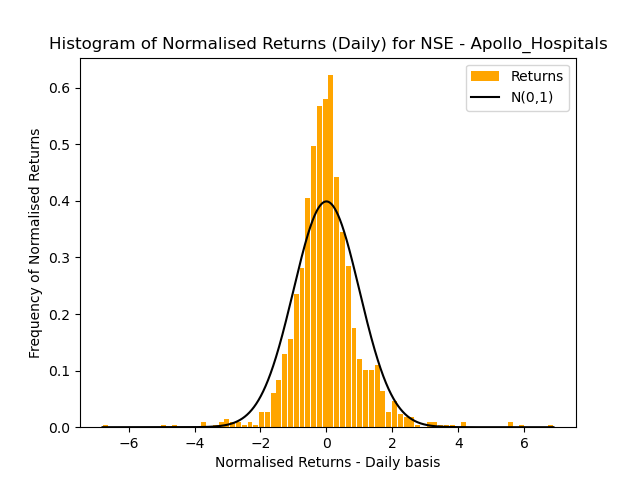
● The first and very obvious observation is the striking similarity in the graph of N (0,1) and the histogram. {This is also slightly obvious because we are observing the Central Limit Theorem, which dictates that the distribution of these normalized returns has to be N (0,1)}

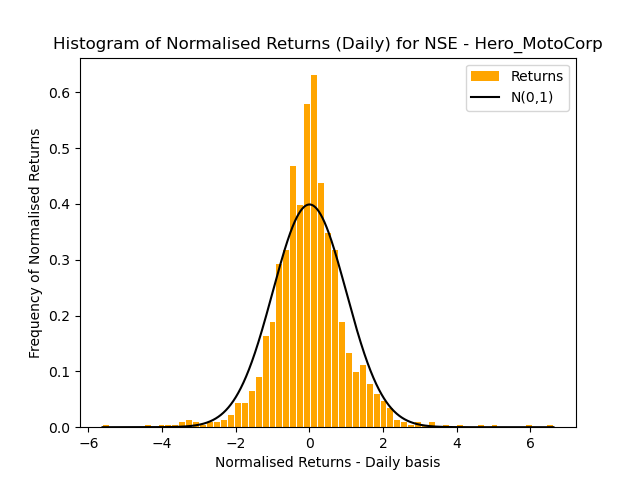
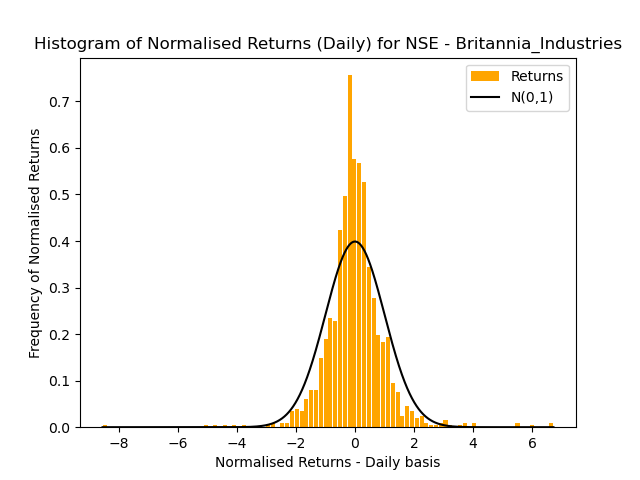
● Near the tails of these plots, the histogram deviates slightly from the N (0,1) plot. We see that while N (0,1) goes to 0 at these points, the stock does not always go because the practical market scenario is not ideal and is influenced by factors like economic fluctuations, company decisions, etc.

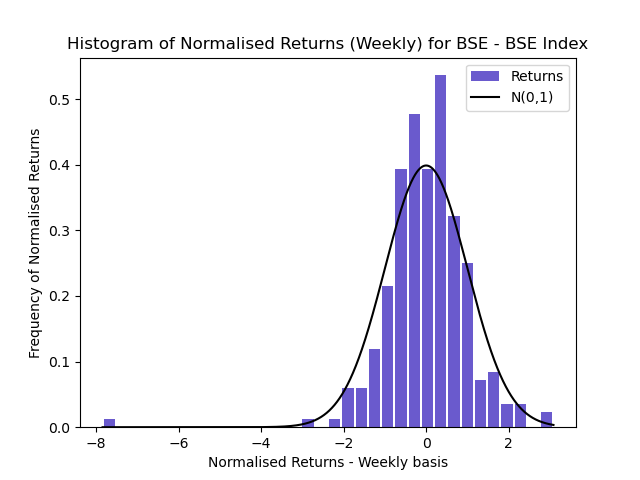


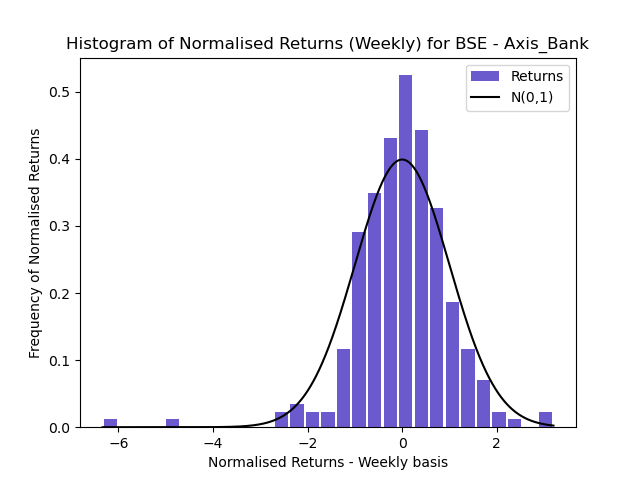


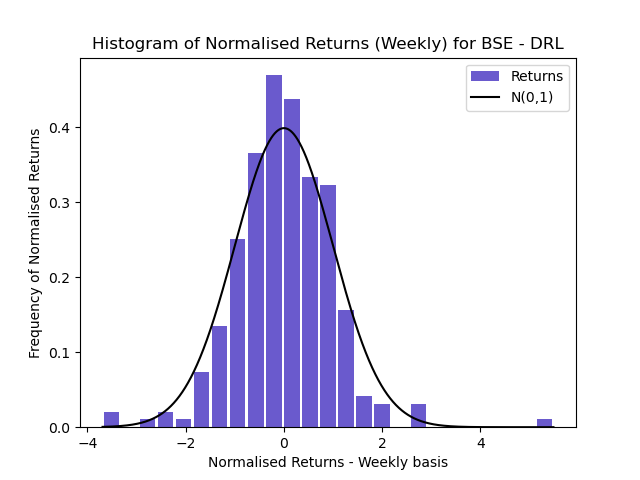
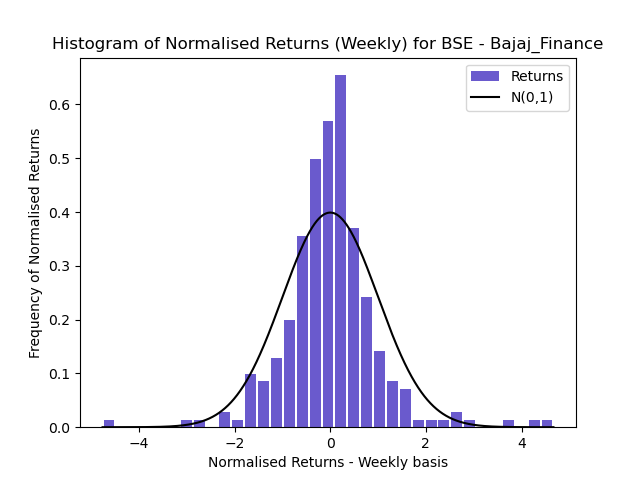


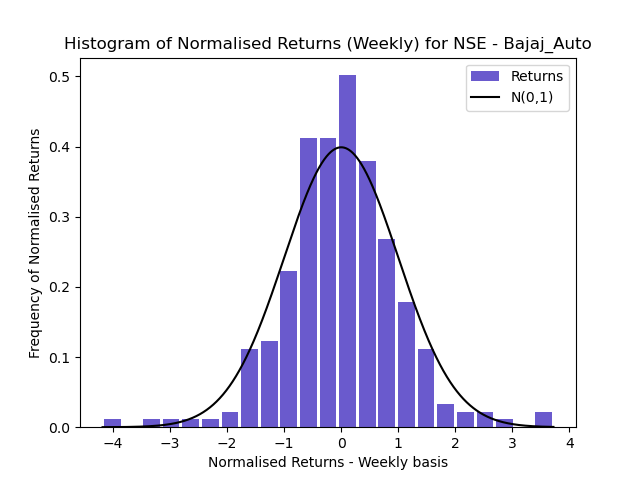
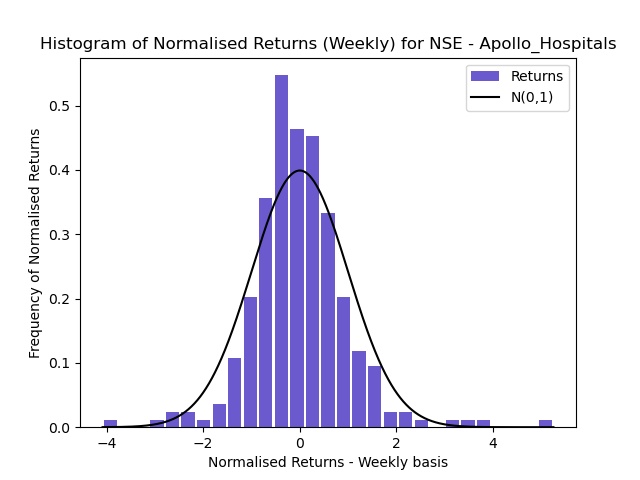


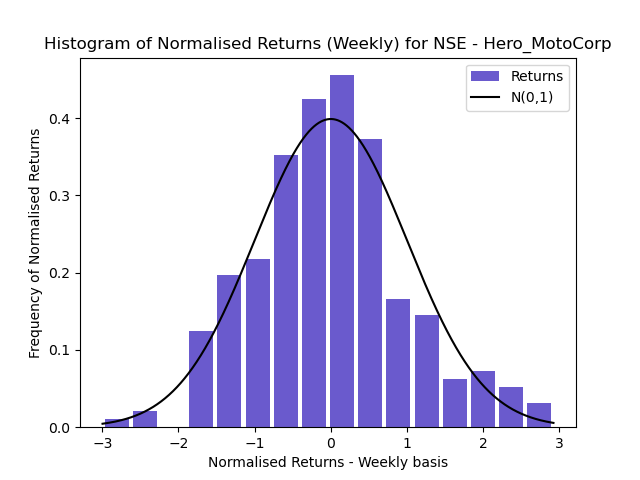


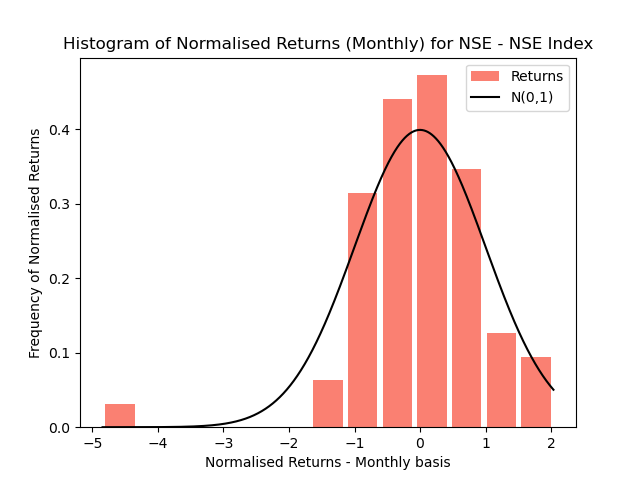
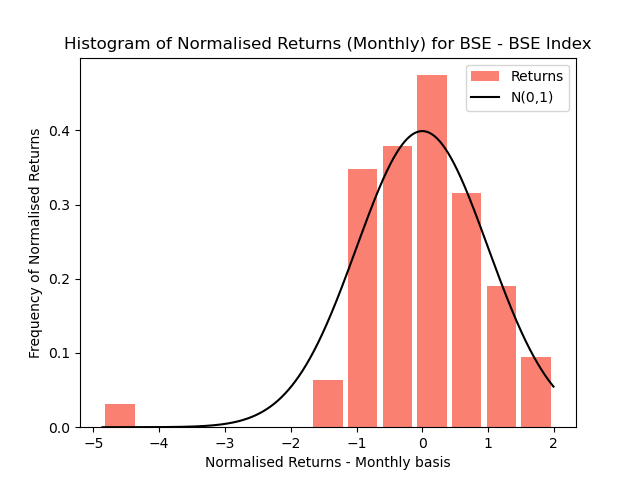


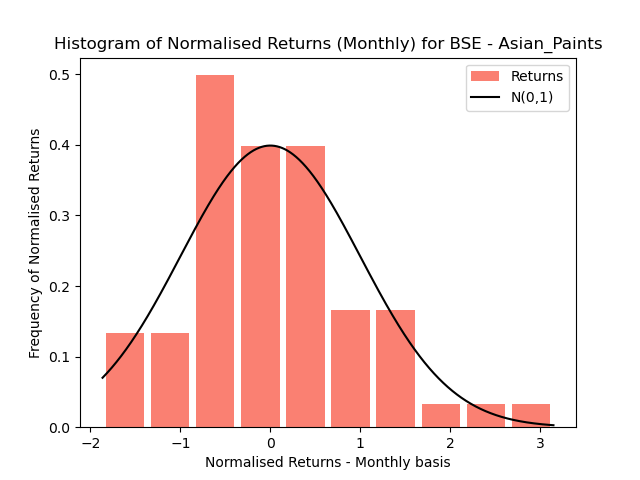


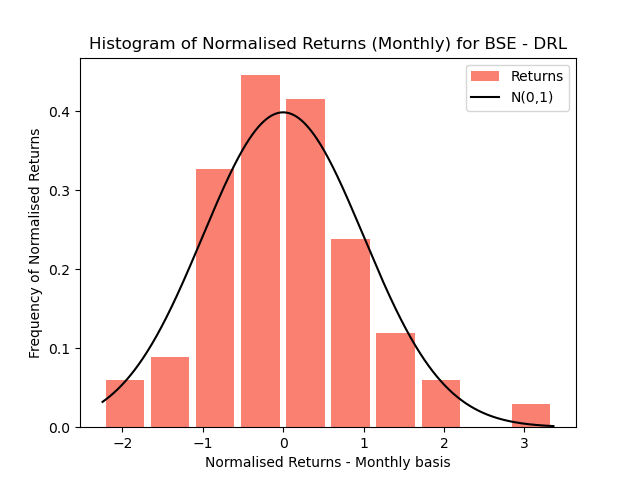
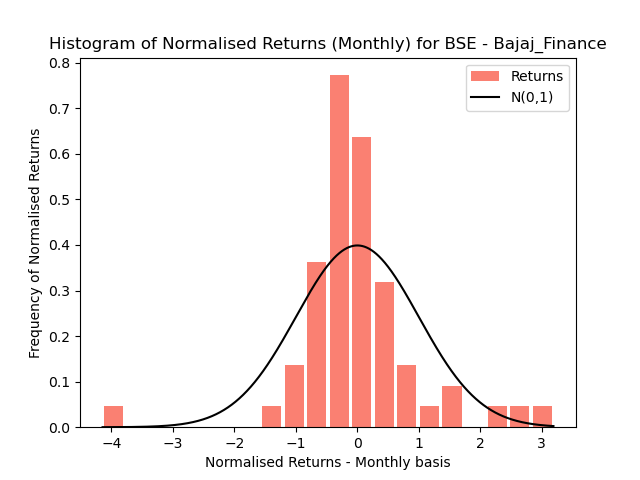


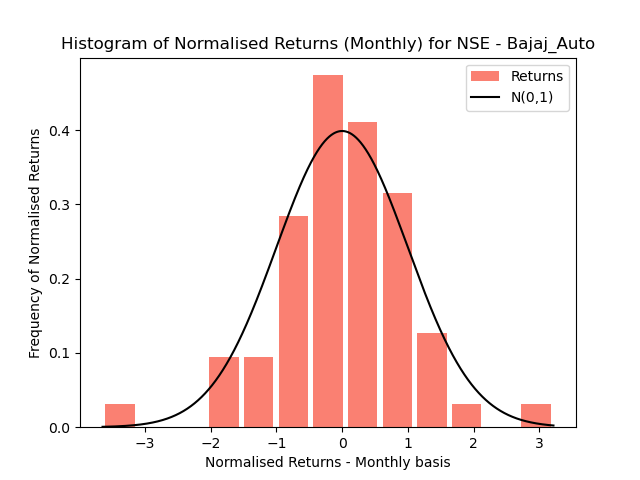
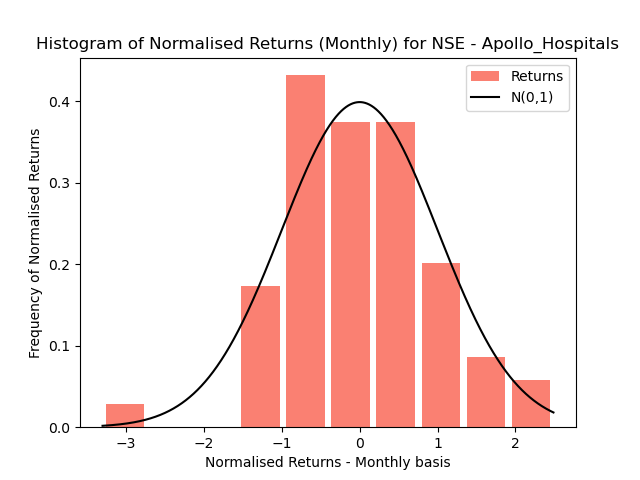










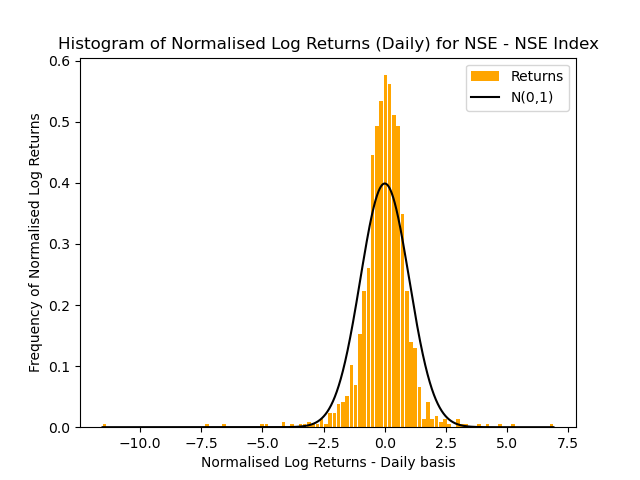
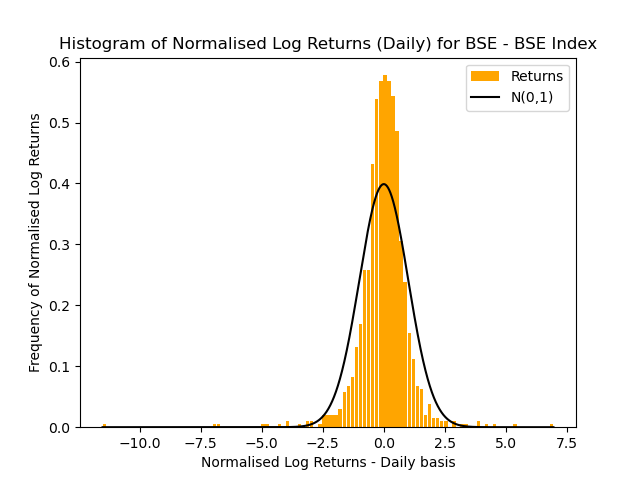


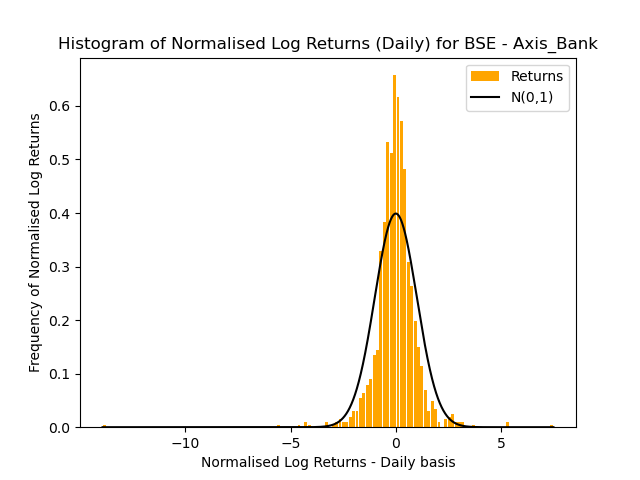
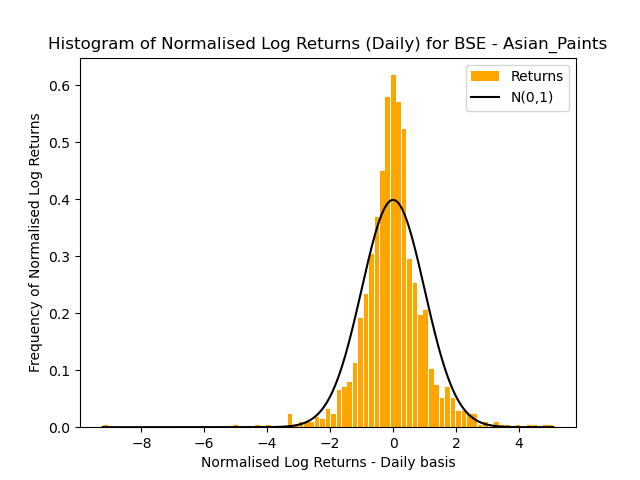


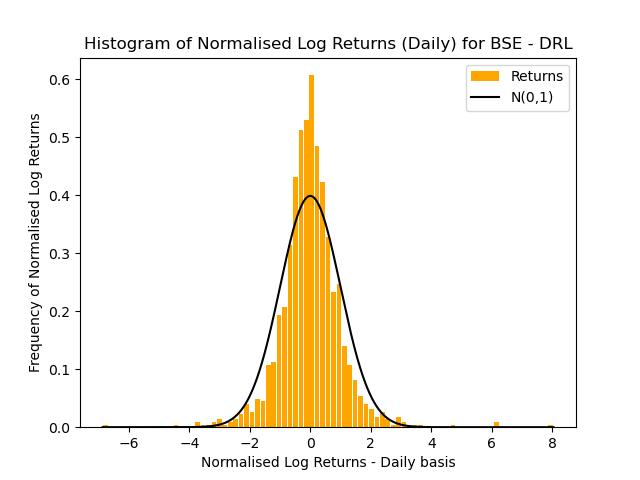
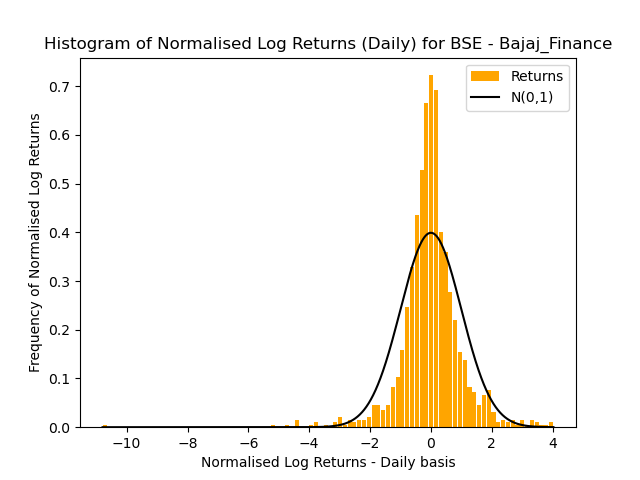
# Ques – 3

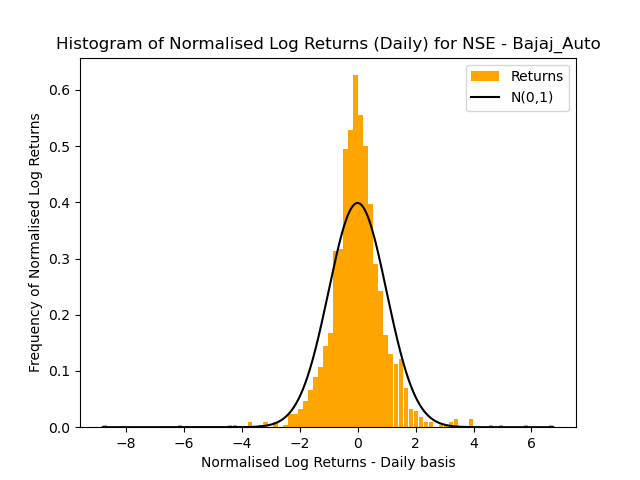
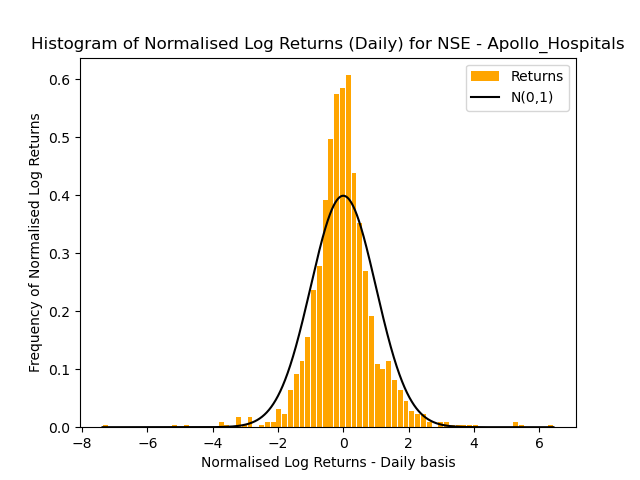
Observations:

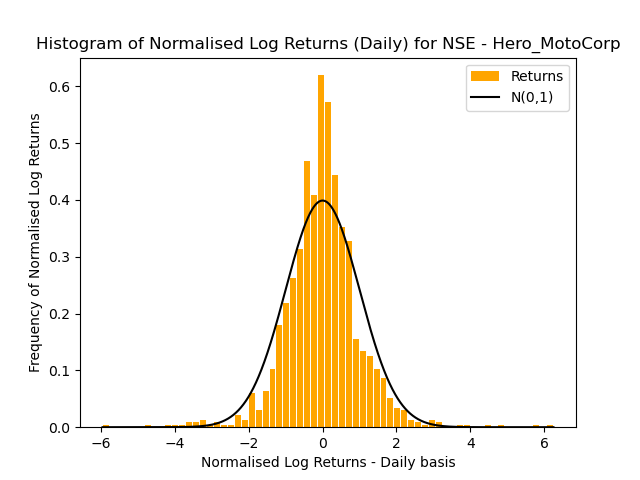
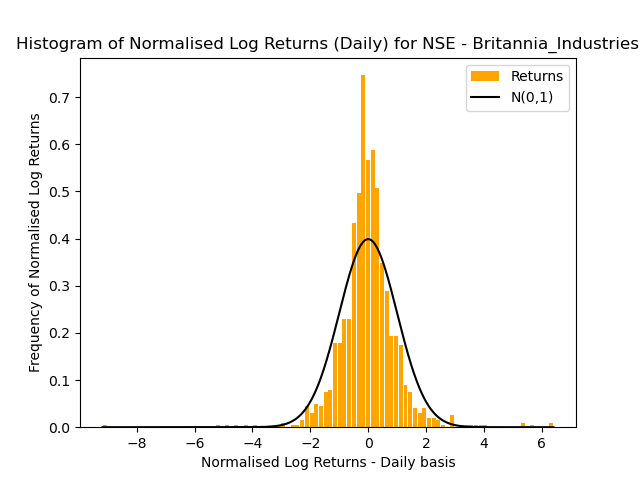
● The observations are exactly similar to question 2, but in this case, we see less deviation between the N (0,1) curve and the histograms.

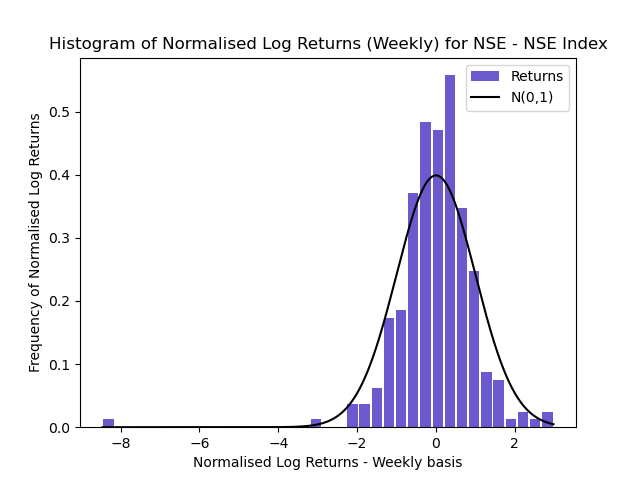
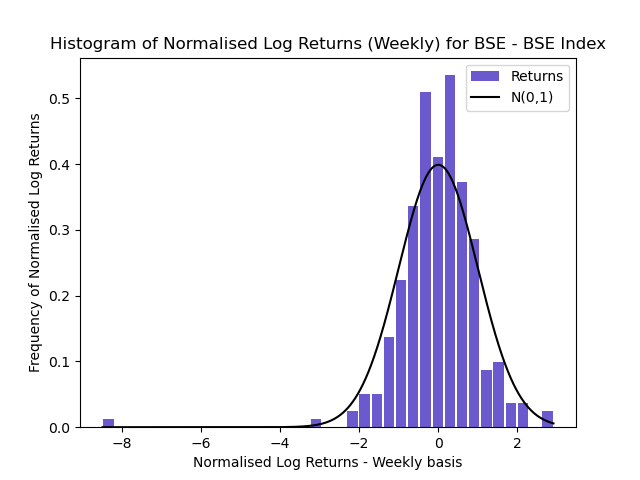


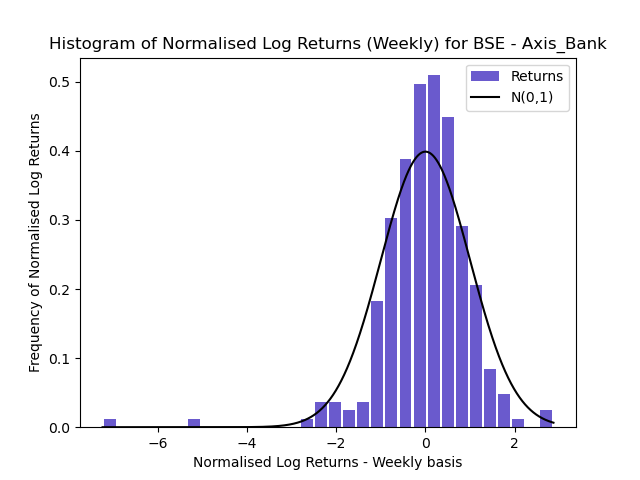
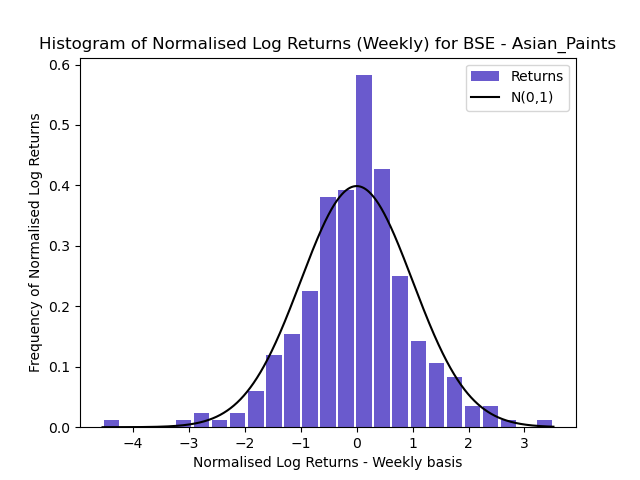


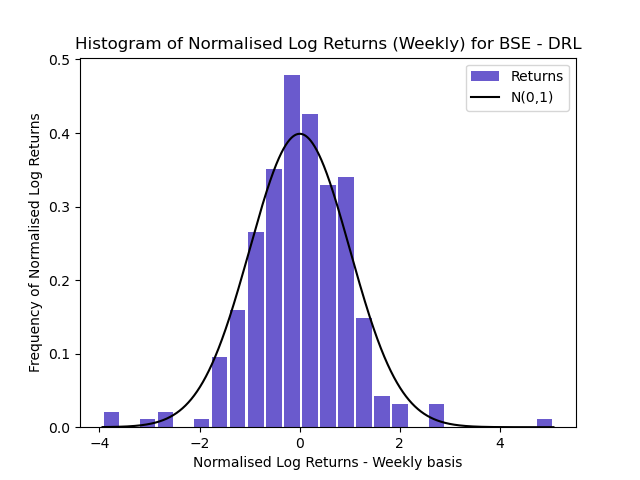
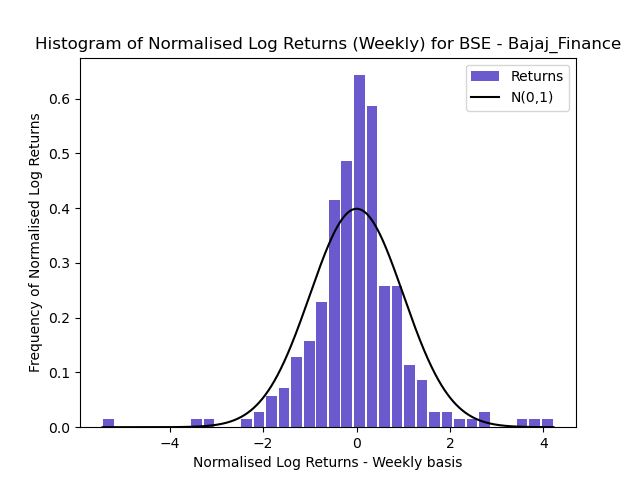


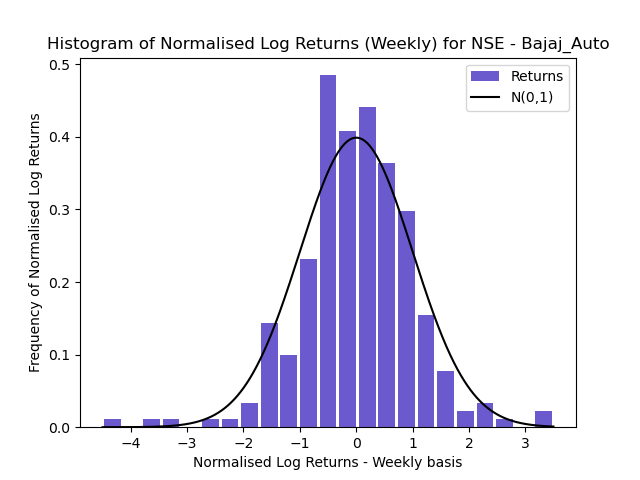
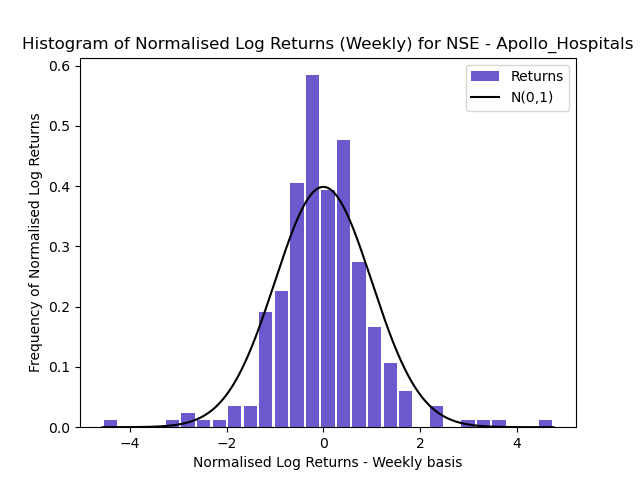


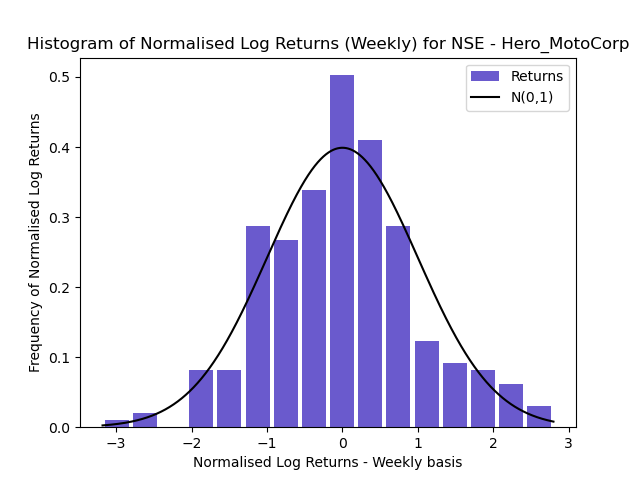
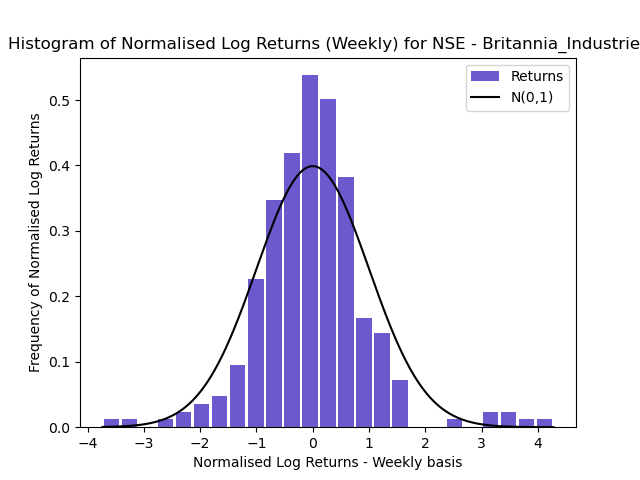


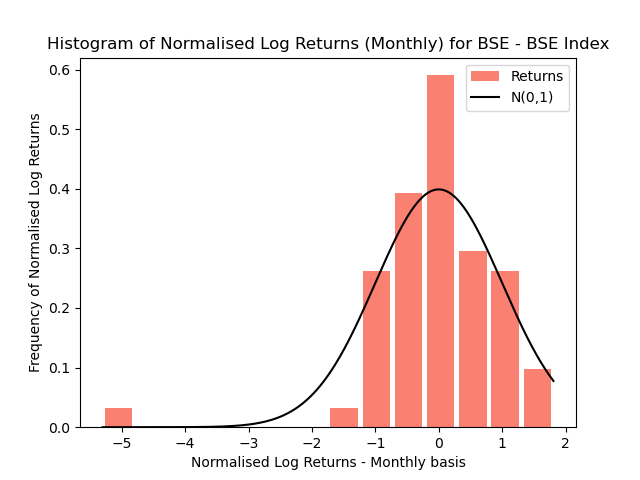


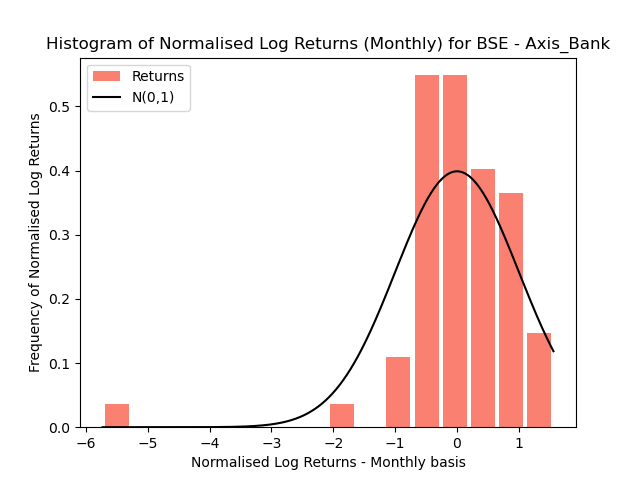
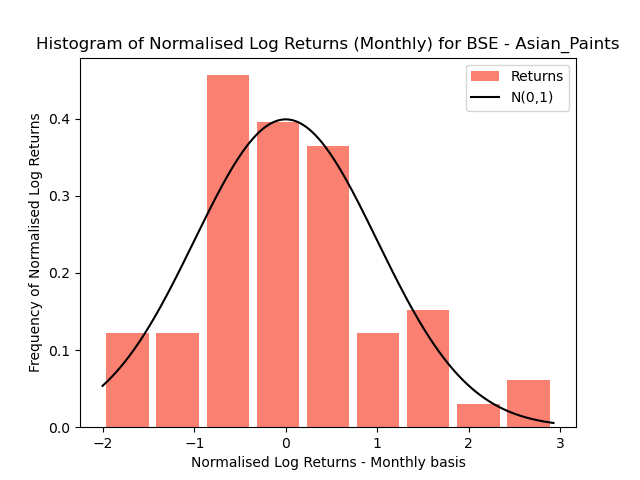


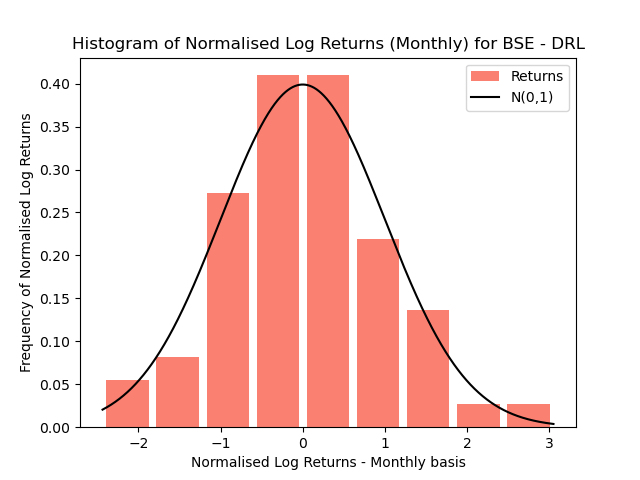


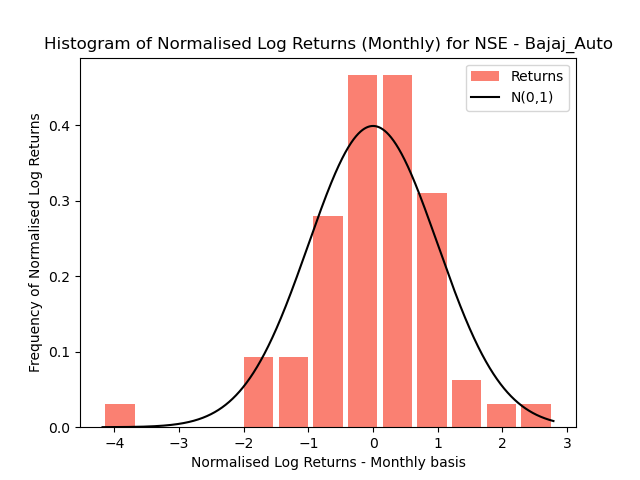
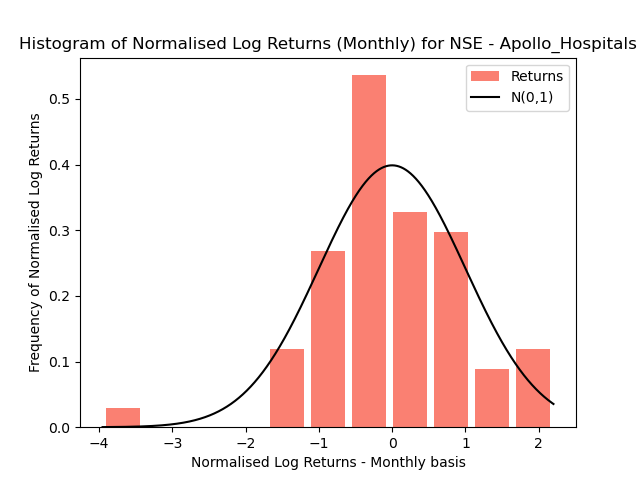


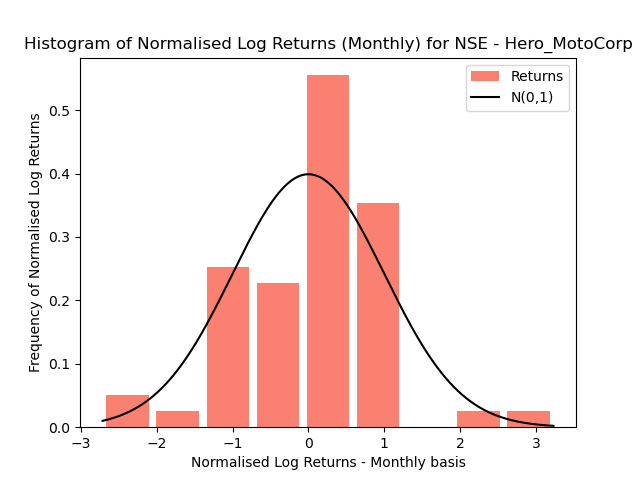
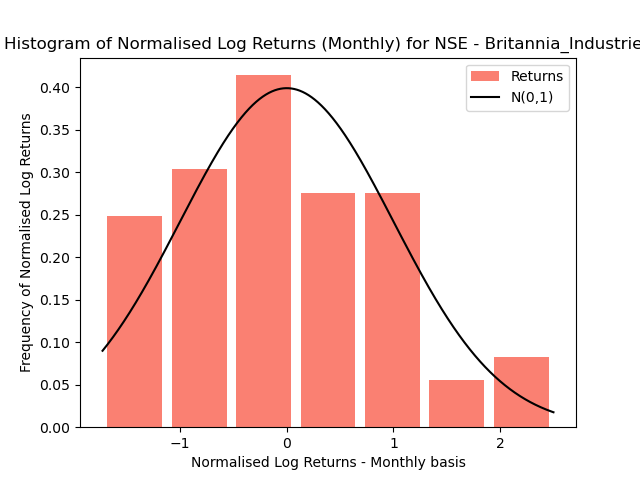








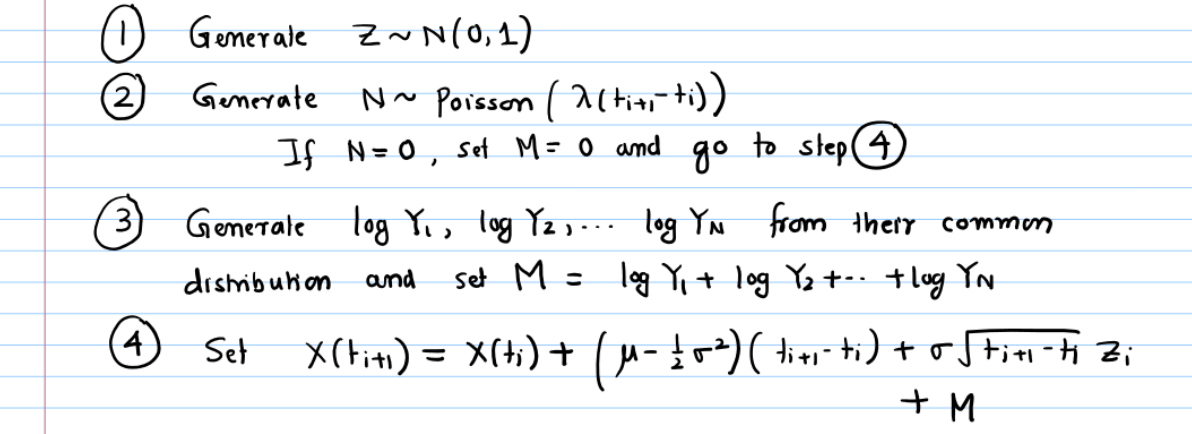




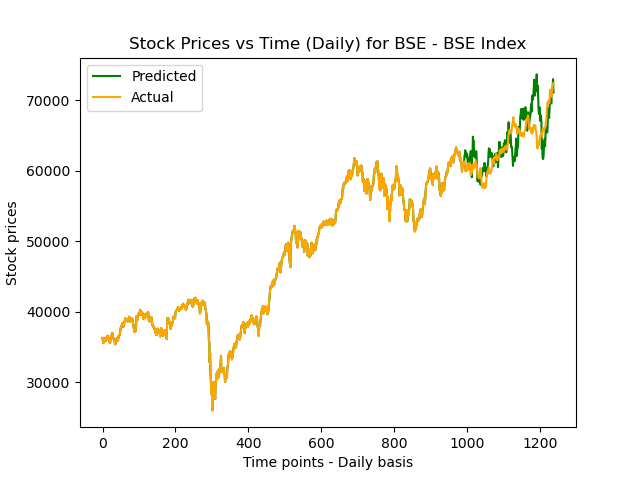
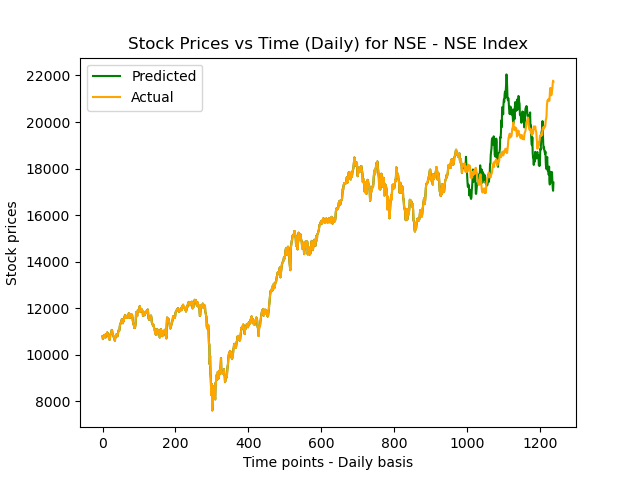
# Ques – 4

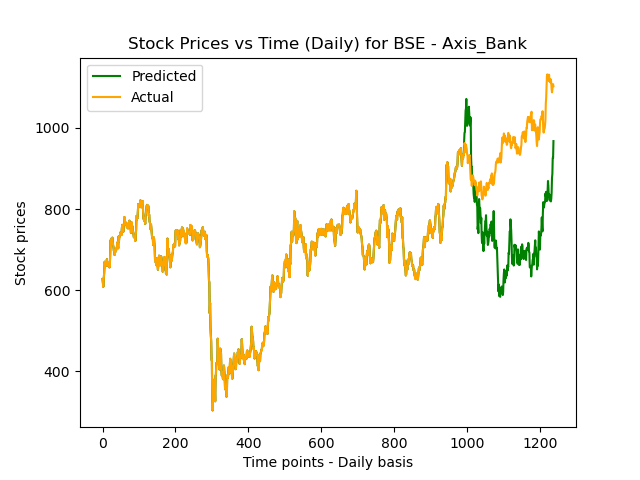
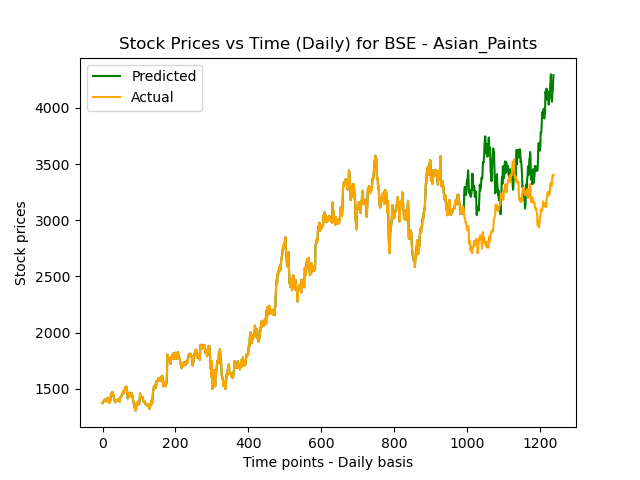
For this question, the jump-diffusion model was used to predict the stock prices for the year 2023 in a daily fashion by calculating μ and σ from the data till 31 Dec 2022.

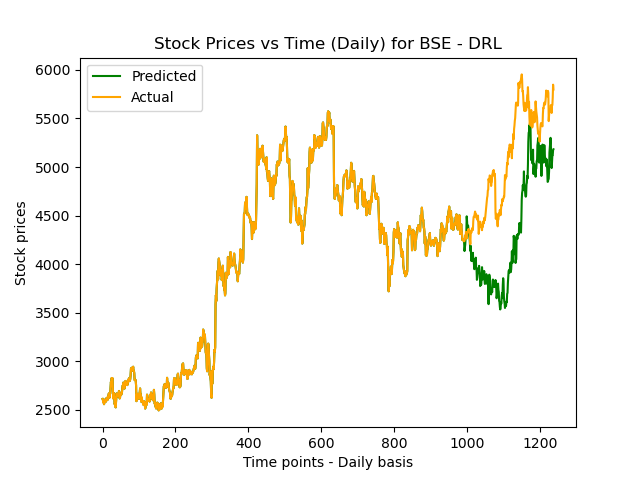
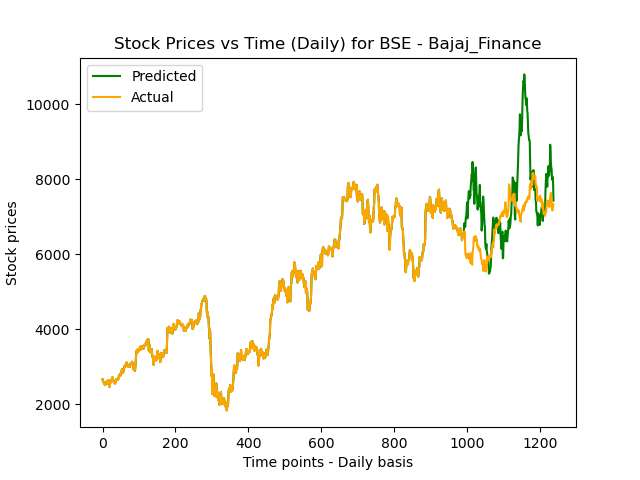
The basic algorithm has been explained below: -

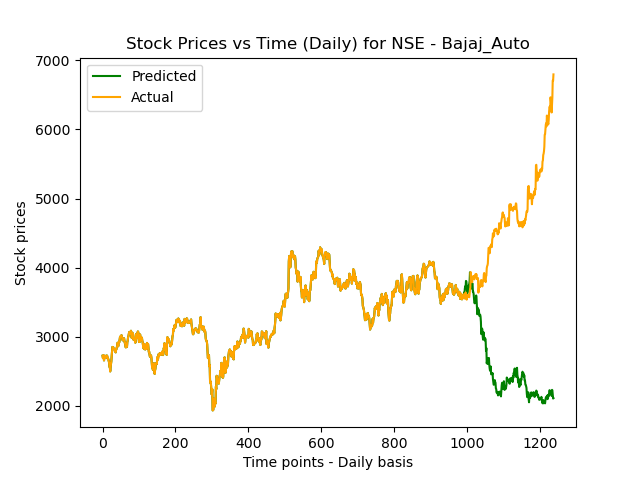
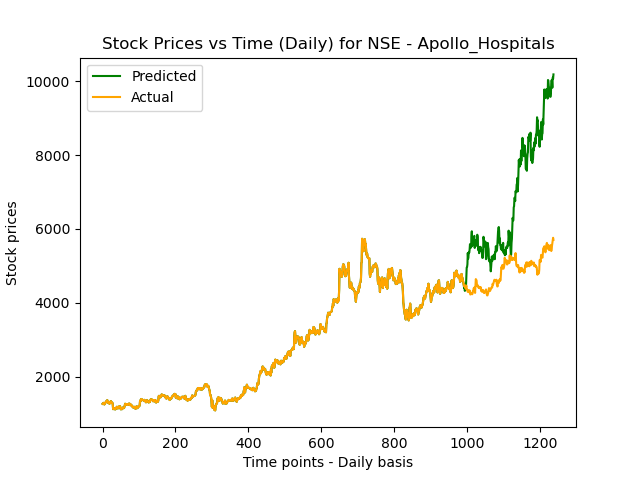


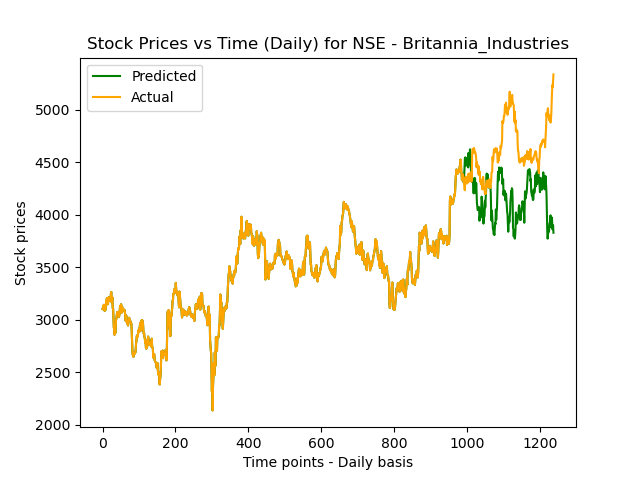
Thereafter, S (ti+1) is obtained using S (ti+1) = exp {X (ti+1)}.











# Ques – 5

