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Studying programme: MSc in Computing and Information System

Proposed topic:

Will the surging trend of big tech company stock ever stop?

Problem statement:

Both US tech companies and Chinese tech companies benefited immensely from the pandemic lockdown and work from home dynamic. The pandemic accelerated a digitization process that had already started. However, the stock prices of US and Chinese big tech have diverged significantly. Despite of the fact that a few of big tech stocks (eg Meta, Netflix) have lost a third of their value since the New Year of 2022, most of the US big tech stocks rebounded quickly and maintain a surging trend. Meanwhile, the Chinese tech stocks wipe out pandemic gains, where Chinese regulation and US blacklisting acted as a key theme since Nov 2020. Hence it is worth to explore why Chinese big tech stock is fluctuating at a relative lower level, when compared with US big tech stock.

Aims:

* Explore the major factors affecting stock prices, particularly on tech company? (Macroeconomics – interest rate, unemployment rate, GDP, political event, war, pandemic; Microeconomics – income and savings, PE ratio; Expectation; Emotion)
* Investigate the relationship between big tech stock and other factors.
* Use different data analytic models (Time series models & classical model learning models) to predict the tech stock prices and validate its effectiveness against with the hypothesis in our topic.
* Evaluate the impacts of COVID-19 pandemic against technology and tech company -> adding even more tech in our lives (transformation of business model, like subscription services in Apple)
* Compare the difference between US and Chinese big tech stocks (Amazon vs Alibaba)

Methodology:

* Internet research & articles.
* Machine learning models.

Plan

* Read informative articles and explore how to bring connection from them
* Work on the data, including any impactful events (political, war, social restriction) in US/China that may affect stock prices.
* Optional: explore relationship between opposite direction of stock affected by event (eg War: tech stock ↓ -> security & military stock ↑ , Pandemic: tech stock ↓ -> biotechnology & vaccine development stock ↑)