DS4002 Case Study by Ashley Luk

Predicting Treasury Security Rate Movements

In an increasingly complex and interconnected global financial system, accurately predicting the behavior of key economic indicators is crucial for effective risk management and informed decision-making. As a data scientist at a prominent investment firm, you have been entrusted with a critical mission that could significantly impact our company's bond portfolio and risk management strategies.

The US Treasury bond market, a cornerstone of the global financial ecosystem, has been experiencing notable fluctuations in recent times. These fluctuations have far-reaching implications, influencing a wide array of economic factors such as mortgage rates and corporate borrowing costs. In order to navigate this dynamic landscape and maintain our competitive edge, we require a data-driven approach to accurately forecast the average interest rates of US Treasury securities. Fortunately, the US department of the Treasury publishes monthly data on each securities rate dating back to 2002.

Your mission is to delve into the intricate world of US Treasury bonds, bills, and notes, leveraging data science techniques to uncover the underlying patterns that shape interest rate movements. By developing a robust forecasting model that incorporates a diverse range of variables, from historical data to macroeconomic indicators, you will play a pivotal role in guiding our firm's investment decisions and risk management strategies.