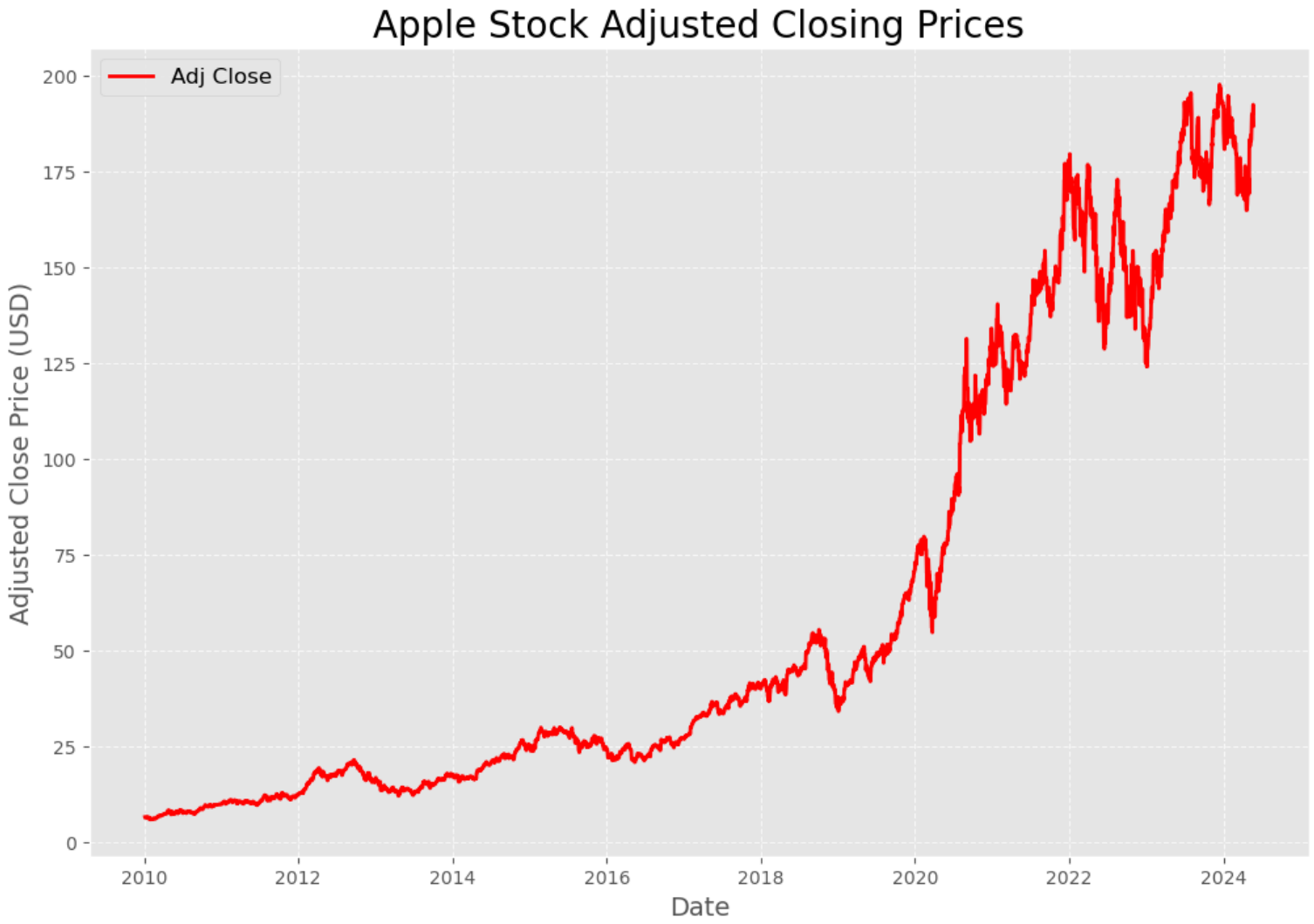
Stock price trend prediction with stats/ML algos-Sprint 2

Shuyu Liu

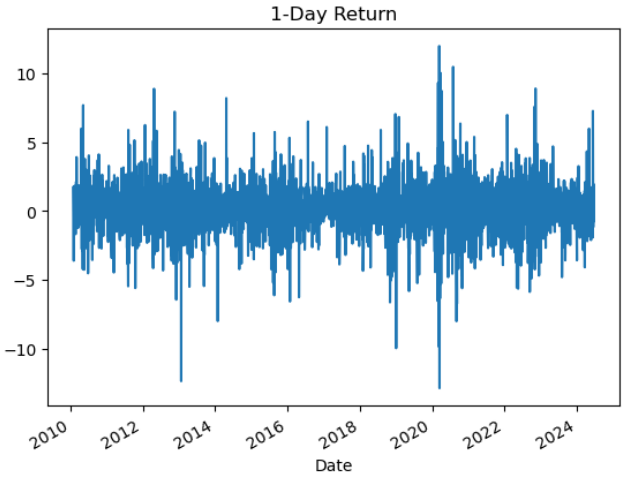
Sprint 2 update

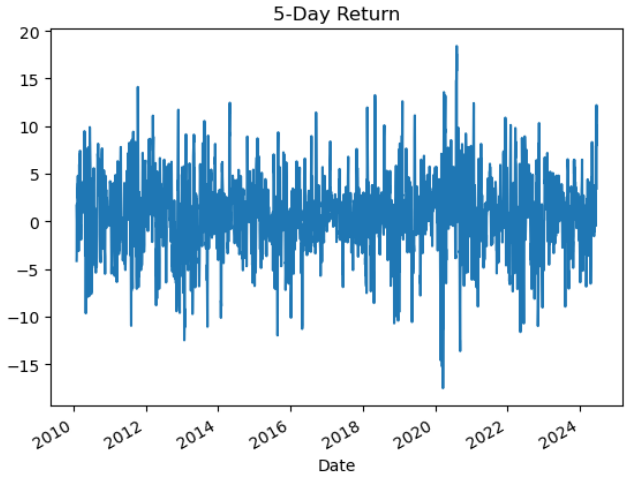
- Problem statement: APPLE stock return prediction(regression)
- Model V2:
  - ARIMA
  - SARIMAX
- Data V2:
  - APPLE stock price information from 2010
- Features V2:
  - Daily return
  - Weekly return
  - Monthly return
  - Trading volume daily change

EDA – I Price trend

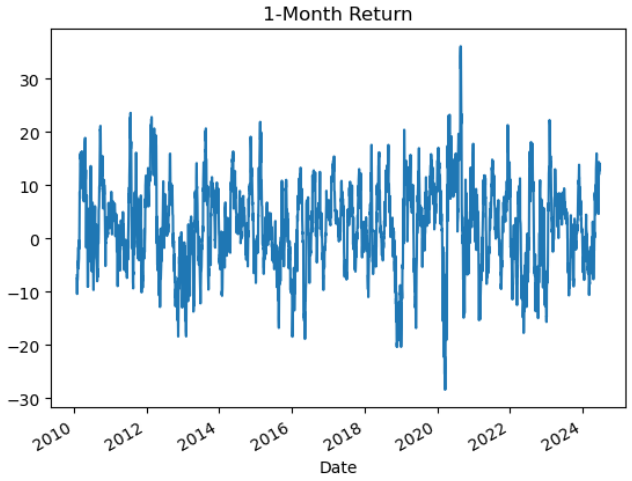


EDA – II
Return analysis

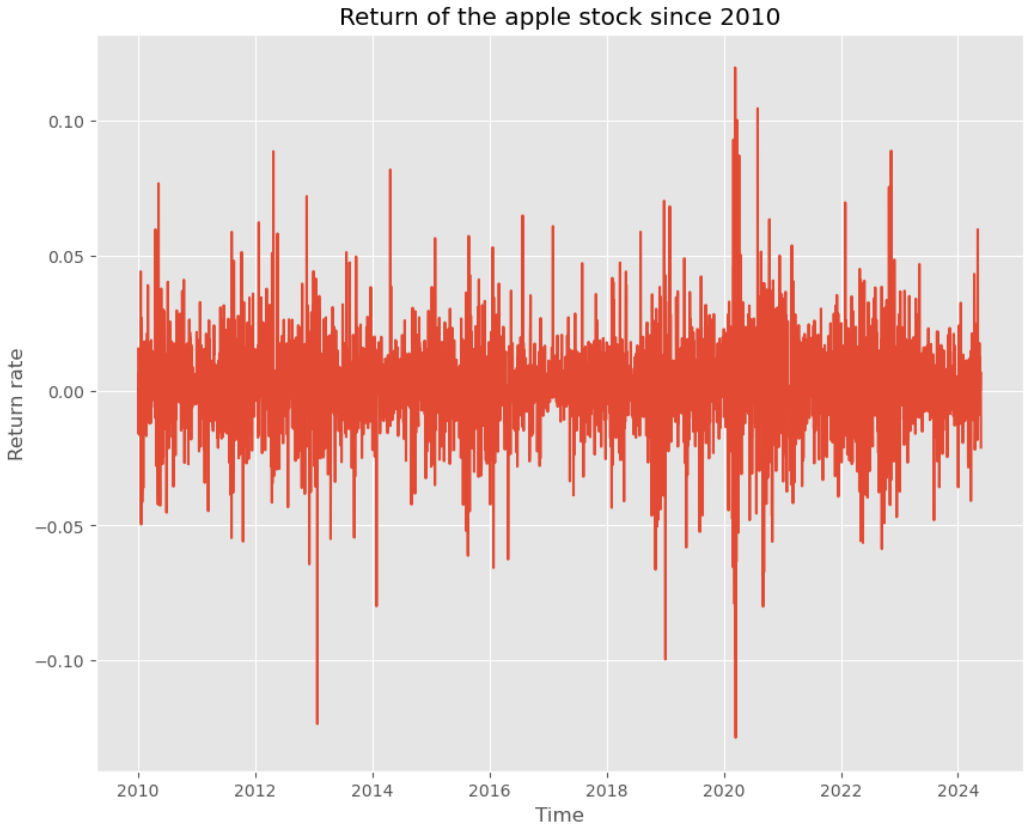


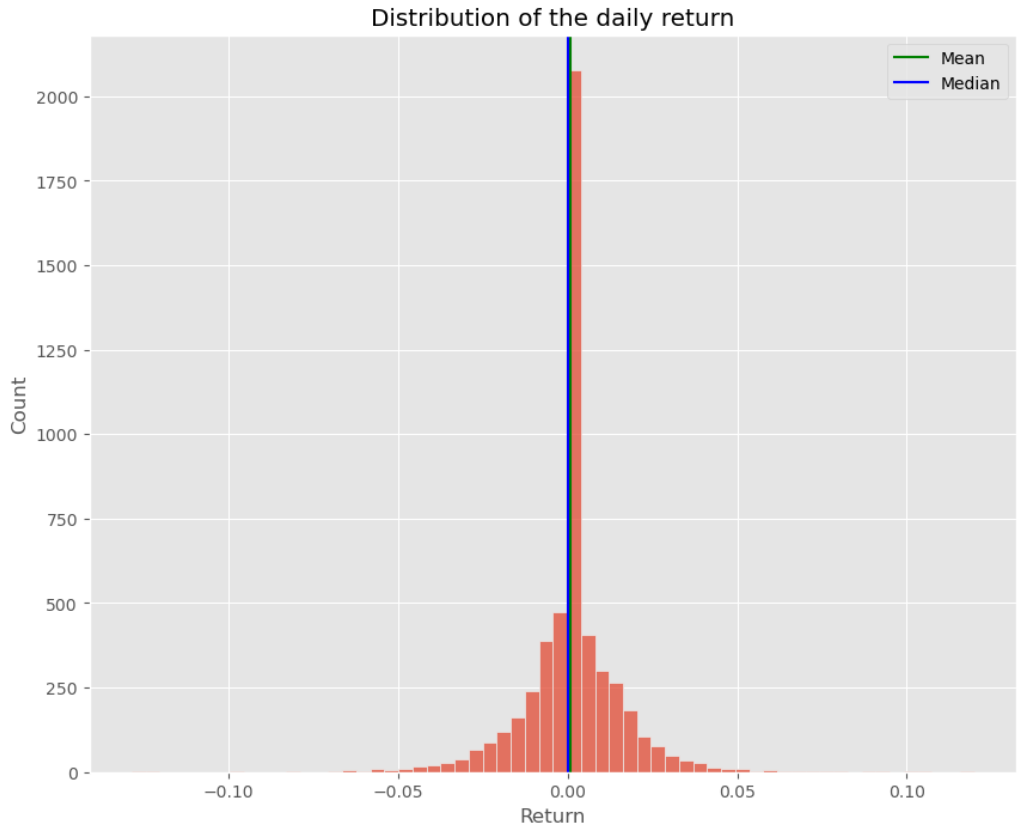


$$R_t = \frac{p_t - p_{t-i}}{p_{t-i}}$$

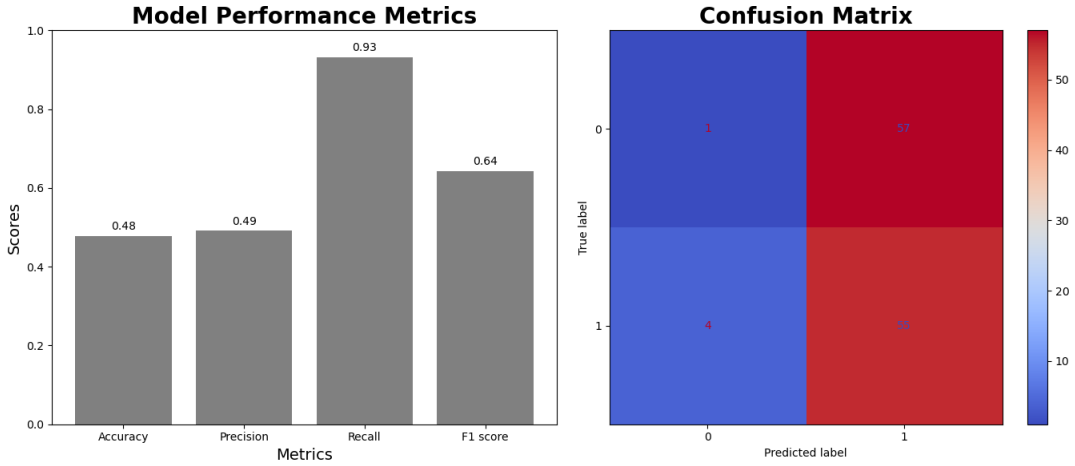


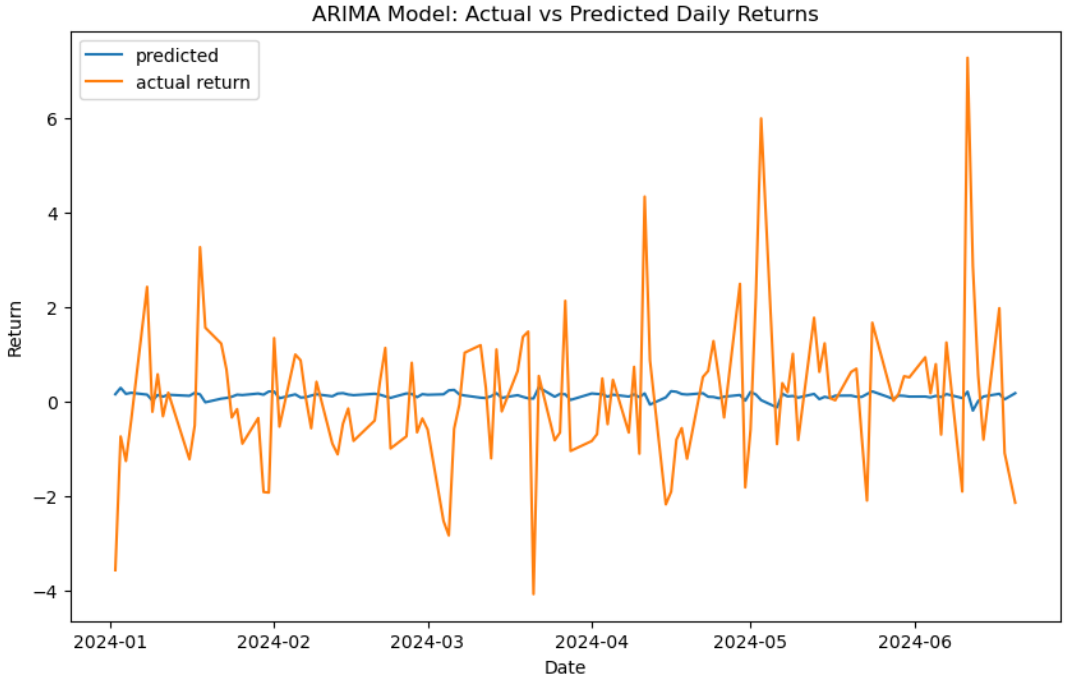
EDA – III Stock return analysis



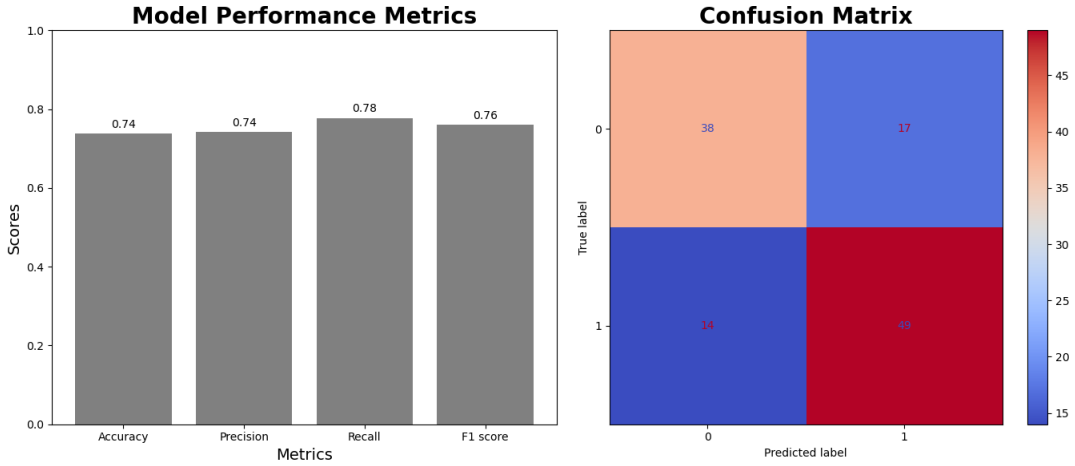


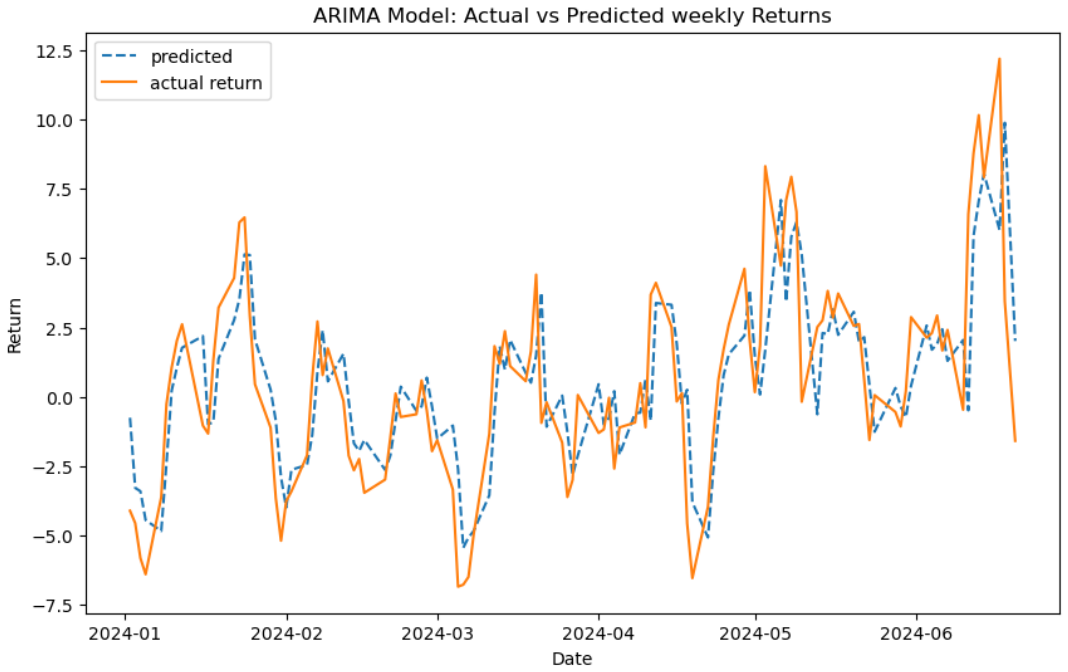
Modelling(I) – ARIMA –daily



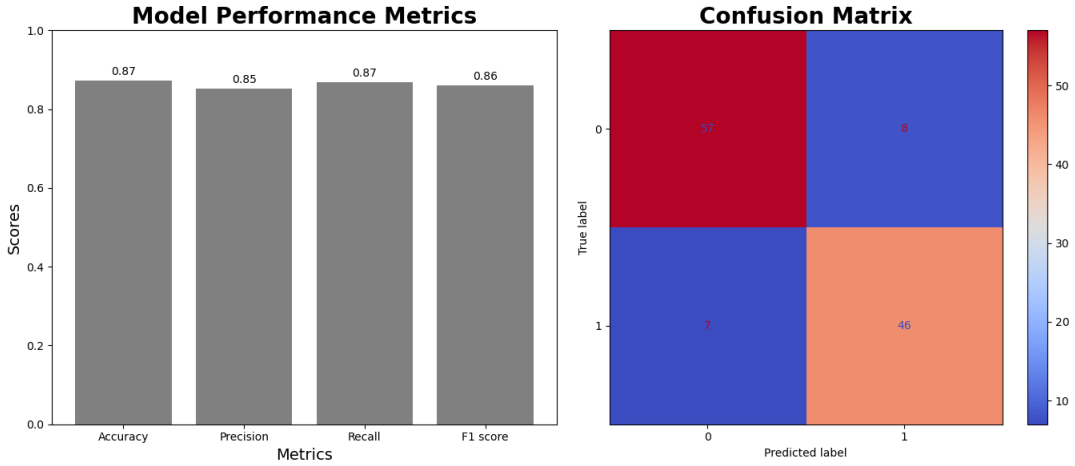


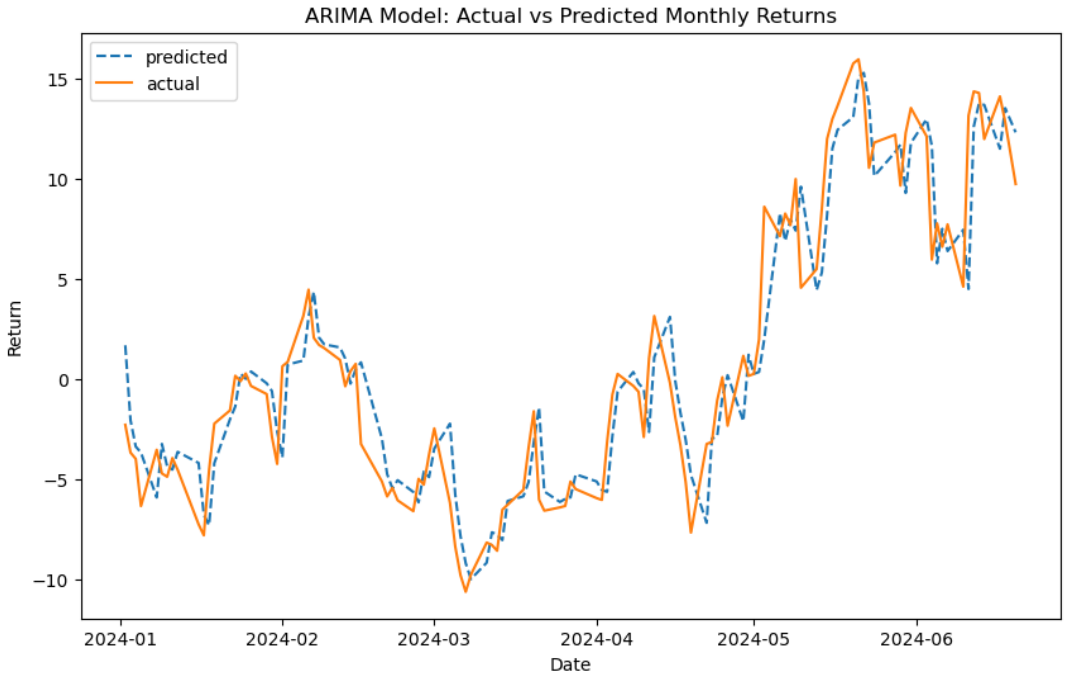
Modelling(I) – ARIMA –weekly



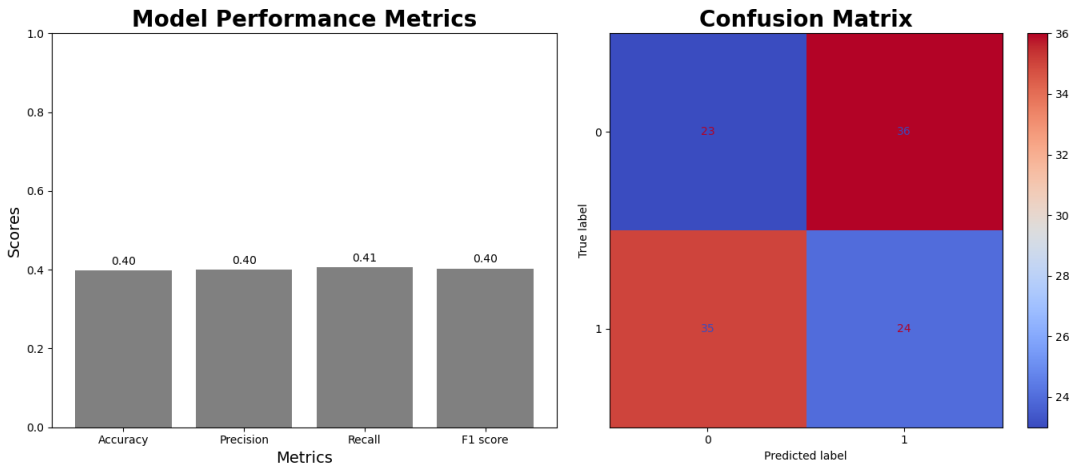


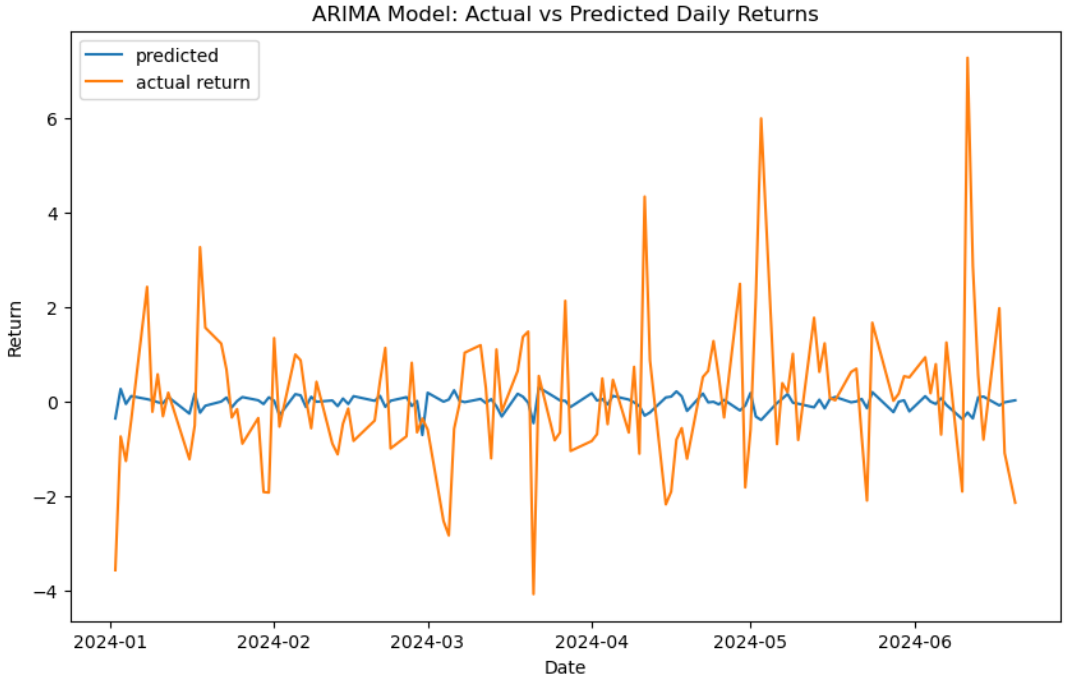
Modelling(I) – ARIMA –monthly





Modelling(I) – SARIMAX(volume change) – daily





Outsights to sprint 3

- EDA to find possible correlated features to increase the prediction ‘precision’ of the daily return; for example, index, rival company stock price trends.

- Investigate the threshold effect of the identification of increasing trend; for example, $r_{predicted} >= (\mu_{train} + \sigma_{train})$.


Questions?