Web3 Trading Team — Data Science Assignment Report

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1. Objective This report summarizes the work completed on understanding how trader behaviour relates to market sentiment. The goal was to see whether patterns in profit, risk, trade size, or leverage shift when the market shows fear or greed.

2. Data and Preprocessing Two datasets were used: Hyperliquid trader records and the Bitcoin Fear & Greed Index. Dates were aligned by converting both sources into daily summaries. The sentiment data was cleaned by renaming columns for clarity and then merged with trader statistics based on the date.

3. Exploratory Insights The analysis showed that days with higher fear often came with bigger trades and stronger profits. When the market leaned heavily toward greed, trades tended to be smaller and the overall profit levels dropped. Neutral sentiment days saw the least action and the smallest PnL values. The influence of sentiment was clear, but leverage and side patterns would require a larger dataset.

4. Models Applied A basic ARIMA model was tested for forecasting, but the dataset was too small, giving an error margin in the range of hundreds of millions. A Random Forest model was also trained. Although it handled the structure better, it still could not capture the real variations due to the limited number of observations.

5. Visual Outputs Several charts were produced, including PnL against market sentiment, the ARIMA forecast curve, Random Forest predictions versus actual values, and a comparison of model performance. These visuals helped highlight where patterns were strong and where more data would be needed.