SpringPad's Technical Analysis Prompt

Prompt 1 to Fetch Data

Give me code to Download [INDEX] past [TIME} years Historical Data from finance Library into an excel sheet, define time using timedelta function.

Prompt 2 to Analyze Data

Do the following analysis for NIFTY INDEX with the data attached.

1. **Introduction to the Dataset**:
   - "Can you describe the dataset including its features and date range?"
2. **Basic Data Analysis**:
   - "Please provide summary statistics for the NIFTY index over the last 5 years."
3. **Trend Analysis**:
   - "Can you identify any trends in the NIFTY index data over the past five years?"
4. **Volatility Analysis**:
   - "Assess the volatility of the NIFTY index based on the historical data provided."
5. **Advanced Analysis **:
   - "Perform a moving average analysis on the NIFTY data."
6. **Comparative Analysis**:
   - "Compare the yearly performance of the NIFTY index for the past five years."
   - " Give monthly returns for NIFTY for using a heat map(positive with green and negative with red) for the past five years"
7. **Seasonal Patterns**:
   - "Analyze if there are any seasonal trends in the NIFTY index data that recur annually."

Prompt 3 to Backtest Data

1) Take the past 5 years historical data and calculate the 21 and 50 simple moving average, represent the data in different columns.

2) We want to build a moving average crossover strategy for 21 and 50 sma, implement the same and give the entry and exit signals. BUY signal = when 21 sma crosses over 50 sma from below and SELL Signal = when 21 sma crosses under 50 sma from above. Show the Buy signal with +1 and Sell Signal with -1, No signal means 0.

3) Now lets backtest this strategy, assume we have a starting capital of Rs. 1,00,000. Show the Profit and Loss of each trade in the excel sheet, Use full capital to take every trade and also Take Sell side trades.

4) Give Graphical Representation of the Strategy performance

In the end, Let me know if the Strategy is profitable and also how much Profit/loss was made in both absolute and percentage terms.