Green Canvas Internship Summer 2023

Final Report

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At Global Equity Ventures
our mission is to empower investors with the knowledge
tools and insights they need to navigate the complexities of the stock market

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1 Questions

1.1 How many weeks did you attend the internship

- I have attended 4 weeks.

1.2 How many (approx) hours did you spend on all activities related to the internship

- I was giving 3-4 hours per day.

1.3 What did you learn throughout the course of the internship

- This opportunity had opened door for me to explore new domain in finance with programming which is something new to me as being a computer science background i never heard from my seniors that they ever worked in fiance,Overall this internship showed me a new path in trading which is worth it learning.

1.4 What do you think can be improved in the Internship

- Assuming interns are new to python, I highly recommend using VS code.It has very good extensions and it also supports Jupyter Notebook.The extensions you install helps alot in debugging the issues.

1.5 Based on the Stipend Table above please create a new table for yourself

Table 1: Stipend Table

Section 1 (Done)	$25
Section 2 (Done)	$40
Section 3 (Done)	$50
Section 4 (Chapter 1-8)(Done)	Based on final project
Section 5 (Final Project)(Done)	$50-$400 ($50/chapter based on the number of chapters from the book used in the final project)
Total	$115+$385=$500

- **Bank Name:**Allied Bank Ltd
- **Branch Code/Address:**0870-PHASE1 HAYATABAD PSHWR
- **Account Title:** Muhammad Wahaj Tahir
- **IBAN:**PK26ABPA0010064057290014
- **Account No:**08700010064057290014

Asana Board:

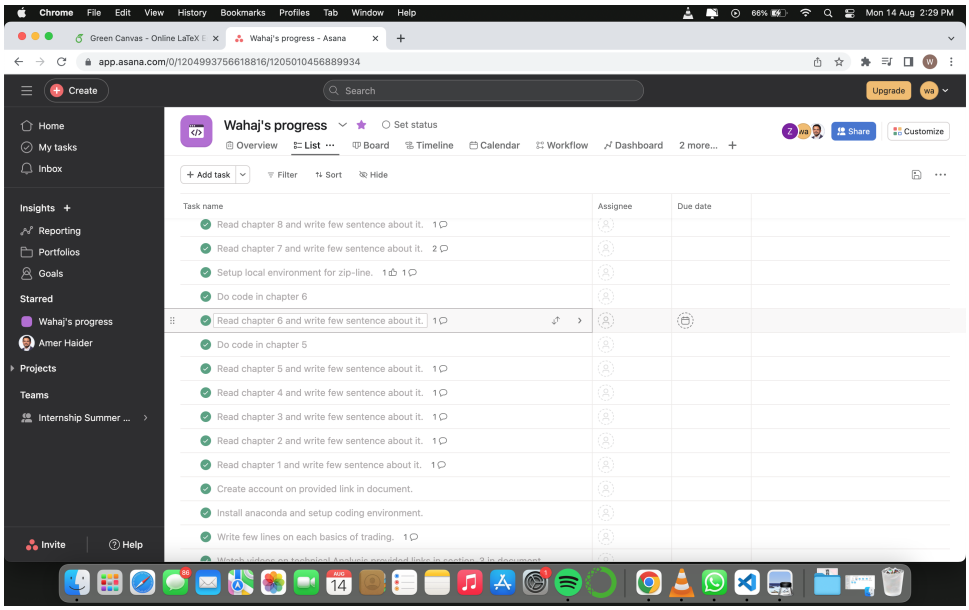

Figure 1: Asana Board

2 Final Project

I will give an overview of the project in sequence followed in the document.

2.1 Download minute resolution data of NVDA for the past 60 days from Yahoo Finance

- When I tried to download minute resolution data it did throw me an error"Only 7 days worth of 1m granularity data are allowed to be fetched per request."
- For that I was only able to fetch 1-day data so I fetch past 200 days.
- For computing the SMA I used **Adj Close** column because it gives more accurate answers.

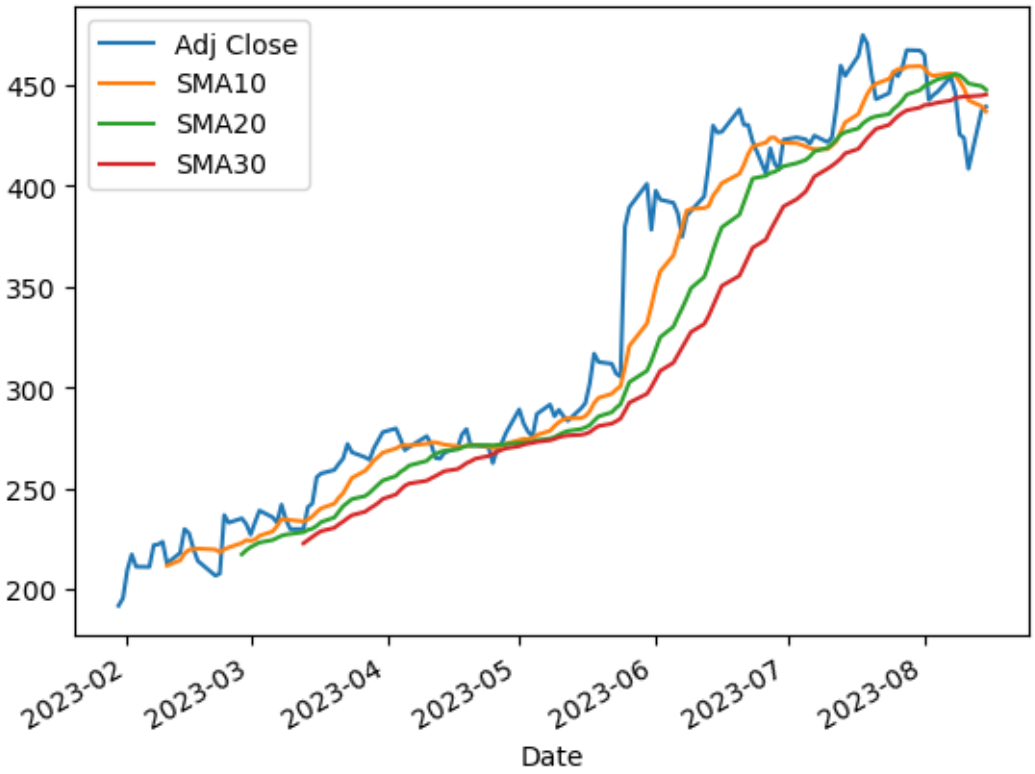

Figure 2: SMA10,20,30

2.2 Create a strategy#1

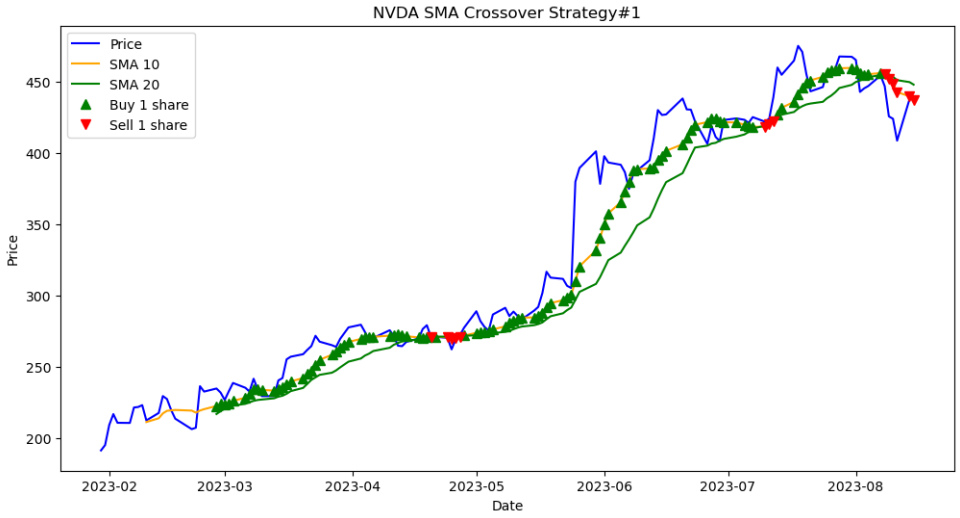

Figure 3: Strategy#1

2.3 Create a strategy#2

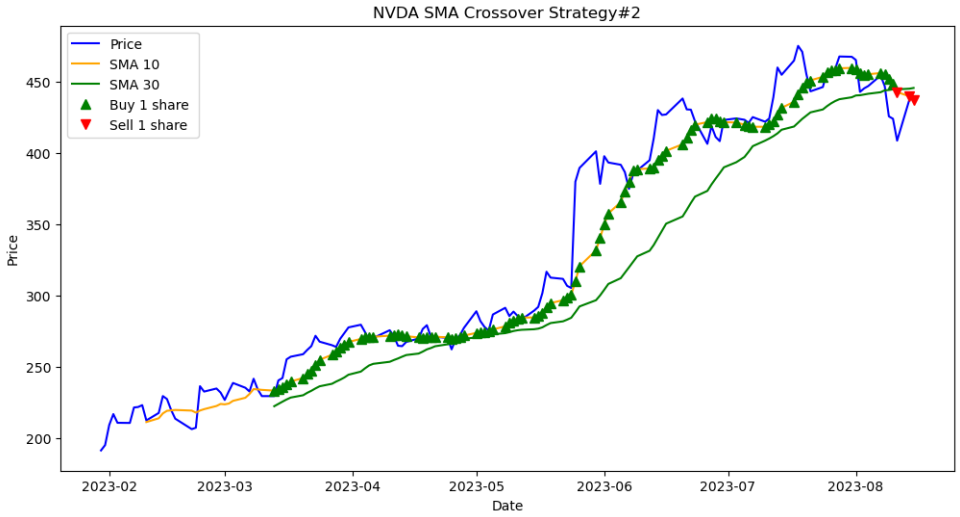

Figure 4: Strategy#2

2.4 performance metrics of strategies 1 and 2

```
Total Return 1: 0.4783491998210865
Total Return 2: 0.5546474314234089
Annualized Return 1: 1.4224945177010175
Annualized Return 2: 1.788877140074118
Sharpe Ratio 1: 1.8385010487904545
Sharpe Ratio 2: 2.1824342315984557
Maximum Drawdown 1: -0.45283198195951957
Maximum Drawdown 2: -0.5164942002208596
Number of Trades 1: 7.5
Number of Trades 2: 1.5
Win Rate 1: 0.4233576642335766
Win Rate 2: 0.41605839416058393
```

Figure 5: Performance Metrics

Table 2: Performance Metrics

Total Return	Strategy 2 (0.5546) has a higher total return than Strategy 1 (0.4783), which suggests that Strategy 2 has generated more profit over the specified time period.
Annualized Return	Strategy 2 (1.7889) also has a higher annualized return than Strategy 1 (1.4225). This means that, on average, Strategy 2 has produced greater returns per year compared to Strategy 1.
Sharpe Ratio	Strategy 2 (2.1824) has a higher Sharpe ratio than Strategy 1 (1.8385), indicating that Strategy 2 has provided a better risk-adjusted return, considering the volatility of the returns.
Maximum Drawdown	Both strategies have experienced drawdowns, with Strategy 2 having a slightly larger maximum drawdown (-0.5165) compared to Strategy 1 (-0.4528). A lower maximum drawdown is generally preferred, as it signifies a smaller decline from the peak portfolio value.
Number of Trades	Strategy 1 (7.5) has a higher number of trades than Strategy 2 (1.5). This suggests that Strategy 1 is more active, potentially resulting in higher transaction costs and more frequent adjustments to the portfolio.
Win Rate	Both strategies have relatively similar win rates, with Strategy 1 (0.4234) having a slightly higher win rate than Strategy 2 (0.4161).

2.5 Evaluation of Strategy 1 and 2

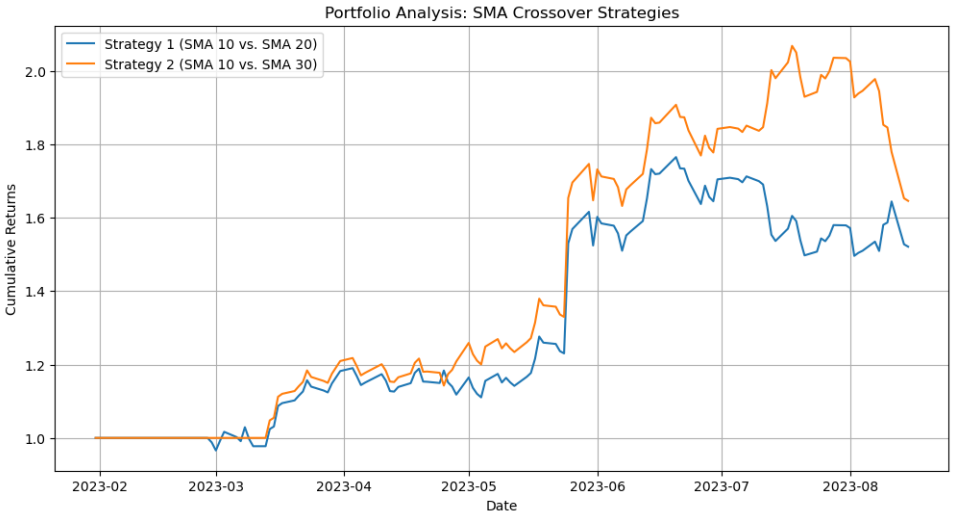

Figure 6: Comparing

Conclusion:

Strategy 2 has performed better than Strategy 1 in terms of total return, annualized return, Sharpe ratio, and maximum draw down.

However, it's important to consider the context, market conditions, and other relevant factors when making a decision. A higher return doesn't always imply a better strategy, especially if it comes with significantly higher risk or other limitations. It's advisable to analyze these metrics alongside other relevant information before making any investment decisions.

2.6 Create a table that describes what you learned from each chapter and how you applied it

Table 3: Chapters Description

Chapter 1	Inchapter 1 the author talked about the basic understanding of a book, how it is written, how to proceed with it, and how to keep the flow maintained.
Chapter 2	The author has explained systematic approach why we need it,he talks about the methodology, time management,why do we need a model,How to perform back testing effectively etc.
Chapter 3	The author talked about which parameters are essential in constructing a linear model. Moreover, he talks about rules,risk, and investment strategies.
Chapter 4	Sharpe ratio for risk and adjusted its performance.
Chapter 5	Performed backtesting using SMA crossover strategy using pandas.
Chapter 6	Created graphs of prices,SMA10,20,30.
Chapter 7	Didn't use zipline,but I have provided the solution to setup.
Chapter 8	Returns, volatility, drawdowns, and other risk-related measures are showed in performance metrics.