**Longterm Crypto Projections (Robby, Asia, Chance, James)**

The purpose of our project is to put together a well diversified crypto portfolio aiming for long term growth over a 5 year period. Diversification comes from more stable/ predictable coins like BTC and ETH, while potential high growth potential comes from DOGE and XRP. BNB and Cardano offer a different type of coin from the others to provide further diversification. After analyzing each coin, Monte Carlo simulations will be run on the portfolio as a whole to predict future performance that will be shown in a jupyter notebook.

5 year Crypto Portfolio,

6 Coins

Bitcoin and 5 Alt Coins

Ethereum

Doge

Xrp

Cardano

Binance

**Data:**

Will come from Yahoo Finance

**Analysis**

Sharp Ratio

Comments on the performance of each coin over the last 5 years

Economic impact on each coin (Presentation)

Graphs over the last 5 years

Line and Bar Graphs

· Bitcoin vs Ethereum

· XRP vs Doge

· Cardano vs BNB

· Bitcoin vs Altcoins

Value to portfolio of Each Coin to the Portfolio

Future Coins to Add Solana, Chainlink, Polkadot, Ape Coin, Vechain

Monte Carlo Comparison at the end

Robby - Sharp Ratio

Chance- Pull Data

Asia - Graphs

1. Use Box plots to measure average return ratio (Possibly Before the Sharp Ratio)

BTC, ETH, DOGE, XRP

2. Percent Change Calculation Dataframe

BTC vs ETH

XRP vs DOGE

3. Trading Volume as a Bar chart overlay

BTC vs ETH

XRP vs DOGE

James - Graphs

1. Use Box plots to measure average return ratio (Possibly Before the Sharp Ratio)

CARDANO, BNB,

2. Percent Change Calculation Dataframe

CARDANO vs BNB

3. Trading Volume as a hvplot.line chart overlay

CARDANO vs BNB

BTC vs Alt Coins (ETH, XRP, DOGE, BNB, Cardano)

***# Cumulative***

btc\_average\_annual\_pct\_change = (1 + btc\_daily\_pct\_change).cumprod()

btc\_average\_annual\_pct\_change.head()

btc\_average\_annual\_pct\_change.plot(figsize=(10,5), title="BTC Average Annual Percent Change 2017-2022")

eth\_average\_annual\_pct\_change = (1 + eth\_daily\_pct\_change).cumprod()

eth\_average\_annual\_pct\_change.head()

eth\_average\_annual\_pct\_change.plot(figsize=(10,5), title="ETH Average Annual Percent Change 2017-2022")

bnb\_average\_annual\_pct\_change = (1 + bnb\_daily\_pct\_change).cumprod()

bnb\_average\_annual\_pct\_change.head()

bnb\_average\_annual\_pct\_change.plot(figsize=(10,5), title="BNB Average Annual Percent Change 2017-2022")

xrp\_average\_annual\_pct\_change = (1 + xrp\_daily\_pct\_change).cumprod()

xrp\_average\_annual\_pct\_change.head()

xrp\_average\_annual\_pct\_change.plot(figsize=(10,5), title="XRP Average Annual Percent Change 2017-2022")

ada\_average\_annual\_pct\_change = (1 + ada\_daily\_pct\_change).cumprod()

ada\_average\_annual\_pct\_change.head()

ada\_average\_annual\_pct\_change.plot(figsize=(10,5), title="ADA Average Annual Percent Change 2017-2022")

doge\_average\_annual\_pct\_change = (1 + doge\_daily\_pct\_change).cumprod()

doge\_average\_annual\_pct\_change.head()

doge\_average\_annual\_pct\_change.plot(figsize=(10,5), title="DOGE Average Annual Percent Change 2017-2022")

***# Rolling Standard Deviation***

btc\_average\_annual\_pct\_change.rolling(window=21).std().plot(title='365-Day Rolling Std Deviation', figsize=(20,15))

eth\_average\_annual\_pct\_change.rolling(window=21).std().plot(title='365-Day Rolling Std Deviation', figsize=(20,15))

bnb\_average\_annual\_pct\_change.rolling(window=21).std().plot(title='365-Day Rolling Std Deviation', figsize=(20,15))

xrp\_average\_annual\_pct\_change.rolling(window=21).std().plot(title='365-Day Rolling Std Deviation', figsize=(20,15))

ada\_average\_annual\_pct\_change.rolling(window=21).std().plot(title='365-Day Rolling Std Deviation', figsize=(20,15))

doge\_average\_annual\_pct\_change.rolling(window=21).std().plot(title='365-Day Rolling Std Deviation', figsize=(20,15))

***#Sharpe Ratios***

btc\_sharpe\_ratio = eth\_average\_annual\_pct\_change / btc\_average\_annual\_std

btc\_sharpe\_ratio.plot.bar(title='Sharpe Ratios')

eth\_sharpe\_ratio = eth\_average\_annual\_pct\_change / eth\_average\_annual\_std

eth\_sharpe\_ratio.plot.bar(title='Sharpe Ratios')

bnb\_sharpe\_ratio = eth\_average\_annual\_pct\_change / bnb\_average\_annual\_std

bnb\_sharpe\_ratio.plot.bar(title='Sharpe Ratios')

xrp\_sharpe\_ratio = eth\_average\_annual\_pct\_change / xrp\_average\_annual\_std

xrp\_sharpe\_ratio.plot.bar(title='Sharpe Ratios')

ada\_sharpe\_ratio = eth\_average\_annual\_pct\_change / ada\_average\_annual\_std

ada\_sharpe\_ratio.plot.bar(title='Sharpe Ratios')

doge\_sharpe\_ratio = eth\_average\_annual\_pct\_change / doge\_average\_annual\_std

doge\_sharpe\_ratio.plot.bar(title='Sharpe Ratios')

***# Box Plots***

btc\_average\_annual\_pct\_change.plot.box()

portfolio\_btc.plot.box()

eth\_average\_annual\_pct\_change.plot.box()

portfolio\_eth.plot.box()

bnb\_average\_annual\_pct\_change.plot.box()

portfolio\_bnb.plot.box()

xrp\_average\_annual\_pct\_change.plot.box()

portfolio\_xrp.plot.box()

ada\_average\_annual\_pct\_change.plot.box()

portfolio\_ada.plot.box()

doge\_average\_annual\_pct\_change.plot.box()

portfolio\_doge.plot.box()