Quantitative Finance w Python

Date

Uses libraries: Pandas, Numpy, Yfinance, Matplotlib

Specify Date Range to download

Use **Adj Close** = Factors in Dividends, stock splits, ect

Computing Daily Returns

(End price / start price) - 1 } 1 day / 2 day Returns

(1 + r1) • (1 + r2) - 1 } 2 day from 1 day

Plotting daily Returns

```
ax = df.R.hist(Bins = 50)
ax.set_title("Title")
```

Monthly Returns

Compute return Series
↳ gives expected Return

Can plot histogram, boxplot, Probability plot

Monte Carlo Simulation

Date

Overview

Used to model + Analyze impact of uncertainty.

How it works

1. ID problem / System → Stock price, risk assesment, ect
2. Set input variables → Normal Distributions of Stock Ret
3. Run Random Simulations → Thousands/Millions of Samples
4. Analyze results → Mean, St. Dev, Percentiles, ect

Common Uses

- Risk analysis, Option pricing, Stock price forecasting
- Project Risk Mngmt, Demand forecasting

Used S+P 500 historical Data, average movements and rises in percentages to calculate probability of different return in the future

↳ Helps investors prepare for worst case scenarios

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