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**University Of Toronto: FinTech Bootcamp**

**Project Proposal: Portfolio Optimizer**

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**Abstract**

The project aims to calculate the optimal portfolio weights for a given set of stocks. Data will be pulled from the Alpaca API and after cleaning the data, we will then proceed to calculate each stocks Return, Standard Deviation, Variance and CoVariance metrics. Using this we will iteratively determine the maximum portfolio Sharpe Ratio and accompanying portfolio weights. Once the optimal portfolio has been determined, we will then proceed to back-test the data and calculate descriptive statistics for the portfolio and compare to the market (benchmark: S&P Index). We will also look at performing a Monte Carlo Simulation of the portfolio to get a sense to the Risk versus Return expectations. Lastly, we will try to make the application dynamic and interactive.

Steps to be followed are outlined below:

