My class project will be a program that is meant to show the data for how beneficial it is to enter the market at a younger age. I will be doing this by using a Monte Carlo simulation to have it show the possibilities for early investors and late investors with a group of stocks. I will be contacting a financial advisor to get a list of common stock the people invest in. this information is needed for the program. I will then show the rates of return of both early and late investors. I will be also adding money to both early and late investors supposed portfolios each year. The early investor will be adding half of what the late investor will be adding each year. I will run each simulation for a different number of years, the early investors will be simulated for double the amount of time the late investors will be simulated.

I believe this program could have many different uses like I said earlier it can be used for an education purpose, for a finance tracking purpose, or maybe even a predictive purpose with some added modifications to the code to track trends of certain stocks or even whole markets by tracking market indicators like the S&P 500 or the Dow jones industrial average. Or depending how it turns out I might be able to sell to a few financial institutes or banks, maybe modify it or use it as a base to make one that predicts futures, commodities, mutual funds, index funds, etc. I know it could help out our local bison fund if it does what I’m trying to get it to do.

The Monte Carlo simulation helps avoid the “flaw of averages” which means that plans based on assumptions about average conditions usually go wrong.

I will have to modify the original program to make it better fit my needs of course. The final product of this simulation should be a graph what shows the most unlikely extremes, some more likely good and bad outcomes, and the most likely range of outcomes right in the middle. It will be displayed on two bar graphs and one overlapping line graph to show the range of outcomes for both early and late investors to show their growth side by side.

I am also considering adding two things into this project for supporting my claim. 1. I will be asking the financial advisor for some general info on the growth rates and standard deviations for a small group of investors from both early and late investor. This can be some great additional info to plug into the Monte Carlo simulation to help really prove my point. 2. I will be taking some historical data for a small handful of stocks and running the simulation on it for a certain number or years and compare how close the simulation’s outcome was to the actual data outcome in present day.

this is a very basic example of the monte carlo simulation

the lines of code below is a small sample of code that is very similar to the code i will use for the project itself

we first have to import the data library

next we choose which stocks we wanna run the simulation with in this case we selected these seven (google, facebook, apple, netflex, amazon, tesla, and microsoft) this code then prints the stock info below from june 20th 2018 to june 20 2020.

the next line of code calculates the mu or mean of the historical returns, and sigma or standard deveation of the selected seven stocks along with making a suggestion of how much of a person portfolio should be invested in each of the seven companies

Converts dictionary to list of asset weights of the max sharpe ratio portfolio

prints list made in last code

makes a graph of the stocks return over time