

# **Module 1-7 From Theory to Practice: Compiling a Portfolio to Generate a Return $\geq$ Total Medical Insurance Bill**

## **Project 1 - Proposal**

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**NOTE:** I fully acknowledge that Mr. Firas gave me the overlying inspiration for my idea, I had only thought up the specifics.

#### **Problem Statement:**

Capital does ‘nothing’, as it sits in savings. Inflation and a loss in the time value of money are significant factors to take into account when setting financial goals. As more investors and working individuals looking to protect their assets from depreciation, the smart long-term planner also looks to minimize spending as much as possible. Medical insurance, too many, is a significant expense, to say the least— and has an important characteristic, where generally as we grow older and more prone to disease and ill health, our medical bill will in return reflect that change. The end goal for many is to have enough money saved up to pay for any medical emergency as we approach retirement.

#### **Vision :**

The vision of my project is to create a medical bot that can compile a portfolio for the user, based on the medical insurance information provided. Many wealthy investors, or individuals with relatively low-cost medical insurance, may have the opportunity to set aside a certain amount of capital to allow insurance to ‘pay for itself’. Such an investment would have to be a significant investment indeed, but the prospect of having a potentially ‘free’ insurance coverage will be attractive to many investors. Dividend yields, crypto-currency staking yields, as well as stock returns may be evaluated as possible investment options. Instead of saving money, we could look to curate a portfolio that could potentially ‘completely pay for’ our medical insurance.

#### **Potential Features:**

The program could go a number of ways, so I will consult with the program TAs and Mr. Firas to help me pick the most exciting, and feasible approach to developing this portfolio compiler.

#### **Technologies/Features:**

- Questionary: The program will act as a sort of ‘chat bot’, that will ask the user about their current insurance information. The complexity could develop as follows:
  - I could only ask for medical insurance-related information, and follow that up with a few parameters for increased functionality – such as the country they live in, their state, and so on.

- I could ask for detailed medical information, and detailed portfolio specifications, which would mean that there would have to be a large amount of underlying code. The Ability to increase functionality, improve data reliability, and allow for more predictive features may open this project up to act as a 'base', through which all ensuing projects can add upon.
- Medical insurance prediction - based on provided information on the questionnaire:
  - I could use data to 'predict' how the user's medical insurance bill could change in the future— based on their underlying medical conditions and such.
  - I could use data that shows current medical insurance for those in their 60-70s/early retirement. I could multiply the current average medical insurance bill of people in those age groups by the expected % increase, to get reliable data on how much they may likely pay in the future.
  - I could use their current medical insurance bill, and find the rate-of-change in medical insurance costs, to make a customized prediction (this will likely be the course of action, as will be reliable and won't take too much of my available time).
- Portfolio Curator:
  - I could simply generate or 'pull in' data via. An API (most likely Alpaca), where I would have access to stocks, and cryptocurrency securities (or 'tokens'- though the SEC has been treating them as though they are securities). I could create a 'monte carlo sim' to make a prediction while the program is running. The key would be to have an effective way of curating semi-random portfolios, and evaluating which ones could eventually pay for the user's medical insurance.
  - Potentially, depending on how 'soon' the user wishes for his 'MDI portfolio to cover his insurance, different timeframes could be put in place. A question is asked 'in how many years are you looking to have your insurance bill covered?'--
    - The tradeoff would be that the sooner the customer wants to have his medical bills paid for, the more volatile and risky his portfolio will likely become.
    - An effective portfolio curator would not try and 'overperform' with its investments, I would attempt to have the portfolio only take as much risk as is needed within the timeframe— most likely, a 'top five list of portfolios will be provided in the end.
  - Advanced functionality, which would take time, but what I would love to try and do in my free time would be to curate '5 different' portfolios that meet different needs. Perhaps one portfolio will attempt to pay for the 'MDI' with dividends, and another through dividends and returns, etc.
  - Another functionality would be to showcase one 'low-risk' portfolio, one 'medium-risk', and one 'high-risk'; this could be done by first simulating all the stocks and cryptos separately, dividing them into three risk-cohorts, and then performing another round of simulations in randomly put-together 'groupings' of stocks and cryptos. The 'low-risk' stocks/cryptos would only be paired with other low-risk stocks and cryptos, as an example.
  - Again, the purpose of the portfolio will be to cover medical insurance costs, and so relies on gauging the portfolio returns against the predicted medical insurance costs of the user.

- Of course, if no portfolios 'make a match', the program would say so. Whether 'ultra-risky portfolios' (for lack of a better term) will be pushed forward by the program, I will be excited to see it!