**General Savings Program:**

**About:**

This program was created to help fill a void that I felt was present in my personal savings. I think there are several tools and information available for saving for retirement, but not so much for other personal savings. I know, to be a good steward, that I should be saving and investing for other matters in my life, such as vehicles, emergency funds, my 4 yr old daughter’s wedding, major house repairs, etc. These were all things that I knew I wanted to set money aside for, but always had trouble feeling content with how much and how aggressive I should be with my ‘shorter-term’ investments. I needed some methodical and quantitative approach to be able to step through and feel at peace knowing that, whether investments had good or bad returns for a given year, my decisions were based on sound reasoning. This document will step thru both how I developed as well as how to use this tool for your own savings.

The main revelation that this tool was built for was that, I can make better decisions if I approach each component of savings in its own vacuum (independent of the other components). What do I mean by that? In this case, I believe that the ‘savings decision process’ can be broken up into three main components, and if approached independent of the others, we can make better decisions. The three components are:

1. What investment options am I willing to put my money in? (Ex: stocks, bonds, money market, etc.) Once you determine your list, you then assign each option an average interest rate as well as a risk factor. The risk factor can either based off other’s analyses, such as a beta factor, or can be based off your own personal view of the options. The main thing is that the risk scale you choose to use is consistent (each investment risk factor is appropriately proportional to each other). I would recommend using the latter approach and using a scale of 1 to 5 (1 being the lowest risk and 5 being the highest). Remember, at this point you are not thinking about how much money you are going to invest or even what you are saving for. You are simply identifying the investment options you would be willing to invest in as well has how comfortable you are with putting your money in each investment (via the risk factor).
2. How many years out would I be comfortable with all of my savings being invested in the highest risk options? How many years out would I want all of my savings in the lowest risk options. For example, if my highest risk option was ‘stocks’ and my lowest risk option was ‘money market’, I could say I am comfortable with all my savings in stocks as long as I wouldn’t need to access it for 10 or more years and by the time that my savings is within 3 years of maturing, I want all of it in money markets.
3. What all do I want to be saving for? And for each item, how much money do I need at the time of maturity and how many years out until I need it? For example, I am saving for a future vehicle; I need to have $15,000 dollars saved and I need it in 8 years.

Notice that it is not until step 3 where you finally consider what you are saving for and how much. The first two steps are simply used to build a dynamic saving portfolio tailored to your comfort level (see Exhibit 1 below for complete example). This third step is where you provide that portfolio with inputs.

Once each of these three components are completed, you simply provide the program with your current principal (the current value of all your savings) and hit ‘calculate’. The outputs will be a detailed savings plan for each item as well as a summary of how to allocate your current principle amongst the different investment options and how much you need to invest this next year (See Exhibits 2-3 for full example).

**How It Works:**

What does the program do exactly? Well, I would say three things:

1. First it takes the inputs from components 1 and 2 above and builds a savings portfolio. It uses the minimum risk and maximum risk year range to build an annual portfolio that changes each year (from highest risk options to lowest risk options).
2. It allocates the given principal to the items that have the shortest term to maturity. This is the most optimal way to use your principal assuming that your interest rate on your investment options is proportional to the risk on your investment options (e.g. stocks having higher risk and higher interest rate than money market).
3. It runs multiple iterations to then solve for what annual contributions will be needed to meet the future amount needed for each item given your dynamic portfolio.

**How to run:**

This program currently runs in python. If you do not have python yet installed, you will need to install that on your device first. Once installed, you will also need to install a couple python libraries:  
 1. Sqlite

2. header

3.tkinter

**Why I Posted This:**

I posted this on github for two reasons:

1. I wanted to share this tool with others. I have found it to be very useful and am able to be more content with my investment decisions.
2. I want others to maybe ‘fork’ this program and make improvements. You will very quickly see that the user interface is pretty terrible. I know virtually nothing as far as developing a front-end goes. I feel pretty good about the back end, but I am certain there is room for cleanup and optimization.

Below are some examples for how this program can be used:

Savings Ex:

Retirement example

Portfolio Examples:

Stock funds

Sharing a risk factor