

CAPSTONE PROJECT - CSE 4099

AI GENERATED HIGH PROBABILITY PATH OF FINANCIAL SUCCESS AND CALCULATION OF ASSOCIATED RISK

REVIEW 1

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Guide Approval Screenshot



Abstract

It is well known that managing finances is an integral part of the healthy functioning of a family or an individual but the approaches taken have not evolved from when money first evolved, save money to have a better retirement, save money for a rainy day, save money to buy the car/house/mobile you want. The traditional way of saving, keeping a small amount of money stored in the back of cupboard has been passed down generations to generations, but the traditional notion that money will not decrease in this form is wrong, inflation has continuously taken its toll on savings and the purchasing power of an amount today will most definitely change and will most definitely decrease, hence the amount saved is actually decreasing. Also this method of saving doesn't guarantee a properly planned life of expenses and the traditional method of saving usually leads to an individual paying more for an item compared to an investment. This kind of saving hopes that the amount saved is enough for any future emergency, which although might be the case but the odds are lesser than what would have been on a smart but safe investment. The major idea of the project is to give the user a tried and tested method based on cutting edge technology like ML and AI,, existing research and books written by uber successful persons. The project will give due attention to all major aspects and will try to guarantee all major facets, Health, Investment, Planning for expenses, planning and saving for emergency etc.

Problem Statement

Financial Security in the present day and age is one of the most important but underrated skills. Managing your money to guarantee a life of comfort and avoid hardships associated with money is one of the most important skills, there have been innumerable examples of rich people losing everything and everyday people retiring with a lot of money. This project will not guarantee the best returns but will try to guarantee decent returns with minimal risk associated.

Introduction

Financial security doesn't just mean investing your money in business, stock market or anywhere else and getting attractive returns, it includes many other things. According to *quicken.com* Financial Security means “*Financial security refers to the peace of mind you feel when you aren't worried about your income being enough to cover your expenses. It also means that you have enough money saved to cover emergencies and your future financial goals*”.

For the scope of our project, Financial security will encompass major financial parts which are Security of Health of self and dependents, investments to make to get decent returns with minimal risk, planning on how to pay for liabilities using proper planning to reduce stress on the user, planning on expenses of the user will incur in the future, expenses will be divided based on the time to expense and a proper calendar to show necessary information based on expense.

Project Objectives

- To create an app to understand the needs and predict the amount to be saved in terms of health insurance and identify the policy to be chosen based on several user chosen criterias.
- To create several calculators to calculate different variables like amount to save for retirement, amount to save per month, amount to save for insurance and amount to save for education.
- To create a calendar to show all upcoming expenses, plan and save for expenses.
- To create a plan to save for unplanned financial emergencies like job loss, starting a business or any other emergency.
- To create an investment plan to give returns above what other forms of investments like PF, FD, Bank Account etc. The risk appetite of the user will define the percentage returns.
- To create a module to calculate the risk associated with each module and display it to the user

Feasibility Study

1) **Technical Feasibility:**

All the technologies used in the project are available freely and are open source or free. The API's used in the project are freely available.

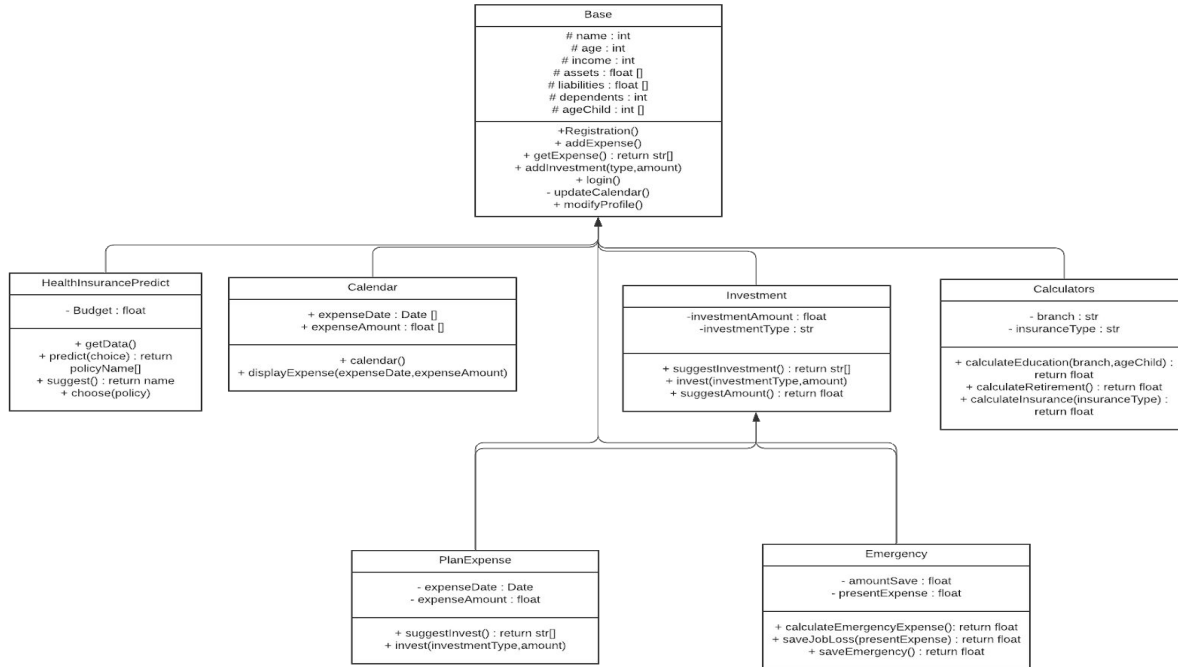
2) **Financial Feasibility:**

The project uses Open Source and/or free software. The data to be used in the project is free but using it for retail purposes is not covered in the license. Selling or using the API in a project used by a large group will need a paid license, which for Bombay Stock Exchange is ₹20 lakh + taxes.

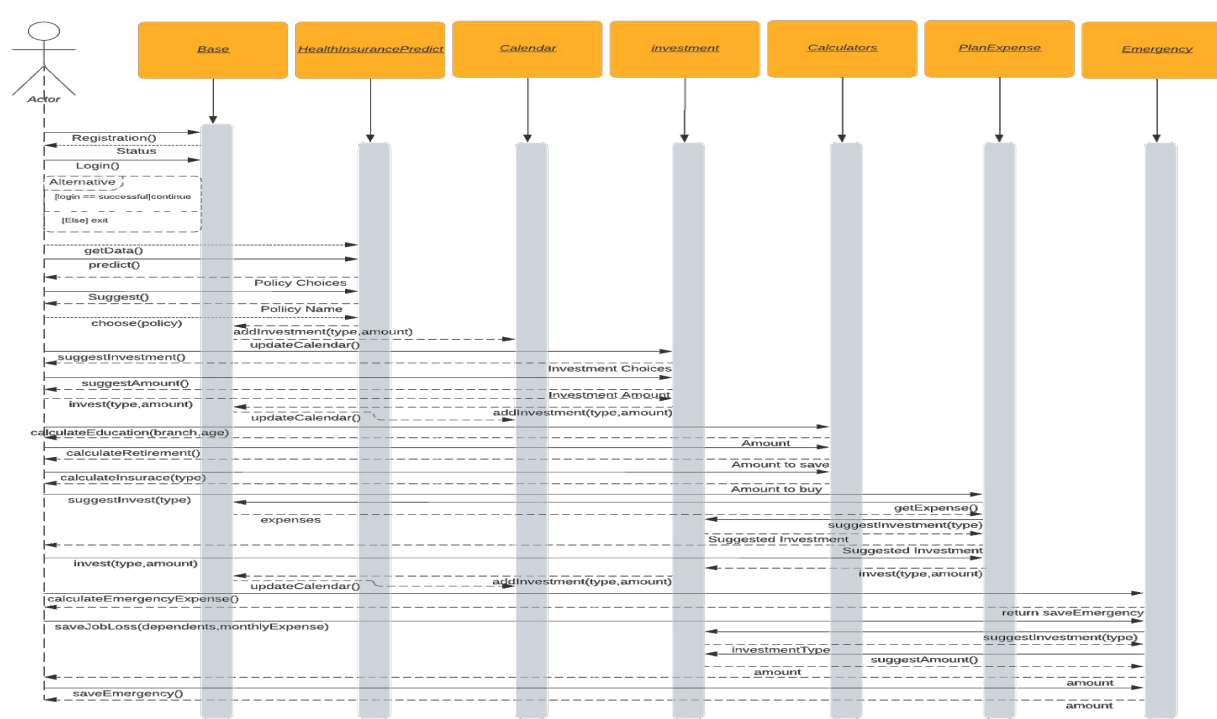
3) **Duration Feasibility:**

The individual parts and the integration of all parts along with testing will be completed before the 3rd Week of May, 2021.

UML Diagrams : Class Diagram



UML Diagrams : Sequence Diagram



Work Completed

1. Manually collected data of 787 health insurance, data collected on the insurances are Premium, Exclusion Years, Sublimits, No claim bonus, restoration and co-pay. The data are collected from the company itself or from Government sources(IRDAI) or from trusted sources like policy bazar or livemint.
2. Created a grading policy to grade different columns, each column is graded from 3 to 10 and the grading policy is created based on the data the column has.
3. Scraping data from moneycontrol website, data scraped are of 2 types, equity details and bonds details. Equity detail has 772 rows with 3 columns, name of equity, total quantity held by a total of 778 mutual funds and the price of the equity. The bond csv has 336 rows with 3 columns, name the rating of the bond given by a trusted and international organization and the quantity held by mutual funds.
4. Started with Django models to display the project, the model has apps for each different part, each view has its own tables, which have proper primary keys and foreign keys. Each app has its own views which are properly mapped to the models. Login and registration modules have proper encryption, with the passwords being stored as a hash, created by argon2.

Steps taken for implementation

1) **Health Insurance Module:**

- a) For Health Insurance module, the data has been collected manually from official and trusted sources only.
- b) Grading the policy has been done by using python, firstly the data has been cleaned to bring user readable data to a more gradable form, then grading policies were created, for numbers with decent ranges, the grading policy used is same as the one used in relative grading by VIT, rest have been graded based on the type of categorical data.
- c) Once graded, the policy has been displayed using the django app.
- d) The user preference is then taken by a number of factors, the factors are provided by the user, these factors are then taken into account, and then a totally user curated list has been created.

2) **Scraping Data:**

- a) For scraping the modules BeautifulSoup and requests have been used. As a starting point, I have taken 18 categories of mutual funds. These 18 categories have links stored in a list.
- b) These urls have been scraped to get the urls of the funds. These urls in turn has been used to scrape the name of equities and bonds.

Steps taken for implementation

2) **Scrapping Data:**

- c) Once the name of the equities have been found, the links of the equities has been searched, this gives the price of the stock.
- d) This price will be updated once a week.

3) **Django Web App:**

- a) Libraries used are argon2, bcrypt, JQuery, Vanilla JS and Bootstrap.
- b) The django web app has been created using best practices, the most commonly used principles are DRY(Don't Repeat Yourself), one of the main way of using this other than classes and functions is by using templates.
- c) The authentication of the app is done by using the modules given by the Django itself, this leads to simpler and more effective implementation, the passwords that are stored are not visible to anyone including the root user, the password are stored as hash and is done using argon2.

Steps taken for implementation

3) **Django Web App:**

- a) The styling hasn't been completed, but the implementation has started and styling will be done within this week, styling has been done using Static files.
- b) A lot of styling has been done using Bootstrap while a lot of functionality has been implemented using JQuery and JS.

4) **Version Control:**

- a) For version control, git has been used as the local repository while github has been used as the remote repository, updated files are frequently pushed to the github repo.

References

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