

Project Journey has been a great learning curve for me both technically as well as in other areas and skills like idea formulation, market research, team dynamics, role playing, communication & collaboration, demarcation of various implementation phases while facing and completing challenges and various type of tasks at hand.

A little bit of history before I share some bits of my personal contribution - after our first class, I thought of forming a team at an early stage and one by one I asked Zhang, Li Sheng and Veda respectively and soon we all formed a team.

Initially, I was thinking of implementing some vision-based intelligent sensing system for situation detection and monitoring as I already had some basic framework and ideas in mind but after few rounds of discussions, we finalized on proceeding on some sort of policy recommendation system.

As a senior member of the group, I respected individual choices and preferences and helped teammates where they really asked or needed inputs from me and the remaining bits I tried to cover myself (for example Video Presentation or DialogFlow etc.).

Personal Contribution

Business Problem/Domain Familiarization - As a starting point, I shared a matrix of Integrated shield policies and rider plans and explained more on domain aspects. One reason, I had myself spent few weeks during Nov and Dec last year, while researching on various insurance policies websites and talked with various agents to find a suitable policy for myself. Apart from couple of good articles online, there was nothing much that I could find for a personalized solution or an un-biased review among all insurance providers. Most of the hard-work of analysis is left for the buyers to do themselves. Worst thing is if they miss some important aspect or clause then it may well cause them dearly decades down the line! With these thoughts, I shared some more initial info in the group and everyone seemed to agree to proceed on the same.

First, to start collaborating sooner, I created a git repository and added everyone as collaborator so that we could start committing our changes. Template wise depression survey project was used because it was on Spring boot and with workbench and runnable webapp. So, once it was cloned to our repo as initial POC, I worked on it further to enable JPA support, exposed restful APIs, created entities and facilitated seamless integration of data between Database, UI and various backend services like Calculation module etc.

In the initial stage, as the model was still expanding, to avoid many DB related bugs/inconsistencies, I kept the application running on in-memory DB. Once the model was stable, we switched back to MySQL as a real production DB.

I worked on end to end implementation of calculation module for Multiple Criteria Decision Analysis (MCDM/Grey Relational Analysis) and facilitated exposure of data through various calculation stages like normalization, deviation coeff. and Gray relational values, for all policies features and age-premium related matrix and user provided values against these matrices as well. These calculations were crucial inputs for Optaplanner and DM modules.

I also developed the Questions module and added questions that we see on the UI to capture user details and preferences/importance. As it is completely driven from the DB and it should have saved a lot of development time. Questions can use static options or can dynamically create ranges from data at the runtime.

I reviewed and helped enriching some crucial features that were missing in the initial policies details in the DB like Co-Insurance, Deductibles etc. and then added the same features as Questions.

From the architectural perspective, I divided questions workflow into multiple stages. For example, Stage 1 is user personal details mainly meant for Drools or Data Mining modules and Stage 2 questions are meant for Optaplanner for finding the optimal policy. After stage 2, is user feedback functionality, for which I added the required backend part.

After DialogFlow workshop, I came up with idea that lot of apps simply leave the users at the recommendation screen only but for the customer, real work starts from there. Therefore, I worked on implementation of DialogFlow backend service that could query various knowledge bases. I also configured DialogFlow (Intents, Entities, and Policy specific knowledge base documents). As per the need UI can call backend service or directly call DialogFlow.

Veda and I worked to complete and deliver the presentation in the first review.

Part of documentation, I prepared the complete video presentation as well.

What learnt is most useful for you

Normalization calculation and GRA was quite useful. it comes handy in the Excel and can be applied in many day to day analysis too.

How you can apply knowledge and skills in other situations

Normalization and MCDM/Gray Relational Analysis – As I am working on Data Quality (DQ) rule engine I think I can apply these techniques out of the box on 6 data quality dimensions namely accuracy, completeness, consistency, timeliness, validity, and uniqueness. Depending upon how a recordset performed on rules of each dimension, I can calculate the overall score of a batch giving a aggregated view point of Data Quality which will depict a broader health of the system.

DialogFlow is also very useful as we can extend our household gadgets like Google Home to combine with many other services or even something hosted by myself. I am not sure how much is feasible in the Office due to various restrictions but for personal projects it is an amazing addition like I would create a monitoring system using webcams streams and by voice commands I enable or disable any rule as per my monitoring needs.