# SINGAPORE INTELLIGENT INSURANCE RECOMMENDER SYSTEM

## INDIVIDUAL PROJECT REPORT


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**DOCUMENT VERSION <1.0>**

**3-May-2020**

**Table of Contents**

## 1. Objective

The main objective of this report is to provide an understanding to the reader on how the author of this report has applied the concepts learnt during this course of Machine Reasoning, Reasoning Systems and Cognitive Systems in the practical application of the lifecycle of the Project.

## 2. Personal background and Reflection on my project journey

Working in the banking sector for the past few years, and then being exposed to the intelligent new world of the different reasoning techniques, cognitive architectures, tools, languages and framework has been a very intriguing journey. Very supportive Professors who have patiently answered all our queries, has helped me to gain a good understanding of the modules.

### 2.1 Reflection on my project journey

As part of this project initiative, we as a team, wanted to apply the areas we have learnt such that it gives us a better understanding to the application of knowledge learnt to the real-world problems. After brainstorming on several ideas, we finally decided to resolve a very common problem every individual will require to decide for himself or his family on purchasing an insurance policy. This policy could be a health insurance/ life insurance/ mortgage insurance… Insurance is a must to for an individual to have a sense of financial security. However, in today's world of marketing and agents, it can be overwhelming to make a decision.

a. First step, we met with the Subject Matter Expertise (AIA insurance company) to share our idea of the project. He was able to resonate and reciprocated well, and helped us to understand the concepts of policies, approach in evaluating them based on the user details. This provided us with a confidence to proceed with the idea.

b. Our team has a varied background, each one is skilled in the different areas which has greatly contributed to the success of the project.
Zhang – Java developer, Li Sheng - UI developer, Prashant – Java Developer and myself having SQL, Documentation and presentation background have worked together to the success of the Project. Having good communication within the team, has helped each other to learn new skills in other members area of expertise. We would regularly to catch up every week after our working hours to discuss on the subjects learnt in the class, class assessments and project. Having said that, I was able to pick up the Spring boot framework on how the different layers work and communicate with each other in the front end.

### 2.2 Personal Contribution to the Project

Here are the different areas on my contribution to the Project.

a. **Policy Prediction based on Historical data (By Data Mining):** Performed web search to determine the historical transaction data of insurance policy purchases by consumers from the different providers. Having learnt the CRISP framework, applied the different stages required to achieve objective, recommending the most suitable policy based on the user details. I used the Orange tool for training and testing the model, the code was written in Python using the Orange classifier. Zhang also helped to validate and integrate the logic.

b. **Project Management:** By building a comprehensive work plan, assigning role and responsibilities, driving the regular calls for discussions and status updates, identifying and arranging the meetings with Subject Matter Experts and Consumers.

c. **Tester**: Write the detailed test plan covering all the aspects which includes the user preferences, policy features, normalization, data mining and Dialogflow. Capturing the issue log and tracking of all the reported issues is fixed by working along with Zhang for the fixes.

d. **Documentation**: All the necessary documentations from the beginning has been captured and walkthrough provided to the team. Upon receiving the feedback from the team, changes were tracked, incorporated and informed. The documentation performed includes: Requirement specification, Project Proposal, Project presentation. Screen design slides (in ppt) was prepared to demonstrate how the different questionnaire should be captured, Li Sheng has helped to develop it. In addition, also listed the different form fields, rules which required to be incorporated in the system.

e. **Knowledge Modelling**: During the initial design phase, worked upon the knowledge modelling steps to come up with the proposed knowledge model. And this was used as the base structure for the requirement specification and development.

f. **Requirement Elicitation**: upon identifying the problem statement/ idea for the Project, performed several readings to propose the required solution. Lot of study was also performed to finally proposed the MCDM – GRA methodology. I also prepared a document for the team for easier understanding of the concept. We required a more complex fuzzy set representation to capture the importance feature provided by the user, Intuitionistic Fuzzy Set seemed to be the right choice having the 3 degrees of membership function, this has been used to evaluate the importance of the policy feature to the user.

g. **Video Presentation**: Also supported Prashant in preparation of the video for the project.

h. **Optimal Policy Recommendation:** Supported Zhang in the discussion of the functionality, determining rules and building workflow.

## 2.2 Areas learnt deemed to be most useful

Though all the different information learnt in this semester has been very useful and interesting. Knowledge modelling and cognitive systems are the areas which has piqued my interest the most.

Knowledge Modelling, it has helped to me understand how extremely important it is building the knowledge from data, and how this can be ultimate guide for the complete implementation of a project. The different principles of task/ domain-oriented models and the varied reasoning approaches to solve the different kind of tasks. It is one of the most fundamental concepts which is required to solve any problem.

Cognitive systems, SOAR, SPAUN architecture models which approach the problem of how the human brain works has been fascinating. Handling of the different layers of abstraction – Biological, cognitive and social and each model built with significance on areas such Psychological modelling and Agent functionality also seemed very interesting.

## 2.2 Application to the real world

Though I have been working in the field of banking industry for a long time, and I see a great potential to use the concepts learnt so far. Here I will share my Wishlist of areas which I plan to achieve.

1. Going forward, every banking project should also include Knowledge Modelling as an initial important step in the SDLC.

2. Since I am managing the Customer Onboarding and KYC applications for the bank, we have a lot of customer data. And I see a great potential to perform the data mining and generate useful insights which can maximize the profitability of the bank.
    a. KYC operations on diagnosis of blacklisted individuals
    b. Fraudulent transactions which display inadvertent activity
    c. Determining the Prospective customers
    d. Using Cognitive systems, customer onboarding can also be digitized. Such that customers have the flexibility to open an account/ perform transactions by facial and speech authorization at the convenience of their location.

3. Also, I have a dream to help the disabled (such as blind) and less privileged (kids born with less than basic needs of life) to help in any possible ways to help them lead their life better. Such as blind people provided with the ability to perceive the environment and act accordingly. Also the less privileged provided with necessary guidance on basic education, easy access to information on cleanliness and diseases (symptoms, precautionary measures) could greatly make a difference and prevent many problems.

# 3. Conclusion

Project implementation and working along with the team has been a great exposure and experience. It has helped me to understand the concepts a lot better, I'm looking forward towards working on more projects.