**GRADUATE CERTIFICATE: Intelligent Reasoning Systems (IRS)**

**Individual Project Report**

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| **Project Title:** Churn Fortuneteller |
| **Team Member 4 Name:** Kar Chaudhuri Anirban |
| **Team Member 4 Matriculation Number:** A0108517H |
| **Journey in Churn Fortuneteller**  It is a great pleasure and wonderful opportunity to form a team from diversified backgrounds with the right, balanced mixture of talents to kick start the Churn Fortuneteller project as part of our semester project. Every team member helped one another in sharing their expertise, knowledge, and experience to sprout the thoughts on planning and execution of the project.  Due to the current circuit breaker we could meet twice face to face and then decided to continue our journey using zoom calls for sharing ideas and follow up on our individual work with each other throughout the project development time. We four of our project members discussed and given well thought and come to a consensus right from choosing the domain of the project and formulating the project plan of analysis, design, development.  I helped by coordinating research, having candid discussions, and giving own inputs of ideas which enables us to successfully complete the project in time. I architected the machine reasoning rules and machine learning models too in python. I had important share in documenting main report, for both data analysis visualizations and their interpretations, explaining interpretability of machine learning models as well. |
| **Acquire Domain Knowledge and Machine Learning Algorithms Principles:**  Even though we initially did not have experience in telecom customer management domain we patiently spent significant portion of time allocated to this project in understanding this business by picking the required business knowledge to understand analyze the data and make necessary decisions and argument to justify in selecting the churn variables.  I was reading about various services offered by different competitors in the market related to premium services, marketing strategies and price sensitivities of different segments of customers. I explored metrics/key-performance-indicators for measuring customer churn and possible solutions to reduce customer churn Some of us having a decent understanding on customer and their churn patterns from different industry which helped us correlate to the telecom industry as on plus point.  We proceeded onto reading about various machine learning models, especially tree -based models like decision trees, random forest and XGBoost. I enabled other team members to understand the principles by using simple visual aids and flow diagrams of bagging and boosting algorithms, as well as brute force vs random search optimization. Lastly, real understanding took place during simulations by running and finetuning python codes. |
| **Learn new technologies:**   1. I learned and became familiar in web development using html and css 2. Learnt deployment of micro web services using Python Flask library 3. Explored and discovered ways for writing efficient codes in Python as well as testing runtime |
| **My Involvement in Churn Fortunetelling Project**  I am involved in the application development of Churn Fortuneteller project from end-to-end with following stages of application development lifecycle.   * Application scope & design * Requirement Analysis * Data gathering, analysis and visualizations * Developing, testing, and optimizing machine learning model * Application Development * Code review * Documentation   + Project Proposal   + Churn Fortuneteller Project Report   + Prepared the Churn Fortuneteller presentation slides * Verification activities – documentation and coding |