GRADUATE CERTIFICATE: Intelligent Reasoning Systems (IRS)
PRACTICE MODULE: Project Proposal

Date of proposal:

26 April 2023

Project Title:

- **Project2 - Chronic Kidney Disease Classifier** based on Logistic Regression classification technique to classify the CKD patients whether they are CKD or CKD not

Sponsor/Client: *(Name, Address, Telephone No. and Contact Name)*

Institute of Systems Science (ISS) at 25 Heng Mui Keng Terrace, Singapore
NATIONAL UNIVERSITY OF SINGAPORE (NUS)
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Background/Aims/Objectives:

Project 2:
The proposed intelligent system will make use of various advanced analysis and learning techniques to train itself in a way that it can predict whether a person has CKD or CKD Not based on certain input parameters of patient.

Requirements Overview:

Project2: Chronic Kidney Disease Classifier

- Research ability
  - To build the CKD classifier, team would need to understand the nature of this problem since there are multiple medical parameters that need to be understood. Also to build the predictive system need to understand what model to be used and how the pipeline to be designed to assist the medical practitioners.
- Programming ability
  - Need to know Python , NLP techniques, ML techniques
  - Need to know HTML5
  - Need to know about REST APIs
  - Need to know about Streamlit for Dashboard building
- System integration ability
  - The backend will be Python based for model and dashboarding used for learning, analysis and reasoning task
  - FrontEnd will be HTML based and Streamlit based rendering
  - The data is restricted in this area so currently don't have access to any such database. The knowledge base used for this is a publicly available dataset that will be fed for Model training and prediction.

Resource Requirements (please list Hardware, Software and any other resources)

Hardware proposed for consideration:

- I5 and i7 etc
- My system configuration is Processor Intel(R) Core(TM) i5-8350U CPU @ 1.70GHz, 1896 Mhz, 4 Core(s), 8 Logical Processor(s).

Software proposed for consideration:

- Windows 10 and above
- Python packages as listed in Project Report and Git
- Reasoning systems, e.g. KIE jBPM, Drools, AppFormer, OptaPlanner, Fuzzy logic, Optimization, etc
- Pertained machine learning models, e.g. Vision, Speech, NLP
- Machine learning use cases, e.g. Orange3, R
- Deep learning tools, e.g. Neural Network Console Sony, Python Keras
- Chat-bots, e.g. Google DialogFlow, ChatterBot
- Streamlit for building interactive dashboards

Number of Learner Interns required: (Please specify their tasks if possible)

Ideally a team of 3 people should be enough for this kind of project but due to non-availability of people on similar ideas I am taking up the projects single handedly to develop.

Methods and Standards:

Procedures	Objective	Key Activities
Requirement Gathering and Analysis	The team should meet with ISS to scope the details of project and ensure the achievement of business objectives.	1. Gather & Analyze Requirements 2. Define internal and External Design 3. Prioritize & Consolidate Requirements 4. Establish Functional Baseline
Technical Construction	· To develop the source code in accordance to the design. · To perform unit testing to ensure the quality before the components are integrated as a whole project	1. Setup Development Environment 2. Understand the System Context, Design 3. Perform Coding 4. Conduct Unit Testing
Integration Testing and acceptance testing	To ensure interface compatibility and confirm that the integrated system hardware and system software meets requirements and is ready for acceptance testing.	1. Prepare System Test Specifications 2. Prepare for Test Execution 3. Conduct System Integration Testing 4. Evaluate Testing 5. Establish Product Baseline
		1. Plan for Acceptance Testing

Acceptance Testing	To obtain ISS user acceptance that the system meets the requirements.	2. Conduct Training for Acceptance Testing 3. Prepare for Acceptance Test Execution 4. ISS Evaluate Testing 5. Obtain Customer Acceptance Sign-off
Delivery	To deploy the system into production (ISS standalone server) environment.	1. Software must be packed by following ISS's standard 2. Deployment guideline must be provided in ISS production (ISS standalone server) format 3. Production (ISS standalone server) support and troubleshooting process must be defined.

Team Formation & Registration

Team Name: **Qiánzhān** **(**the idea of being at the forefront)
Project Title (repeated): • **Project2 - Chronic Kidney Disease Classifier** based on Logistic Regression classification technique to classify the CKD patients whether they are CKD or CKD not
System Name (if decided): **Project 2- Med Analytica**
Team Member 1 Name: Nilothpal Bhattacharya
Team Member 1 Matriculation Number: e1113631@u.nus.edu
Team Member 1 Contact (Mobile/Email): 83204831

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Programme Name:	**Project No:**	**Learner Batch:**
Accepted/Rejected/KIV:		
Learners Assigned:		
Advisor Assigned: Contact: Mr. GU ZHAN / Lecturer & Consultant Telephone No.: 65-6516 8021 Email: zhan.gu@nus.edu.sg		