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

Date of proposal:

5 March 2023

Project Title:

ISS Project: CareerWise Chatbot

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

N/A

Background/Aims/Objectives:

The project aims to create a chatbot career path recommendation system to give working or non-working professionals and students in all socio-economic groups, to have an accessible, interactive and alternative medium for initial career assessment, planning, **upskilling** or **reskilling** platform.

What issue or problem motivated it?

· For those students across various socio-economic groups, there is a limited accessibility to engage with the career practitioner or draw any guidance from different professionals due to a finite social circle.

· There is also some feeling of social anxiety when approaching a career counselor, what question to ask and how career services can be of support.

· Career services currently have an option to have one to one or group guidance sessions which is not a scalable structure.

Requirements Overview:

- Research ability
- Programming ability
- System integration ability
- Budget

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

Hardware proposed for consideration:
- GPU

Software proposed for consideration:

- Machine learning: scikit-learn; Python psychometrics libraries, girth and catsim.
- Deep learning NLP tools: Keras; Topic Modeling (LDA or BERTopic), GPT3 text embedding
- Chatbot: ChatterBot
- Robotic process automation: Selenium, BeautifulSoup for web scraping
- Cloud server: AWS
- Backend application: Flask
- Frontend application: Vue.js or Flutter

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

a team of four members (or individual work upon lecturer approval)

Methods and Standards:

Procedures	Objective	Key Activities
Requirement Gathering and Analysis	The team should consult with NUS Career Service and official government jobs databases like O*Net and Singapore Standard Occupational Classification (SSOC) on occupational scopes, descriptions, required skill sets and prospects. • Discuss the idea, elicit the requirements • Identify relevant questions to elicit respondents' input about their job preferences • Perform brainstorming, and clarify analytical inconsistencies • Develop a framework for the AI system to recommend career choices based on occupational requirements	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 with the occupational chatbot 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	Setup the test platform for integration and testing. To ensure interface compatibility and confirm that the integrated software meets requirements and is ready for acceptance testing.	1. Prepare Integration Test Plan 2. Build the staging platform environment in cloud. 3. Conduct System Integration Testing 4. Prepare Test Specifications and test plan
Acceptance Testing	User scenarios will be shared with User to test the AI Chatbot application	1 Identify witness for acceptance test

	To obtain user acceptance that the system meets the requirements for helping users to choose a career path.	2. Evaluate readiness for acceptance test 3. Perform Acceptance Test 4. Perform any rework if necessary
Deployment	To deploy the system into a production (Cloud 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: CareerWise Chatbot
Project Title (repeated): CareerWise Chatbot
System Name (if decided): CareerWise
Team Member 1 Name: Borromeo, Angelie Quiapo
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Team Member 5 Name:
Team Member 5 Matriculation Number:
Team Member 5 Contact (Mobile/Email):
Team Member 6 Name:
Team Member 6 Matriculation Number:
Team Member 6 Contact (Mobile/Email):

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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		

APPENDIX A: How can I apply AI to my business problem?