**COMP3900-9900 - 2019 T3**

**Project 4**

# Intelligent Assistant for electronic Logbook in Radiology training

Conversational agents or chatbots have become very common for websites and corporate services to help users quickly find answers to their questions without depending on a customer support person and possible waiting queues.

Medical students create and maintain logbooks to document their activities. Logbooks are an integral part of medical education at all levels of the medical profession.

The ideal logbook is a tool that guides medical students through their clinical rotation by highlighting important clinical objectives. When appropriately designed and used, logbooks can be used as a tool by supervisors to provide thoughtful and meaningful feedback to trainees.

Logbooks are part of the training requirements for independent supervision and reporting of radiology examinations, the student must maintain an electronic logbook of radiology examination cases performed during the study.

For example, the Level A CT Coronary Angiography (CTCA) Specialist – training requirements for independent supervision and reporting of CTCA examinations requires a Logbook of 150 CTCA cases performed within the previous 3 years, verified by a Level B CTCA Specialist. This logbook must be submitted in Excel file format and not as a PDF document. Templates for each type of training are provided.

This project focuses on the creation conversational agent that acts as an intelligent assistant for Logbook creation and management.

- The system should extract the requirements and the type of the required logbook from the content of a specific specialization by using

appropriate Natural Language Processing (NLP) and Machine Learning techniques to parse the content of the Training requirements and summaries key requirements of the training.

- Using the content of the training requirements and a few key questions to the user, generates an appropriate empty logbook and enables logbook entry via Q/A dialog with the user (assists in competing the logbook through conversation with the user).
- Prepares suggestions for appropriate logbook entry based on a previous similar logbook cases and provided relevant medical literature.
- Enables the supervisor to inspect the content of the log book and approves. The supervisor can also provide a feedback.

A Python-based solution is preferred (but not required) using:

1. modern development frameworks,

2. cloud-based architectures, and

3. building a solution which leverages on existing services/APIs without creating a full dependency on the selected tools.

It is essential that the system requirements are refined with the stakeholders and that the engineering of the system is thought through properly before building the individual components.

**Additional material and some useful references for Topic 4 (Intelligent assistant for electronic Logbook in Radiology training)**

1. Training in CT Coronary Angiography (CTCA)
   http://www.anzctca.org.au

2. Training Requirements for CTCA Specialists

http://www.anzctca.org.au/test

3. Logbook Template for Conversion of Level A to Level B CTCA Specialist Recognition
4. Guidelines for Course Providers
   http://www.anzctca.org.au/ctca-courses

5. Architecture for building Conversational Agents that support Collaborative Learning
   http://www.cse.unsw.edu.au/~cs9900/19T3/For-ConvrdstionalAgents/KumarAndRoseInPress.pdf

6. Dialogue and Conversational Agents
   http://www.cse.unsw.edu.au/~cs9900/19T3/For-ConvrdstionalAgents/Dialogue_and_Conversational_Agentsling_intro_2017.pdf

7. Conversational Agents, Dan Jurafsky Stanford University
   https://web.stanford.edu/class/cs124/lec/chatbot.pdf
8. Dialogflow - Build natural and rich conversational experiences https://dialogflow.com