

COMP3900/9900 – 2020 T1

Project 2

A Course Learning Outcome Generator

A good course design has a direct alignment between its various components particularly between learning outcomes and assessment. While course learning outcomes are present in every course handbook, checking their quality and writing them is not a simple process and requires careful consideration of the words used.

A systematic approach to creating a good learning outcome is exemplified here:

<https://www.indiana.edu/~oidd/tos/gen2/>

The aim of this project is to design and develop a system that does four (4) tasks:

- Evaluate the goodness of course learning outcomes (this requires a mix of user-based scoring and features extraction techniques)
- Using appropriate Natural Language Processing (NLP) and Machine Learning techniques to parse the content of the handbook and summarise key aspects of the course
- Using the content of the handbook and a few key questions to the users, generate suggestions for appropriate learning outcomes based on a suitable pedagogical theory
- Recommend a suitable assessment to achieve the given learning outcomes

A variant of the above is the setting of SMART (Specific, Measurable, Attainable, Relevant, and Time-based) goals for an individual or setting objectives/KPIs (Key Performance Indicators) which are generated from either a strategy document (for a company) or a mission statement (for an individual). Both are important to drive motivation and the direction of activities in an organisation.

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 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 for Project 2 (A Course Learning Outcome Generator)

1. Aligning Assessment with Outcomes

<https://teaching.unsw.edu.au/aligning-assessment-learning-outcomes>

2. Curriculum Mapping (CSE, UNSW)

<https://webapps.cse.unsw.edu.au/cmap/>

3. Developing Learning Outcomes

<https://citl.indiana.edu/teaching-resources/course-design/developing-learning-outcomes/>

4. A Learning Outcome Generator

<https://www.indiana.edu/~oidd/tos/gen2/>