

Interdisciplinary Learning

Evaluation Software with Topic Classification Techniques

Student: Bryan Lim Cheng Yee

Supervisor: Dr. Fan Xiuyi

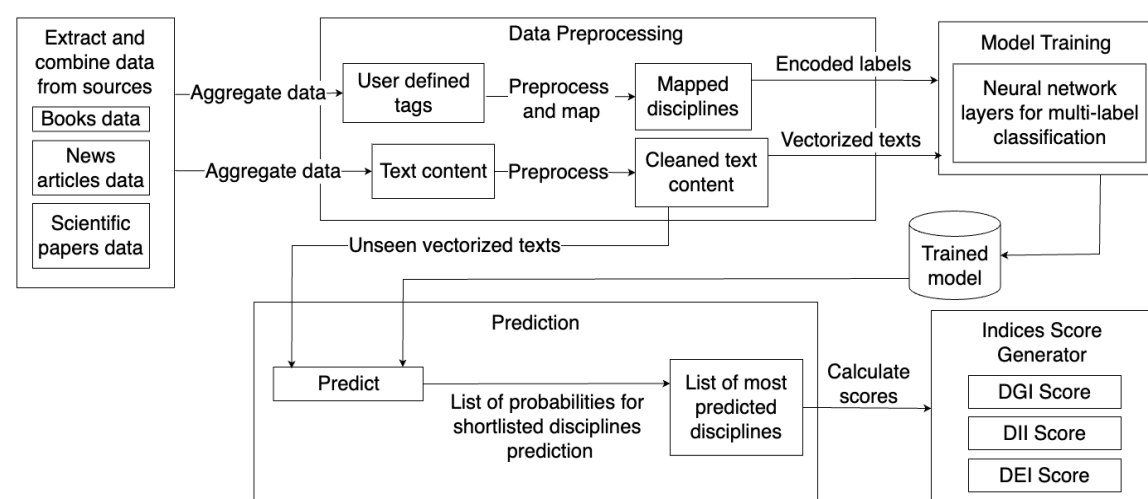
The screenshot displays the software interface with three main sections:

- Discipline Annotations:** A tool for marking paragraphs with disciplines. It shows a paragraph about fake news with a search bar and a 'Disciplines Present' indicator.
- My Submissions:** A table listing uploaded essays with columns for Date of Upload, Title, DGI Score, DII Score, DEI Score, and Number of Disciplines.
- Score Derivation:** A dashboard showing calculated scores for a specific essay:
 - Disciplinary Grounding Index (DGI):** Disciplines in entire essay: 2, Number of paragraphs: 6, DGI Score: $2/6 = 0.333$
 - Disciplinary Integration Index (DII):** Number of paragraphs with more than one disciplines: 1, Number of paragraphs: 6, DII Score: $1/6 = 0.167$
 - Disciplinary Evenness Index (DEI):** Number of sections labelled by humanities (s1): 0, Number of sections labelled by business (s2): 1, Number of sections labelled by sciences (s3): 0, Number of sections labelled by technology (s4): 6, Sum of the sections labelled by all disciplines (sum): $0 + 1 + 0 + 6 = 7$, Sum of $(s1/sum)^2 + \dots + (s4/sum)^2$: 0.755, DEI Score: $1 - 0.755 = 0.245$ (rounded)

Project Objectives:

The objective of this project is to implement a tool for the interdisciplinary evaluation of student assignments. The software tool was built using recent technologies such as Python Flask and Node React.js. To automate the process of evaluating interdisciplinary work, I have built and trained a multi-label classification model to classify essay paragraphs into discipline classes. The machine learning model is integrated with the software to enable teachers to emphasize the most interesting subjects and build meaningful interdisciplinary conversations.

Machine Learning Pipeline



Platform Architecture

