**AI THEORY GRADER**

The **AI Theory Grader** is an automated tool designed to evaluate theory-based answers in Artificial Intelligence (AI) education. It leverages Natural Language Processing (NLP) and Machine Learning (ML) techniques to assess the quality, relevance, and depth of students’ responses, providing accurate grading and constructive feedback.

**Objectives**

* Automate grading of theory-based AI questions with high accuracy.
* Reduce grading time for instructors.
* Ensure consistency and fairness in grading.
* Support integration into Learning Management Systems [LMS].

**Scope**

For grading theory questions [e.g., definitions, comparisons, applications].

**Implementation Phases**

Planning and Requirement Gathering:

* Identify key datasets [student responses and teachers’ responses].
* Review similar grading tools and structure [e.g., ChatGPT, OpenEdX, Gradescope].
* Outline evaluation metrics [accuracy].

Dataset Collection & Annotation:

* Collect sample AI theory questions and responses.
* Annotate answers with human-graded scores or similarity score.
* Define scoring scales [0.0 – 0.5 as 0, 0.5 – 1.0 as 1].
* Split data into training, validation, and test sets.

**Model Development**

* Choose baseline models [ANN, Regression].
* Train models on labelled data to predict scores or similarity scores.
* Incorporate semantic similarity metrics and rubrics.

**System Integration using API**

* Build a FastAPI endpoint for the model to be accessed.
* LMS integration for KOKOKAH.

**Testing and Evaluation**

* Evaluate model performance on the exam prep on KOKOKAH.
* Assess bias, fairness, and consistency.

**Deployment**

* Deploy via cloud [GCP, AWS, Azure].
* Set up logging, performance monitoring, and feedback loop.
* Create documentation and user guides.