

## TASK 22

### COMPULSORY TASK 1

Categorise which NLP Application applies for each of the following use-cases:

#### QUESTION

1. A model that allocates which mail folder an email should be sent to (work, friend, promotions, important), like gmail inbox tabs

ANSWER: Text classification : Text classification is a common NLP that categorises text documents into predefined categories or classes such as work, friend, promotions, important and any other predefined category. The model is trained from labelled examples to classify incoming emails based on their content, subject, keywords or other relevant information.

(REF: <https://developers.google.com/machine-learning/guides/text-classification>)

#### QUESTION

2. A model that helps to decide what grade to award to an essay question. This can be used by a university professor who grades a lot of classes or essay competitions.

ANSWER: Automatic Summarization( Automatic Essay Scoring (AES)) : this is an NLP model typically trained using Machine Learning algorithms employing NLP techniques to evaluate and assign grades to essays or written responses. In this particular example above, the model would analyse content, structure, coherence, grammar and other aspects of an essay to determine an appropriate grade set in the model. The model's grading system is set by human experts which is then used to understand the characteristics of high-scoring essays and make accurate predictions of new essays.

(REF:

[https://en.wikipedia.org/wiki/Automated\\_essay\\_scoring#:~:text=Automated%20essay%20scoring%20\(AES\)%20is,application%20of%20natural%20language%20processing.](https://en.wikipedia.org/wiki/Automated_essay_scoring#:~:text=Automated%20essay%20scoring%20(AES)%20is,application%20of%20natural%20language%20processing.))

## QUESTION

3. A model that provides assistive technology for doctors to provide their diagnosis.  
Remember, doctors ask questions, so that the model will use the patients' answers to provide probable diagnosis for the doctor to weigh and make decisions

ANSWER: Question- answering (QA) and Natural language understanding (NLU)  
application: the combination of the question answering model and natural language understanding model of NLP application will assist healthcare professionals such as doctors, in making accurate and informed diagnosis of patients by analysing patients symptoms, medical history, and other relevant information by taking into consideration that questions asked by the doctor and the corresponding answers provided by the patients. The model then analysed the information and provided a possible diagnosis that the doctor can consider in making a decision.

The model is trained on a vast amount of medical data, including patient records, clinical guidelines, research documents, expert knowledge etc to understand the relationship between symptoms, diseases and other relevant factors.

(REF: <https://arxiv.org/abs/1908.04926>, [https://en.wikipedia.org/wiki/Question\\_answering](https://en.wikipedia.org/wiki/Question_answering))