

## Task 22

### Compulsory Task 1

- (a) Text classification: This NLP application will determine which mail folder an email should be sent to based on its content.
- (b) Automatic summarisation: This NLP application will analyse the content, structure and quality of the essays and award an appropriate grade.
- (c) Question answering: This NLP application will interpret and understand the questions asked by the doctor and generate relevant answers based on the patient's history to help the doctor provide their diagnosis.

### Compulsory Task 2

Google's Smart Reply is an example of an innovative NLP technology. Smart Reply is a feature included in a number of Google products, including Gmail, Google Chat, and Android Messages, that offers brief, contextually relevant answers to incoming messages. It seeks to simplify communication by offering users quick and easy reply options. The system functions directly on the device, allowing for speedy response generation without the need to relay user communications to a distant server.

Smart Reply analyses the content of incoming messages and generates relevant answer ideas using machine learning techniques and NLP algorithms. The system tokenises the incoming message in order to detect essential characteristics such as keywords, sentence structure, and sentiment. To create reply options, the Smart Reply system analyses the entire conversational context instead of individual messages. This diligent method improves the functionality of the recommendations for users. These possible responses are generated by combining rule-based and machine-learning algorithms. The rule-based approaches create replies using established frameworks or patterns, but machine learning models learn from big datasets to provide more diversified and contextually suitable recommendations. Following the generation of possible responses, a ranking algorithm is used to identify the most appropriate ideas. This algorithm takes into account a variety of criteria, including message content, user preferences, and the chance that a response would be beneficial or relevant. This guarantees that the user only sees the most relevant options.

Smart Reply provides various advantages to users. It saves time by providing pre-written replies that may be rapidly chosen, particularly for short and easy communications. Smart Reply was not intended to stand in the place of human-generated responses. It is a useful tool, particularly if a rapid response is required, but users may always opt to write their own responses when necessary.