Compulsory Task 1

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

a. A model that allocates which mail folder an email should be sent to (work, friends, promotions, important), like Gmail's inbox tabs.

Text classification applies to the case of email allocation as it processes text into categorised groups. Tags, or categories, must be pre-defined and is often taught to the algorithm using supervised learning.

b. A model that helps 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.

Within the categories of NLP discussed on the course so far, automatic summarisation is the type of processing that applies best in scenario B. By using text summarisation to identify key concepts and points, then condensing into a short summary, the university professor can quickly gain an understanding of the contents of the essay, the salient points being made and the most relevant information in the original text.

(If we were to look outside the types of NLP covered, Automatic Essay Scoring (AES) is in development, and in some places, already in use. Using NLP, AES scores essays within a predefined scale based on predefined criteria, the same as the professor would use. Critics argue that these systems are highly susceptible to human bias and may miss relevant sentences (as is sometimes the case with text summarisation too) and will not be able to produce accurate results while others see it as a natural extension of automatic scoring of multiple choice tests.)

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

In this scenario, the model would use Question Answering to assist doctors by analysing patient answers and providing probable diagnoses or suggestions for further tests to be done. The system would be designed to understand medical terminology, essentially acting as a knowledge base and provide output based on input received from doctors or patients.

WebMD, for instance, has for a long time had a rudimentary version of this, in which a user can enter their age, gender and other relevant factors, as well as their symptoms and in return be provided with a list of possible conditions causing their ailment.