Categorization of NLP Applications in Different Use-Cases

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

- A model that allocates which mail folder an email should be sent to (work, friends, promotions, important), like Gmail's inbox tabs.
- 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.
- A model that provides assistive technology for doctors to provide their diagnosis. Remember, doctors ask questions, so the model will use the patient's answers to provide probable diagnosis for the doctor to weigh and make decisions.

Natural Language Processing (NLP) is a field of artificial intelligence that focuses on the interaction between computers and human language. NLP has a wide range of applications, including language translation, text classification, automatic summarization, sentiment analysis, and question answering. In this report, we categorize and analyze the NLP applications that are applicable to three specific use-cases.

Use-case 1: Email Classification for Inbox Organization

The first use-case involves the allocation of emails to specific folders based on their content, similar to Gmail's inbox tabs. This application falls under the category of Text Classification. The model is trained to classify emails into different categories such as work, friends, promotions, or important. By analyzing the content and characteristics of the email, the model determines the appropriate folder for each email. Text Classification techniques, such as machine learning algorithms, are utilized to assign the appropriate category to incoming emails.

Use-case 2: Essay Grading Assistance for University Professors

The second use-case involves a model that assists university professors in assigning grades to essay questions. This application can be highly beneficial for professors who have to grade a large number of classes or essay competitions. It falls under the category of Automatic Summarization. The model analyzes the content, structure, and quality of the essays to determine the appropriate grade. Various NLP techniques, including language analysis, semantic understanding, and content evaluation, are utilized to provide an accurate assessment of the essays.

Use-case 3: Diagnostic Assistance for Doctors

The third use-case involves a model that provides assistive technology for doctors to aid in making diagnoses. This application falls under the category of Question Answering. The model assists doctors by answering their questions and providing probable diagnoses based on the patient's answers. NLP techniques such as text classification, named entity recognition, and semantic analysis are employed to understand the questions asked by doctors and generate relevant responses or recommendations. This use-case represents a chatbot or conversational AI application, specifically designed for medical purposes.

In conclusion, NLP offers a wide range of applications in various use-cases. By categorizing the applications based on their functionality, we can understand the diverse ways in which NLP is applied. The use-cases discussed in this report highlight the applications of Text Classification, Automatic Summarization, and Question Answering. These examples demonstrate the versatility and effectiveness of NLP in addressing different challenges and providing valuable assistance in tasks such as email organization, essay grading, and medical diagnosis. As NLP continues to advance, we can expect further innovation and improvement in these and many other NLP applications.