SYNAPSE ML TASK 3.3

IDENTIFYING SPAM TEXTS

Introduction

In the digital age, spam texts have become a prevalent issue, cluttering communication channels and posing security risks. This report outlines an approach to identify spam texts using basic preprocessing steps and a simple classification method.

Problem Statement

The objective is to categorize unlabelled paragraphs, messages, and emails as spam or not spam, employing techniques that suit a beginner's understanding of machine learning.

Approach

- **Splitting dataset into test and training sets**
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- **Data Processing**
  - Convert all text to lowercase to ensure uniformity.
  - Tokenize text into words for analysis.
  - Making a vocabulary of unique words.
- **Feature Extraction**
  - Transform text data into a matrix of word frequencies.

❖ Checking for Spam

- ➢ Utilize Multinomial Naive Bayes Algorithm. due to its simplicity and effectiveness for text classification.

❖ Checking accuracy of Model

- ➢ Evaluate model performance using metrics like accuracy, precision, recall, and F1-score.

Multinomial Naive Bayes Classifier

Multinomial Naive Bayes Classifier is a probabilistic algorithm for text classification. It's suitable for feature vectors representing word frequencies in documents. It models the likelihood of each word occurring in a class and uses Bayes' theorem to calculate the most likely class for a given document.

Code Link

Synapse_Task_3.ipynb

Conclusion

In conclusion, the approach outlined presents a systematic methodology for tackling the challenge of identifying spam texts within unlabelled messages. By employing text preprocessing techniques and utilizing a Multinomial Naive Bayes Classifier, I demonstrate a foundational framework for distinguishing spam from legitimate content. Through continuous refinement and vigilant monitoring, I can enhance the accuracy and relevance of our classification models in real-world scenarios.