AI201 PA 2 Report
Naive Bayes Classifier

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The main objective of this assignment is to design and evaluate a text–classification system using the **Bernoulli Naïve Bayes** algorithm. This aims to:

1. **Implement** a Bernoulli Naïve Bayes classifier capable of distinguishing between two document categories (e.g., spam vs. ham) using a binary feature representation of words.
2. **Understand and demonstrate** the theoretical foundation of Bayes' theorem and how it underlies the Naïve Bayes model.
3. **Investigate** the effect of vocabulary size and Laplace smoothing on classification accuracy.
4. **Evaluate** performance in terms of precision, and recall, using a labeled email dataset.