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| Project No: 215 | Name: Ashwini Babu Hosamani | Section: 4MCA02 |
| Project Title: E-Mail Spam Detection Using Machine Learning | | |
| **ABSTRACT** | | |
| Email spam has become a significant challenge in digital communication, leading to security threats, data breaches, and reduced productivity. Traditional rule-based spam detection methods struggle to adapt to evolving spam tactics. Machine learning (ML) techniques offer a dynamic and efficient solution by learning patterns from large datasets and improving detection accuracy over time. This study explores various ML models, including Naïve Bayes, Support Vector Machines (SVM), Decision Trees, Random Forest, and Deep Learning approaches such as Long Short-Term Memory (LSTM) BERT.  We analyze their effectiveness in classifying emails as spam or ham using benchmark datasets like the Enron Spam Dataset and the Spam Assassing Corpus. Performance is evaluated based on accuracy, precision, recall, and F1-score. Experimental results demonstrate that deep learning models, particularly transformer-based approaches, outperform traditional classifiers in identifying spam with high precision and adaptability. This research highlights the significance of ML-driven spam detection systems in enhancing email security and minimizing user exposure to malicious content. | | |
| **Keywords:** Email Spam Detection, Machine Learning, Naïve Bayes, Support Vector Machines (SVM), Decision Trees, Random Forest, Deep Learning, BERT, Spam Classification, Precision and Recall, Email Security. | | |

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| **Criteria** | **Rating (1 to 5)** |
| Clarity of the Problem Statement |  |
| Relevance of the Project |  |
| Objectives |  |
| Innovation and Originality |  |
| Suitability for Research Publication |  |

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| **Overall Assessment** | **Comments** |
| Strengths of the Abstract: |  |
| Weaknesses or Areas for Improvement: |  |
| Recommendations | Approve Revise Reject |
| Supervisor’s Signature with Name | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
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