

Spam Detection Using Machine Learning

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Abstract: *In today's digital world, the explosion of online communication has brought with it the growing menace of spam—unsolicited, irrelevant, and often malicious messages that plague users across platforms. This project, titled "Real-Time Spam Detection System Using Web Technologies", addresses this issue by implementing a lightweight and responsive spam detection solution that operates in real-time. The primary motivation behind this project is to offer a practical and easy-to-use tool for identifying spam content at the point of message composition. Unlike complex enterprise-level spam filters that rely on machine learning and require significant computational resources, our approach leverages basic web development tools—HTML, CSS, JavaScript, Node.js, and Express.js—to provide an accessible yet effective solution. The system checks input text against a predefined list of spam keywords and instantly flags messages as either clean or spam, enhancing user awareness and reducing the risk of spam dissemination. This project achieves several important outcomes. It successfully integrates client-side and server-side components to deliver a seamless user experience. Users can type a message, submit it, and receive instant feedback without a page reload. The backend efficiently processes each message using a simple keyword matching algorithm, with all spam indicators stored in a local JSON file. The project is fully functional, platform-independent, and suitable for use in web forms, internal messaging systems, and educational prototypes. Innovation in this project lies in its simplicity, modularity, and real-time responsiveness. It demonstrates how foundational technologies can be orchestrated to solve real-world problems without the overhead of AI or cloud infrastructure. Moreover, the project sets the stage for future expansion, such as integrating machine learning models, NLP techniques, and database support, making it a scalable foundation for advanced spam filtering systems. In conclusion, this project exemplifies how clean design, purposeful functionality, and web technology synergy can contribute to combating the persistent issue of spam in everyday communication.*

Keywords: Spam Detection System

