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Intelligent Mail Management System Using Large Language Models (Llm's) And Gmail API

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Abstract: *The exponential growth in digital communication has led to overwhelming email volumes, making efficient email management a critical need for users. This project presents the design and implementation of an Intelligent Mail Management System that leverages Large Language Models (LLMs) and the Gmail API to automate and enhance email organization, prioritization, and response generation. At its core, the system uses Google OAuth 2.0 for secure authentication and authorized access to users' Gmail accounts without compromising sensitive credentials. Once access is granted, the Gmail API facilitates email retrieval and management operations such as labeling, filtering, and metadata extraction. The retrieved email content is then processed by an advanced LLM, which uses natural language understanding (NLU) techniques to analyze and classify emails into predefined categories such as Work, Personal, Social, and Advertisement. It further identifies key information such as deadlines, tasks, and meeting schedules. The system architecture follows a modular, multi-tier approach, comprising a frontend for user interaction, a backend for business logic and LLM integration, and a database for storing email metadata. Users can interact with the system via queries, such as asking about project deadlines or summarizing recent communications. The LLM interprets these natural language queries and retrieves relevant responses based on the parsed and stored email content. Security and privacy are paramount; the system ensures encrypted communication, secure token storage, and limited data retention policies. This solution not only automates routine email management tasks but also empowers users to interact with their inbox more intelligently, reducing cognitive overload and enhancing productivity*

Keywords: Intelligent Mail Management, Large Language Models, Gmail API, Email Categorization, Natural Language Processing

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