OOAD PROJECT

SMART EMAIL WEB APPLICATION

Team: 5

1. Abstract

Our project is a secure, scalable, and intuitive email management system that allows users to seamlessly compose, send, and organize their emails into well-defined categories such as Personal, Promotional, Spam, and Work. Developed using React.js for the frontend and Spring Boot for the backend, the application ensures a responsive and interactive user experience while maintaining robust backend services. Security is enforced through Basic Authentication, allowing only authorized users to access their inboxes and send messages. The system features dynamic category-based filtering, optimized search functionality with debouncing to reduce server load, and a clean, user-friendly interface. With support for composing rich emails, viewing categorized content, and managing data effectively, the application serves as a comprehensive solution for modern communication needs, combining simplicity with powerful backend logic.

2. Design Patterns and Principles

Architecture Pattern

The MVC pattern is the backbone of our system's architecture. It separates the application into three interconnected layers:

- Model: Represents the data and business logic (e.g., Email, User, AI tasks).
- View: Responsible for the UI or API response layer.
- Controller: Handles user requests, processes them, and returns responses by coordinating with the Model and View.

Design Patterns used:

1. Strategy Pattern
2. Factory Pattern

Design Principles:

1. Single Responsibility Principle
2. Open/Closed Principle