1. Introduction

HMS uses 2 framework:

• **React**:

- React is a free and open-source JavaScript front-end library for building user interfaces based on individual UI components.
- It provides a user-friendly and highly interactive interface.

• **Spring Boot:**

- Spring Boot is an open-source Java-based framework used to program production-grade, standalone Spring-based applications with minimal effort.
- Spring Boot helps create an efficient, flexible and easily scalable hotel management system.

2. Components and Usage

Hotel Management Web project include the following main components and features:

React:

• Header: This component contains the logo, name of the hotel and the main navigation bar to switch between different pages.

• Home page: The home page can display hotel overview information, featured services and special offers.

• Rooms: This page lists all the room types the hotel offers. Each room type can be represented by a Room Card component containing an image, description, and price.

• Room details: When users click on a room card, they will be taken to a room details page containing more detailed information about that room.

• Booking: This page allows receptionists to book rooms. It includes a form for users to enter room information and a booking summary component to review room information.

• User: This page manages personal information of room tenants. It displays personal information and booking history to view booking history.

• Footer: This element often contains contact information, address and links to the hotel's social network page.

• SignIn/SignUp: This page allows users to log in or register a new account.

• Admin: This page is only for administrators to manage the hotel, including updating room information, viewing rooms, and managing users.

Spring Boot:

• Spring MVC: allows building web and RESTful applications easily. In the project use it to build APIs for operations like booking, cancelling, customer management, etc.

• Spring Data JPA: Spring Data JPA simplifies accessing data in the database. We use it to perform CRUD operations on data tables like `Customers`, `Rooms`, `Bookings`, etc.

• Spring Security: This is a framework that allows authentication and authorization of applications. We use it to secure APIs and manage access rights of different users (receptionist, hotel manager).

• Spring Boot Actuator: Spring Boot Actuator provides application monitoring and management features, such as checking configuration information and more.

3. Benefits

• **React**:

- High performance: React uses Virtual DOM to optimise the rendering process, which improves application performance, especially in applications with many user interface changes.

- Reusability: UI components in the system can be reused, helping to reduce development time and effort.
- Easy to develop: JSX helps make React source code easier to read and write.

• **Spring Boot:**
- Easy integration: supports many technologies and frameworks, making it easy to integrate with other services such as databases, authentication systems, and more.
- Fast deployment: can create a complete web application with just a few lines of code. This helps reduce development and deployment time.
- Configuration management: automatically configures the application based on the libraries added to the project. This reduces configuration work and helps focus on feature development.

4. Limitations

• **React**:
- In a multi-page application (multi-page application), the work for the content to be rendered using JavaScript can make SEO work more difficult than in the application delivery system.
- Managing state and thread data in React can get complicated
- The combination of HTML and JavaScript in JSX makes learning React JS much more complicated.

• **Spring Boot:**
- Auto configuration: makes it difficult to customise the configuration.
- Application size: Spring Boot application is large in size because it includes libraries required for the application. This increases boot time and uses more resources.
- Dependencies: Spring Boot uses automatic dependency management, which leads to using incompatible or buggy versions.

5. Conclusion

• **React**:
- Build user-friendly and highly interactive interface for hotel management web applications.
- Optimise performance with Virtual DOM, helping to update and manage state effectively.
- Providing a smooth and seamless user experience.

• **Spring Boot:**
- Spring Boot helps create an efficient, flexible and easily scalable hotel management system.
- Easy to integrate with databases, authentication systems…
- Fast deployment, reduced development and deployment time.
- Reduces configuration work and helps focus on feature development.