Eventify Pro: Smart Event Management System

C157	Divit Prasad	70322000142
C175	Nidhish Rathod	70322000167
C179	Soham Kanal	70322000055
C180	Rishiraj Parmar	70322000199

1. **Introduction**

   Eventify Pro is a microservices-based event management system designed to provide seamless event creation, ticketing, real-time engagement, and analytics. It integrates AI-powered event recommendations, QR-based ticketing, gamification, and real-time chat features to enhance user experience and event interactions.

2. **Problem Statement**

   Managing events efficiently remains a challenge for organizers and attendees. Issues such as fragmented communication, unorganized ticketing, lack of engagement, and poor analytics impact event success. Eventify Pro aims to resolve these challenges by offering a scalable, interactive, and data-driven event management solution.

3. **Objectives**

   - Develop a **scalable** and **secure** event management platform.
   - Implement **microservices architecture** with **Eureka Server** and **API Gateway**.
   - Provide **AI-based event recommendations** for personalized user experiences.
   - Enable **QR-based ticketing** for seamless check-ins.
   - Integrate **real-time chat** and **gamification** features.
   - Offer **real-time analytics and insights** for event organizers.
   - Ensure **efficient notifications and reminders** for better engagement.

4. **Scope of the Project**

   - **Users:** Attendees, Organizers, Admins.
   - **Events:** Creation, Management, Ticketing, Check-ins.
   - **Payments:** Secure transactions, refunds, and wallet integration.
   - **Engagement:** Leaderboards, Chat, Gamification.

- **Analytics:** Event performance insights, attendee behavior tracking.
- **Notifications:** Email, push notifications, event reminders.

5. **Technologies Used**

Component	Technology Used
Backend Framework	Spring Boot (Java)
Service Discovery	Eureka Server
API Gateway	Spring Cloud Gateway
Database	MySQL / PostgreSQL
Authentication	JWT + Spring Security
Real-Time Chat	WebSockets
AI Recommendations	Scikit-learn (Self-hosted)
Notifications	Firebase + SMTP
Data Streaming	Apache Kafka

6. **Expected Outcome**
   - A **fully functional, microservices-based event management system**.
   - **AI-powered event recommendations** for personalized user engagement.
   - **Seamless ticketing & check-in system** using QR codes.
   - **Enhanced user experience** with real-time chat and gamification.
   - **Secure payments and refunds** via an integrated wallet system.
   - **Automated notifications & reminders** for better event participation.
   - **Detailed analytics and insights** for event organizers.

7. **Entity-Relationship Diagram (ERD)**
   The ERD represents the key entities and their relationships across **6 microservices**:

   - **Key Entities:**
     1. **User Service:** Users, Roles, Preferences.
     2. **Event Service:** Events, Tickets, Venues.
     3. **Payment Service:** Transactions, Wallet, Refunds.
     4. **Gamification Service:** Leaderboards, Rewards, Points.
     5. **Notification Service:** Emails, Push Notifications.
     6. **Analytics Service:** Event Engagement, User Metrics.

- **Entity Relationships:**
    1. **Users** can book **Tickets** for **Events**.
    2. **Events** are linked to **Venues**.
    3. **Users** earn **Rewards & Points** through **Gamification**.
    4. **Transactions** store **Payments & Refunds**.
    5. **Notifications** are sent for **Events & Transactions**.
    6. **Analytics** track **Event Performance & User Engagement**.