A Real-Time Notification System for a Community Event App

A simple mobile/web app for a local community center that hosts events like workshops, sports games, or meetings. Users (community members) can sign up for events, and the app needs to handle real-time updates so everyone stays informed instantly.

REQUIREMENTS

* Allow multiple users to browse and register for events at the same time (e.g., 50-100 users online).
* Collect registrations and send instant notifications to users' devices without delays.
* Use a basic AI feature to suggest similar events based on what users like (e.g., if someone signs up for a yoga class, suggest nearby events).
* Log all activities for admins to review later, handling things like if two users try to register for the last spot at the exact same moment.

Design Patterns

* Observer /Publish–Subscribe Pattern – for Real-time notifications. It Lets the system instantly notify users when a notification on an event is sent. Subscribers receive updates automatically. When an event state changes about an event, a notification is sent to all observers via a message broker.

Technologies used

* RabbitMQ
* Apache Kafka
* Mongo DB
* Factory Pattern – For Notification creation. It Dynamically creates different types of notifications (push, email, in-app) without hardcoding logic, which makes notification creation flexible.

Technologies used:

* Java (Spring Boot)
* C# (.NET)
* Python (Django, Flask)



