Full Stack Developer Assignment – Promo Code Management System

Objective

You are required to design and implement a multi-tenant Promo Code Management System with both backend and frontend components. The system should allow different tenants (clients) to manage promo codes, track their usage, and view reports — while maintaining complete tenant data isolation.

Key Requirements

1. Core Features

- Promo Code Configuration
  - Create, update, and delete promo codes.
  - Each promo code should have:
    - Code (string)
    - Amount (discount value, percentage or fixed)
    - Expiry Date
    - Usage Limit (optional)
    - Status (Active / Expired / Disabled)
- Reporting
  - List all promo codes for the tenant.
  - Show usage count per promo code.
  - Ability to filter by date range, status, and code.

2. Multi-Tenancy

- Implement a schema-per-tenant approach (PostgreSQL preferred).
- All API calls should be tenant-aware (isolate each tenant's data).
- Tenant information should be derived from Keycloak authentication.

3. Authentication & Authorization

- All APIs should be secured.

- Different roles (Admin: Full access & Business: Read Only)

4. Backend

- Java 21 & Spring Boot 3.5+.
- RESTful APIs for:
  - Promo code CRUD operations.
  - Reporting.
- Tenant context resolution for all backend operations.
- Centralized exception handling.
- API-level validation.

5. Frontend
- Angular (LTS)
- Implement UI for:
  - Login
  - Promo code management form.
  - Reporting table with filters.
- Call backend APIs securely.

Deliverables

1. Source Code in a public Git repository (GitHub/GitLab) with:
  - Backend code (Spring Boot).
  - Frontend code.
  - Dockerfiles for frontend & backend.
  - README file with setup instructions.