**Step 1: Create the Backend Project in IntelliJ**

**🔧 A. New Project Setup**

1. Open **IntelliJ IDEA**
2. Click on **"New Project"**
3. Click **"Spring Initializr"** in the left panel.
4. Configure:
   * **Language**: Kotlin
   * **Build System**: Gradle
   * **Group**: com.leadership
   * **Artifact**: leadership-backend
   * **JDK**: 17 or 21 (Spring Boot 3+ compatible)
5. Click **Next**

**✅ Add These Dependencies:**

* Spring Web
* Spring Data JPA
* PostgreSQL Driver
* Spring Security
* *(Optional)* Spring Boot DevTools, Validation, Lombok if needed

1. Click **Finish**

**Creating entities and insert sample records**

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-- Table: locations

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CREATE TABLE locations (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

province VARCHAR NOT NULL,

district VARCHAR NOT NULL,

sector VARCHAR NOT NULL,

cell VARCHAR NOT NULL,

village VARCHAR

);

-- Sample locations

INSERT INTO locations (id, province, district, sector, cell, village)

VALUES

(gen\_random\_uuid(), 'Kigali', 'Gasabo', 'Kimironko', 'Nyagatovu', 'Murama'),

(gen\_random\_uuid(), 'Eastern', 'Kirehe', 'Mahama', 'Rusumo', NULL);

-- -----------------------------

-- Table: users

-- -----------------------------

CREATE TABLE users (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

name VARCHAR NOT NULL,

phone\_number VARCHAR UNIQUE NOT NULL,

email VARCHAR,

role VARCHAR CHECK (role IN ('CITIZEN', 'LEADER', 'ADMIN')) NOT NULL,

location\_id UUID NOT NULL REFERENCES locations(id),

registered\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

-- Sample users

INSERT INTO users (id, name, phone\_number, email, role, location\_id)

SELECT gen\_random\_uuid(), 'Alice', '0788111222', 'alice@example.com', 'CITIZEN', id FROM locations WHERE sector = 'Kimironko'

UNION

SELECT gen\_random\_uuid(), 'Bob', '0788333444', 'bob@example.com', 'LEADER', id FROM locations WHERE sector = 'Mahama';

-- -----------------------------

-- Table: leaders

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CREATE TABLE leaders (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

user\_id UUID UNIQUE NOT NULL REFERENCES users(id),

position\_title VARCHAR NOT NULL,

office\_phone VARCHAR,

available BOOLEAN DEFAULT TRUE

);

-- Insert leader (linked to Bob)

INSERT INTO leaders (user\_id, position\_title, office\_phone)

SELECT id, 'Sector Executive Secretary', '0788888888' FROM users WHERE name = 'Bob';

-- -----------------------------

-- Table: leader\_locations (many-to-many)

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CREATE TABLE leader\_locations (

leader\_id UUID NOT NULL REFERENCES leaders(id),

location\_id UUID NOT NULL REFERENCES locations(id),

PRIMARY KEY (leader\_id, location\_id)

);

-- Link Bob to Mahama

INSERT INTO leader\_locations (leader\_id, location\_id)

SELECT l.id, loc.id

FROM leaders l

JOIN users u ON u.id = l.user\_id

JOIN locations loc ON loc.sector = 'Mahama'

WHERE u.name = 'Bob';

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-- Table: reports

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CREATE TABLE reports (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

user\_id UUID NOT NULL REFERENCES users(id),

location\_id UUID NOT NULL REFERENCES locations(id),

content TEXT NOT NULL,

status VARCHAR CHECK (status IN ('SUBMITTED', 'IN\_PROGRESS', 'RESOLVED')) DEFAULT 'SUBMITTED',

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

resolved\_at TIMESTAMP

);

-- Sample report

INSERT INTO reports (user\_id, location\_id, content)

SELECT u.id, l.id, 'There is no clean water access here.'

FROM users u JOIN locations l ON u.location\_id = l.id

WHERE u.name = 'Alice';

-- -----------------------------

-- Table: announcements

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CREATE TABLE announcements (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

leader\_id UUID NOT NULL REFERENCES leaders(id),

location\_id UUID NOT NULL REFERENCES locations(id),

title VARCHAR NOT NULL,

message TEXT NOT NULL,

channel VARCHAR CHECK (channel IN ('APP', 'SMS')) NOT NULL,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

-- Sample announcement

INSERT INTO announcements (leader\_id, location\_id, title, message, channel)

SELECT l.id, loc.id, 'Water Project Launched', 'We’ve initiated borehole drilling next week.', 'APP'

FROM leaders l

JOIN leader\_locations ll ON l.id = ll.leader\_id

JOIN locations loc ON loc.id = ll.location\_id;

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-- Table: sync\_queue

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CREATE TABLE sync\_queue (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

user\_id UUID NOT NULL REFERENCES users(id),

type VARCHAR CHECK (type IN ('REPORT', 'PROFILE\_UPDATE')),

payload JSON NOT NULL,

synced BOOLEAN DEFAULT FALSE,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

synced\_at TIMESTAMP

);

-- Sample sync entry

INSERT INTO sync\_queue (user\_id, type, payload)

SELECT id, 'REPORT', '{"content": "Report submitted offline"}'

FROM users WHERE name = 'Alice';