Technical Document for Web App Database Schema

1. Overview

This document provides a detailed technical specification for the database schema of a web application that includes user authentication, identity verification, instrument management.

2. Database Design

The database consists of five main tables:

1. users
2. user_profiles
3. identity_verification
4. instruments
5. instrument_assignments

Each table is designed to store specific information crucial for the application's functionality.

3. Table Descriptions

3.1 Users

Purpose: Stores basic user authentication data.

- id (Primary Key): Unique identifier for each user.
- phone: Unique phone number used for login.
- email: Unique email address for communication.
- password_hash: Encrypted password storage.
- role: Defines user access level (user, admin).
- created_at: Timestamp of account creation.

3.2 UserProfiles

Purpose: Stores additional user information.

- user_id (Primary Key, Foreign Key → users.id): Links profile to a user.
- full_name: User's full name.
- profile_photo: URL or file path of profile picture.
- emergency_contact: Emergency contact number.
- blood_group: User's blood group.
- gender: User's gender.
- created_at: Timestamp of profile creation.

3.3 IdentityVerification

Purpose: Manages user identity verification process.

- user_id (Primary Key, Foreign Key → users.id): Links identity verification to a user.
- id_type: Type of identity document (e.g., Passport, Driver's License).
- id_number: Unique identification number.
- id_photo: URL or file path of the identity document.
- status: Verification status (pending, verified, rejected).
- verified_at: Timestamp of verification approval.
- created_at: Timestamp of identity submission.

3.4 Instruments

Purpose: Stores details of instruments associated with users.

- id (Primary Key): Unique instrument identifier.
- user_id (Foreign Key → users.id): User associated with the instrument.
- instrument_name: Name of the instrument.
- instrument_type: Type of instrument.
- purchase_date: Purchase date of the instrument.
- created_at: Timestamp of record creation.

3.5 InstrumentAssignments

Purpose: Tracks instrument allocation and return.

- id (Primary Key): Unique assignment identifier.
- instrument_id (Foreign Key → instruments.id): Assigned instrument.
- assigned_to_user_id (Foreign Key → users.id): User receiving the instrument.
- assigned_date: Timestamp when the instrument was assigned.
- returned_date: Timestamp when the instrument was returned (nullable).

4. Relationships

- **One-to-One:** users ↔ user_profiles, users ↔ identity_verification
- **One-to-Many:** users ↔ instruments, users ↔ instrument_assignments
- **Many-to-One:** instrument_assignments ↔ instruments, instrument_assignments ↔ users

5. Constraints and Indexing

- **Primary Keys:** Ensure uniqueness for each table.
- **Foreign Keys:** Maintain referential integrity.
- **Unique Constraints:** Enforce uniqueness for phone, email, and id_number.
- **Indexes:** Improve search performance on frequently queried columns (phone, email, id_number).