Stage 3. Capstone Project Database Layer Design

Step 1: Identify all the entities in the system

Key Entities:

- User – Represents users

- Report – Represents reports

- Notification – Stores notifications

- AuditLog – Stores different user actions like logging in or creating reports

Weak Entity:

- None

Associative Entity:

- None

Step 2: Identify relationships between the entities

1. User to Report: One-to-Many (One user can have many reports)

2. User to Notification: One-to-Many (One user can have many notifications)

Step 3: Identify cardinality and ordinality of the relationships

1. User to Report:

   o Cardinality: One-to-Many

   o Ordinality: A report must belong to a user (mandatory), but a user might have zero reports (optional)

2. User to Notification:

   o Cardinality: One-to-Many

   o Ordinality: A notification must belong to a user (mandatory), but a user might have zero notifications (optional)

Step 4: Add attributes for the entities

User

PK: id
username (unique)
password
fullName
email (unique)
role (enum)

1 —— creates —— N

Report

PK: id
title
description
location
imageUrl
status (enum)
createdAt
FK: user_id

1

receives

N

Notification

PK: id
message
read (boolean)
createdAt
FK: user_id

AuditLog

PK: id
action
timestamp
username

Legend

● One   N - Many
PK - Primary Key   FK - Foreign Key