**. Database Design & Data Modeling**

* ER Diagram (Entity-Relationship Diagram):

The database diagram for the "AI-Powered Facial Morphology for Missing Person Identification" project illustrates the relationships between the core entities in the system. The system includes **users** who can upload images of missing persons, which are stored and analyzed using **facial recognition** and **age progression/regression** techniques. The images are linked with **notifications** sent to users if a match is found. The system also includes **AI models** used for image analysis, along with **audit logs** that record all activities in the system to ensure transparency and security.

A diagram of a computer

AI-generated content may be incorrect.

* Logical & Physical Schema:

CREATE TABLE User (

user\_id INT PRIMARY KEY,

name VARCHAR(100),

email VARCHAR(100) UNIQUE,

password VARCHAR(255),

role VARCHAR(50),

registration\_date TIMESTAMP

);

CREATE TABLE Image (

image\_id INT PRIMARY KEY,

user\_id INT,

image\_path VARCHAR(255),

image\_type VARCHAR(50),

upload\_date TIMESTAMP,

metadata TEXT,

age\_progression BLOB,

age\_regression BLOB,

FOREIGN KEY (user\_id) REFERENCES User(user\_id)

);

CREATE TABLE FacialRecognition (

recognition\_id INT PRIMARY KEY,

image\_id INT,

match\_found BOOLEAN,

matched\_image\_id INT,

recognition\_date TIMESTAMP,

FOREIGN KEY (image\_id) REFERENCES Image(image\_id),

FOREIGN KEY (matched\_image\_id) REFERENCES Image(image\_id)

);

CREATE TABLE Notification (

notification\_id INT PRIMARY KEY,

user\_id INT,

message TEXT,

notification\_type VARCHAR(50),

notification\_date TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES User(user\_id)

);

CREATE TABLE AI\_Model (

model\_id INT PRIMARY KEY,

model\_type VARCHAR(50),

model\_name VARCHAR(100),

training\_data TEXT

);

CREATE TABLE Audit\_Log (

log\_id INT PRIMARY KEY,

action\_type VARCHAR(100),

user\_id INT,

timestamp TIMESTAMP,

details TEXT,

FOREIGN KEY (user\_id) REFERENCES User(user\_id)

);