Advanced Face Recognition System with Real Time Detection

**Current State (Prototype Submission):**

This project features a fully functional prototype of an advanced face recognition system that operates in real-time using computer vision libraries (OpenCV, dlib) and is trained with deep learning models (FaceNet, VGGFace). **A few of its highlights are:**

1. Real-time detection and recognition of faces via a webcam.
2. GUI with live feed, image upload, and database management (CRUD operations).
3. Integration with SQL for storing and retrieving facial embeddings and metadata.
4. Utilization of the CelebA dataset for testing and validation.

**Known Limitations (Submitted Prototype):**

**1. Intermittent Environment Issues:** Occasional dependency conflicts (e.g., TensorFlow/Keras version mismatches) due to compatibility with pre-trained models.

**2. Pre-Model Dependency:** Relies on external pre-trained models (facenet\_keras.h5, VGGFace), which can cause instability during deployment.

**Final Deliverables Commitment:**

**1. Stability Fixes:** Resolve environment and dependency conflicts to ensure consistent performance.

**2. Pre-Model Independence:** Develop a custom face recognition model trained on the CelebA dataset, eliminating reliance on third-party pre-trained models.

**3. Enhanced Accuracy:** Optimize the system for higher recognition accuracy and robustness across diverse conditions (lighting, angles, etc.).

**Note:** This prototype submission reflects foundational progress, and the final deliverables will address current limitations to achieve a fully self-contained, stable, and scalable system.