Roadmap to create the project

Intelligent Event Photo Retrieval System - Task List

Phase 1: Project Initialization & Environment Setup (2 days)

- Initialize Project Structure (separate folders for Client/Server) (2 hrs)
- Setup for Python Environment with uv (2-3 hrs)
- Install dependencies: mtcnn, torch (for FaceNet), faiss-cpu, fastapi (using API) (5hrs)
- Setup for Next.js Frontend (4 hrs)
- Setup for MongoDB Connection (6 hrs)

Phase 2: Backend - Face Indexing Pipeline (Photographer Flow) (10 days)

- Implement Image Loading & Preprocessing (1 day)
- Implement Face Detection using MTCNN (2 days)
- Implement Feature Extraction using FaceNet (2 days)
- Set up FAISS Index (1.5 day)
- Create API/Script to process uploaded event photos (Detect -> Embed -> Index) (2 day)
- Store Metadata in MongoDB (Image ID -> Event ID mapping) (1.5 day)

Phase 3: Backend - Retrieval Pipeline (Guest Flow) (5-6 days)

- Implement Selfie Preprocessing & Embedding (1 day)
- Implement FAISS Similarity Search (1 day)
- Retrieve matching Image IDs from Index (1.5 day)
- Fetch Image Metadata from MongoDB(2 day)

Phase 4: Frontend - specific Flow Implementation (6 days)

- Create Landing Page (1 day)
- Build Photographer Dashboard (Upload Event Photos) (2 days)
- Build Guest Interface (Upload Selfie & View Results) (2 days)
- Integrate Frontend with Backend APIs (1.5 day)

Phase 5: Testing & Optimization (5 days)

- Test End-to-End Flow (1 day)
- Optimize MTCNN/FaceNet performance (6 hrs)
- Optimize FAISS search speed (4 hrs)
- Final UI (1 day)