📸 Face Recognition Based Attendance System

This project is a Python-based Face Recognition Attendance System that utilizes the power of the `facenet-pytorch` model for facial recognition. It automates the process of taking attendance from a group photo by identifying students based on pre-stored images.

# 🚀 Features

• Face detection using MTCNN  
• Face embedding using InceptionResnetV1 (VGGFace2)  
• Automated matching and attendance marking  
• Visual output with bounding boxes and labels

# 📦 Installation

Install the required Python packages:

pip install facenet-pytorch mtcnn opencv-python numpy scikit-learn

# 🗂️ Dataset Structure

The `Dataset` folder should be organized as follows:

Dataset/  
├── 2241016042/  
│ ├── img1.jpg  
│ ├── img2.jpg  
├── 2241016043/  
│ ├── img1.jpg  
│ ├── img2.jpg

# ⚙️ How It Works

1. Extract embeddings for each student image in the Dataset folder.  
2. Save the average embedding per student in a `.npy` file.  
3. Detect faces in a group image.  
4. Compare detected faces with saved embeddings and identify present students.

# 🖼️ Output

An image named `output\_with\_boxes.jpg` will be generated showing detected faces with labels.

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