Visual Product Matcher

A simple end-to-end project that allows you to upload an image and find the most visually similar images from a dataset. The system uses a **FastAPI backend** with a pre-trained **ResNet50 model** for feature extraction and a **vanilla HTML/JS frontend** for interaction.

Features

1. **Upload an image (via file or URL)**
2. **Find top-5 most visually similar images from the dataset**
3. **ResNet50 (ImageNet pre-trained) feature embeddings**
4. **Cosine similarity for retrieval**
5. **Frontend with preview + result grid**

Project Structure

```
visual-product-matcher/
├── app.py              # FastAPI backend with ResNet50
├── a.py                # Script to download sample dataset (icrawler)
├── dataset/            # Dataset folder (auto-indexed on startup)
├── frontend.html       # Web UI
├── script.js           # Frontend JS logic
├── style.css           # Styling for frontend
└── README.md           # (this file)
```

Installation & Setup

Step-1: Append the necessary file in your editor

- frontend.html
- style.css
- script.js
- app.py
- a.py

Step-2: Copy the “DATASET” folder in the same main folder where above files are already present.

https://drive.google.com/drive/folders/1OiMuX1kBiUZKk2RWYxosFYUP-Ga_dvlI?usp=sharing

(Here click for access the dataset)

Step-3: Install the necessary dependencies for continuous execution of the model.

- fastapi
- uvicorn[standard]
- pillow
- numpy
- scikit-learn
- tensorflow
- python-multipart