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## Project Title: E-Commerce Clothing Reverse Search Engine

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### 1. Introduction

In today's e-commerce-driven world, users often find it difficult to search for clothing items online just based on images. Our project aims to bridge this gap by allowing users to upload an image of a clothing item and retrieve relevant online listings from top e-commerce websites like **Amazon**, **Myntra**, and **Flipkart**.

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### 3. System Architecture

#### Frontend

- **HTML/CSS**: Used to build a responsive and user-friendly interface.
- **Image Upload Feature**: Allows users to upload clothing images.

#### Backend

- **Flask (Python Framework)**: Handles server-side logic and integrates all components.
  - **BLIP-2 (Bootstrapped Language Image Pretraining)**:
    - Converts the uploaded image into a **natural language description**.
    - Example: Image of a red hoodie → "A red zip-up hoodie with pockets."
  - **SERP API (Google Search API)**:
    - Queries e-commerce platforms using the generated description.
    - Filters results from **Amazon**, **Myntra**, and **Flipkart**.
    - Extracts **titles, URLs, and thumbnail images**.
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## 4. Features

- Upload any clothing image.
  - Automatically generate text from image using state-of-the-art **BLIP-2** vision-language model.
  - Fetch live e-commerce product listings based on search query.
  - Display **clickable links** and **product images** on the webpage.
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## 5. Technologies Used

Component	Technology
Frontend	HTML, CSS
Backend	Python, Flask
Image-to-Text	BLIP-2 (HuggingFace/transformers)
Search API	SERP API
Platforms Queried	Amazon, Myntra, Flipkart

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## 7. Future Scope

- Add **price comparison** and **sorting**.
- Expand to **international** e-commerce platforms like **Shein**, **Zara**, etc.
- Improve search accuracy with **CLIP-based similarity matching**.