**Project Report: AI in E-Commerce Use Cases Generation**

**Project Overview**

This project aims to gather product data from Snapdeal's electronics section, generate use cases for AI applications in e-commerce, and suggest relevant datasets for further analysis and development. The primary components include web scraping, data processing, and interaction with a language model API for generating use cases.

**Objectives**

* **Data Gathering**: Scrape product information from Snapdeal.
* **Use Case Generation**: Generate detailed use cases for AI applications in e-commerce.
* **Dataset Suggestions**: Recommend datasets for machine learning based on the generated use cases.

**Technologies Used**

* **Python**: The main programming language for scripting and data manipulation.
* **BeautifulSoup**: A library for parsing HTML and extracting data from web pages.
* **Requests**: For making HTTP requests to fetch web content.
* **Langchain-Ollama**: A wrapper for interfacing with the Ollama API to generate natural language responses.
* **Logging**: For monitoring and debugging the application.

**Architecture**

1. **Data Acquisition Layer**:
   * **Web Scraper**: A Python script that uses requests to fetch HTML content and BeautifulSoup to parse and extract product information (name, price, ratings, link, and image).
   * **Output**: A list of dictionaries containing product details.
2. **Use Case Generation Layer**:
   * **Chat API Interface**: Utilizes Langchain-Ollama to interact with an AI language model that generates use cases for AI in e-commerce.
   * **Response Parsing**: Extracts titles, descriptions, and benefits from the AI-generated text.
3. **Dataset Suggestion Layer**:
   * **Dataset Generator**: Takes the structured use cases and sends them to the language model API to receive suggestions for relevant datasets from platforms like Hugging Face and Kaggle.
   * **Output**: A list of suggested datasets.
4. **Output Presentation Layer**:
   * **Console Output**: Displays the scraped product data, generated use cases, and dataset suggestions in a readable format.

**Data Flow Diagram**

**Data Acquisition (web scraping)**

**Use Case Generation (Chat API Interface)**

**Dataset Generator**

**(Chat API )**

**Output Presentation**

**(Console Output)**

**Implementation Steps**

1. **Web Scraping**:
   * The scraper fetches the HTML content from Snapdeal and extracts relevant product details.
   * The data is stored in a structured format (list of dictionaries).
2. **Generating Use Cases**:
   * The extracted product data is used as a context for the AI model to generate use cases specific to e-commerce.
   * The generated use cases are structured into a list containing titles, descriptions, and benefits.
3. **Suggesting Datasets**:
   * The use cases are summarized and sent to the AI model to receive suggestions for appropriate datasets.
   * The response is formatted for readability.
4. **Output**:
   * The final output includes a list of products, detailed use cases, and suggested datasets, printed in the console.

**Results**

* **Product Data**: Successfully scraped product details from Snapdeal.
* **Use Cases**: Generated structured use cases with titles, descriptions, and benefits relevant to AI in e-commerce.
* **Datasets**: Suggested datasets that align with the generated use cases for further exploration.