Guru Nanak Dev Engineering College

Training Diary – TR-102 Report

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Day 4

Training Summary

On the fourth day of training, we continued developing our **URL Summarizer Project**. Building on the previous day's work, we expanded the functionality by focusing on **image extraction** and **image generation**.

Project Enhancement: Image Extraction from URL

We learned how to:

- **Extract all images** present in a given webpage (URL).

- Access and analyze each image's **metadata** (such as width, height, format, and file name).

- Organize and store these properties in a structured format using **Python dictionaries**.

This helped us understand how to work with real-time multimedia content and manage image-related data in web scraping and AI tools.

Learning About Image Generation Using Hugging Face

In this session, we explored **AI-powered image generation**. We used **Hugging Face's Diffusers model** to:

- **Generate images from text prompts**.

- Capture each image's metadata (e.g., format, size, mode).

- Store all image-related data in a **JSON file** for later retrieval and analysis.

We also created a **JSON-based history log**, which saved:

- The prompt used for generation.

- The generated image's filename.

- Its properties and other metadata.

This activity taught us the process of **logging and managing AI outputs** efficiently using JSON, making it easy to access image history programmatically.

Key Tools and Skills Applied

- Python (for image scraping and JSON handling)

- Hugging Face API (for image generation)

- JSON (for structured storage of metadata)

- Prompt engineering (to generate creative and goal-driven images)

Learning Outcome

By integrating **image scraping** and **generation**, we learned how to combine web content, AI models, and backend programming to build real-world, AI-powered applications.
We also practiced **organizing generated data for reuse**, which is crucial in automation and product development.

✅ **One-line Summary for Website**

Enhanced the URL summarizer to extract and log images with metadata, and explored image generation using Hugging Face with prompt-linked history tracking.

Let me know if you'd like this in a downloadable **Word document**, and I'll generate it for you!