Submission 2 Template

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Section	C

Instagram Caption Creator

Problem Statement

Instagram Caption Creator

- **Goal**: Upload a photo description (e.g., "Sunset at the beach") and get 3 cool captions.
- **Tech**: Text generation prompted with "Caption for this photo:".

Abstract

Social media platforms like Instagram rely heavily on short, creative captions to engage users. Writing attractive captions for every post can be time-consuming and sometimes difficult. This project demonstrates the use of a Generative AI model to automatically generate creative Instagram captions from a simple photo description. By using a pre-trained transformer-based text generation model, the system produces multiple caption suggestions that can be directly used or modified by users.

The project highlights how decoder-based language models can be applied to real-world creative tasks using prompt engineering and text generation techniques covered in Unit 1.

What I Understood

From this project, I understood that the **architecture of a language model determines the type of task it can perform well**. Decoder-only transformer models like GPT-2 are designed to generate text by predicting the next word in a sequence, making them suitable for creative tasks such as caption writing.

I also learned how **prompt engineering** and **sampling parameters** like temperature and top-p affect creativity and variation in generated text. Running the same input multiple times can produce different outputs, which is useful for generating multiple caption ideas.

What I Built

I built an Instagram Caption Creator that takes a short photo description as input and generates three creative Instagram captions.

The system uses the HuggingFace pipeline for text generation with a pre-trained DistilGPT-2 model. The implementation is done in a Jupyter Notebook, making it easy to test different inputs and observe the outputs.

The project does not involve training or fine-tuning the model. Instead, it focuses on applying an existing transformer model to a practical use case using concepts taught in Unit 1.

An interactive user interface was created inside the notebook to allow users to experiment with different inputs and creativity levels.

Screenshots: