Unit 1 Hands on Project

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SECTION:6F

Problem Statement:

Email Auto-Drafter:

- Goal: Input a bulleted list of points (e.g., "Sick leave", "Monday", "Back Tuesday") and generate a polite email draft.

- Tech: Prompt engineering with distilgpt2

Abstract:

This project demonstrates the use of Generative AI for automatic email drafting using Hugging Face models. The system accepts bullet point inputs from the user and generates a complete professional email. A pre-trained text-generation model, distilgpt2, is used through the Hugging Face pipeline. The project avoids manual rule-based writing and does not require model training. This work highlights the practical application of NLP in everyday communication.

understanding and building:

In this project, I understood how Hugging Face pipelines simplify the use of large language models for text generation.Instead of training a model from scratch, a pre-trained model is directly used to generate meaningful text. The distilgpt2 model was selected because it is lightweight and efficient for CPU-based systems.The text-generation pipeline internally manages tokenization, model loading, and output generation.
The user provides bullet points as input, which are converted into a prompt. Based on this prompt, the model generates a polite and professional email.This project helped me understand prompt engineering and the real-world use of Generative AI.

Output screen shots:

Email Auto-Drafter using Hugging Face

```python
[1]: from transformers import pipeline
```

```python
[2]: email_generator = pipeline(
         "text-generation",
         model="distilgpt2",
         framework="pt"
     )
```

```
Device set to use cpu
```

```python
[3]: prompt = """
     Email Auto-Drafter Task

     Bullet Points:
     - Sick leave
     - Monday
     - Back on Tuesday

     Generate a polite and professional email.
     """
```

```python
[4]: result = email_generator(
         prompt,
         max_new_tokens=120,
         do_sample=True,
         temperature=0.7
     )

     print(result[0]["generated_text"])
```

```
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.
```

```
Email Auto-Drafter Task

Bullet Points:
- Sick leave
- Monday
- Back on Tuesday

Generate a polite and professional email.
- In the email sent to the client, the email contains information and will be sent to the client.
- You can also receive the email when the client is already in the email (it might be a second email or a third email).
- You can also send your email when the client is already in the email (it might be a second email or a third email).
- The email will contain information and will be sent to the client.
- You can also send your email when the client is already in the email (it might be a second email or a third email).
```

Observations

- The distilgpt2 model is a next-token prediction model and not instruction-tuned.
- When given structured prompts or examples, the model may echo or extend the prompt.
- This behavior highlights the limitations of early text-generation models.
- The project demonstrates the use of Hugging Face pipelines and prompt engineering.