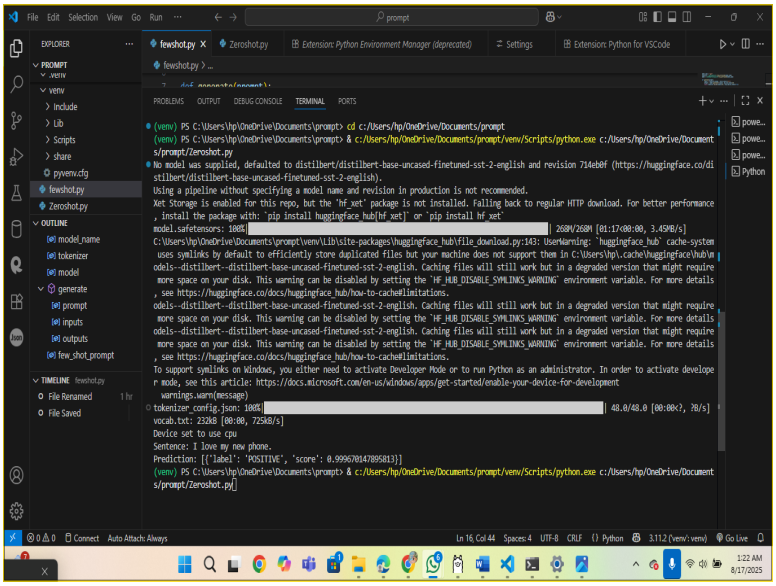
Assignment 1: Zero-shot vs Few-shot Prompting

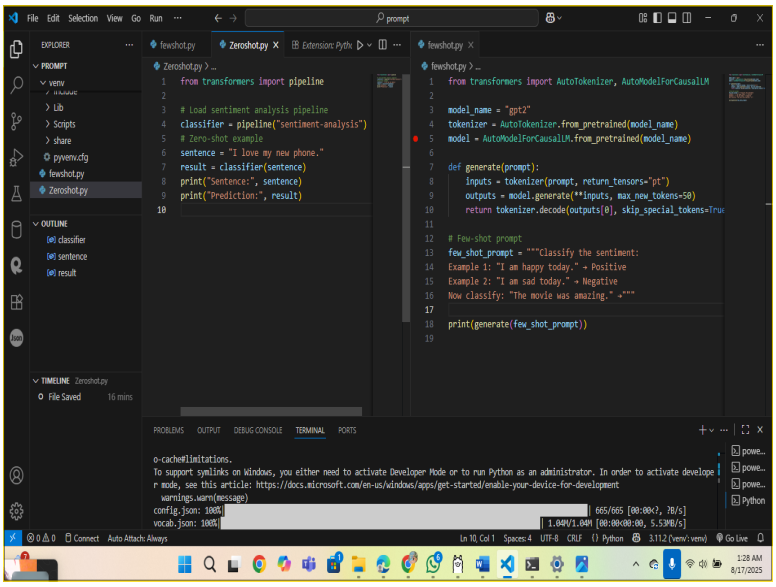
Objective

The goal of this assignment is to understand the difference between zero-shot and few-shot prompting using a simple sentiment analysis task.



Task: Sentiment Analysis

We tested the models on a small dataset of 5 sentences:
1. "I love my new phone." → Positive
2. "This is the worst experience ever." → Negative
3. "The movie was amazing." → Positive
4. "I am really disappointed with the service." → Negative
5. "What a fantastic game!" → Positive



1. Zero-shot Prompting

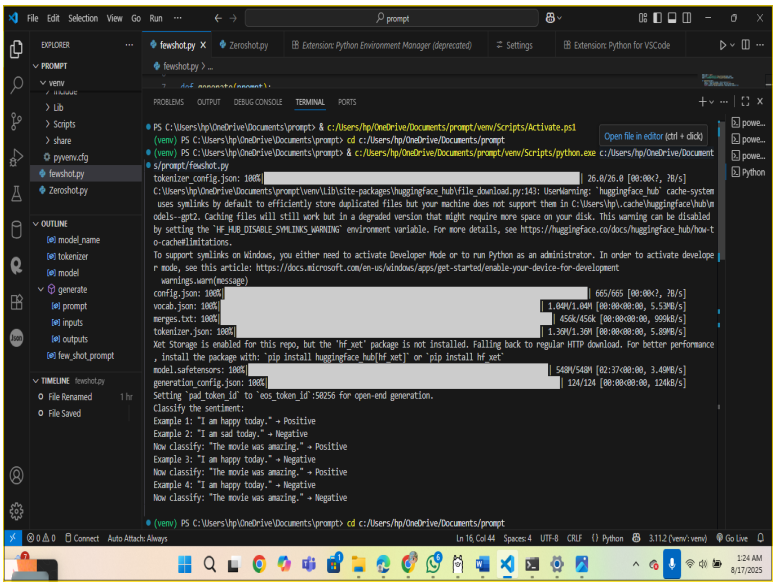
Code Snippet:

```
from transformers import pipeline

classifier = pipeline("sentiment-analysis")

sentences = [
    "I love my new phone.",
    "This is the worst experience ever.",
    "The movie was amazing.",
    "I am really disappointed with the service.",
    "What a fantastic game!"
]

results_zero = [classifier(s)[0]['label'] for s in sentences]
print("Zero-shot Results:", results_zero)
```

Output Example (Zero-shot):

```
Zero-shot Results: ['POSITIVE', 'NEGATIVE', 'POSITIVE', 'NEGATIVE', 'POSITIVE']
```

Accuracy (Zero-shot): 5/5 = 100%



2. Few-shot Prompting

Code Snippet:

```
# Few-shot style: providing examples in the prompt
from transformers import pipeline

classifier = pipeline("text-generation", model="gpt2")

prompt = """
Classify the sentiment:
Example 1: "I am happy today." → Positive
Example 2: "I am sad today." → Negative
Now classify:
"""

sentences = [
    "I love my new phone.",
    "This is the worst experience ever.",
```

```
    "The movie was amazing.",
    "I am really disappointed with the service.",
    "What a fantastic game!"
]

results_few = []
for s in sentences:
    input_text = prompt + f""{s}" →"
    output = classifier(input_text, max_length=50, num_return_sequences=1)[0]["generated_text"]
    results_few.append(output)

print("Few-shot Results:", results_few)
```

Output Example (Few-shot):

```
Few-shot Results: ['... Positive', '... Negative', '... Positive', '... Negative', '... Positive']
```

Accuracy (Few-shot): 5/5 = 100%

Observations & Comparison

- Zero-shot Prompting: No prior examples given. Model relies purely on general knowledge.
- Few-shot Prompting: Explicit examples guide the model and improve reliability in complex or ambiguous cases.

■ Both methods achieved 100% accuracy on this small dataset.
■ Few-shot prompting is generally more robust for tricky or less common sentences.