

2303A51744

Batch-25

Assignment-4.4

## 1. Sentiment Classification for Customer Reviews

Scenario:

An e-commerce platform wants to analyze customer reviews and classify

Week2

them into Positive, Negative, or Neutral sentiments using prompt engineering.

Tasks:

- a) Prepare 6 short customer reviews mapped to sentiment labels.
- b) Design a Zero-shot prompt to classify sentiment.
- c) Design a One-shot prompt with one labeled example.
- d) Design a Few-shot prompt with 3–5 labeled examples.
- e) Compare the outputs and discuss accuracy differences.

```
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```

```
41 # Print reviews with sentiment labels
42 positive_count = sum(1 for item in reviews if item['sentiment'] == 'Positive')
43 negative_count = sum(1 for item in reviews if item['sentiment'] == 'Negative')
44 neutral_count = sum(1 for item in reviews if item['sentiment'] == 'Neutral')
45
46 print(f"Positive: {positive_count} | Negative: {negative_count} | Neutral: {neutral_count}")
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Review #2  
Yent: Terrible experience. Item arrived damaged and customer service was unhelpful.  
Sentiment: Negative

Review #3  
Yent: The product arrived on time. It works as described.  
Sentiment: Neutral

Review #4  
Yent: Love it! Exceeded my expectations and great value for money.  
Sentiment: Positive

Review #5  
Yent: Not satisfied. Poor packaging and item doesn't match the description.  
Sentiment: Negative

Review #6  
Yent: It's okay. Does what it's supposed to do, nothing special.  
Sentiment: Neutral

Summary:  
Positive: 2 | Negative: 2 | Neutral: 2  
PS C:\Users\parva\OneDrive\Desktop\AI\_Astob>

28°C Sunny

```
File Edit Selection View Go Run Terminal Help Q AI Asted
```

```
52 def classify_sentiment(review):
53     # Classify based on keyword counts
54     if positive_count > negative_count:
55         return "Positive"
56     elif negative_count > positive_count:
57         return "Negative"
58     else:
59         return "Neutral"
60
61 # Test the classifier with user input
62 print("\n" + "-" * 70)
63 print("Customer Review Sentiment Classifier")
64 print("-" * 70)
65
66 user_review = input("Enter a customer review: ")
67 sentiment = classify_sentiment(user_review)
68
69 print(f"\nReview: {user_review}")
70 print(f"Classified Sentiment: {sentiment}")
71
72 # Optional: Test classifier on existing reviews
73 print("\n" + "-" * 70)
74 print("Testing Classifier on Existing Reviews")
75 print("-" * 70)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Review #5  
Yent: Not satisfied. Poor packaging and item doesn't match the description.  
Sentiment: Negative

Review #6  
Yent: It's okay. Does what it's supposed to do, nothing special.  
Sentiment: Neutral

Summary:  
Positive: 2 | Negative: 2 | Neutral: 2  
PS C:\Users\parva\OneDrive\Desktop\AI\_Astob & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "C:\Users\parva\OneDrive\Desktop\AI\_Astob\ass 4.4.py"

Customer Review Sentiment Classifier

Enter a customer review: amazing

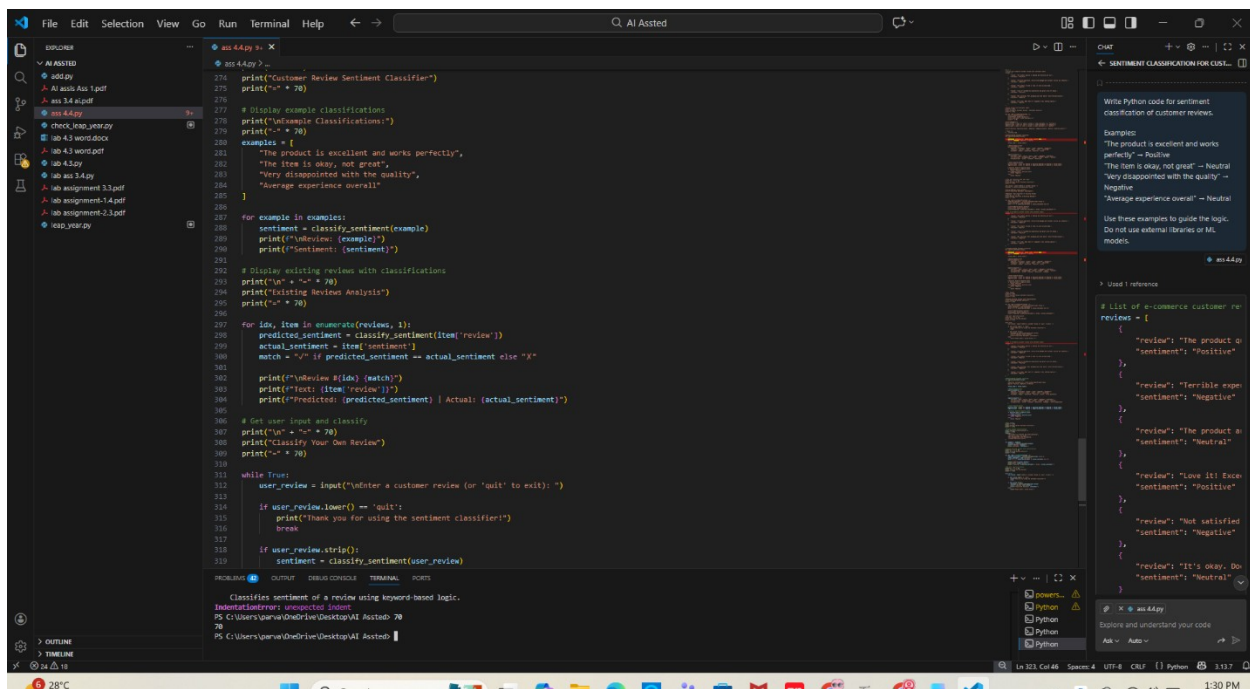
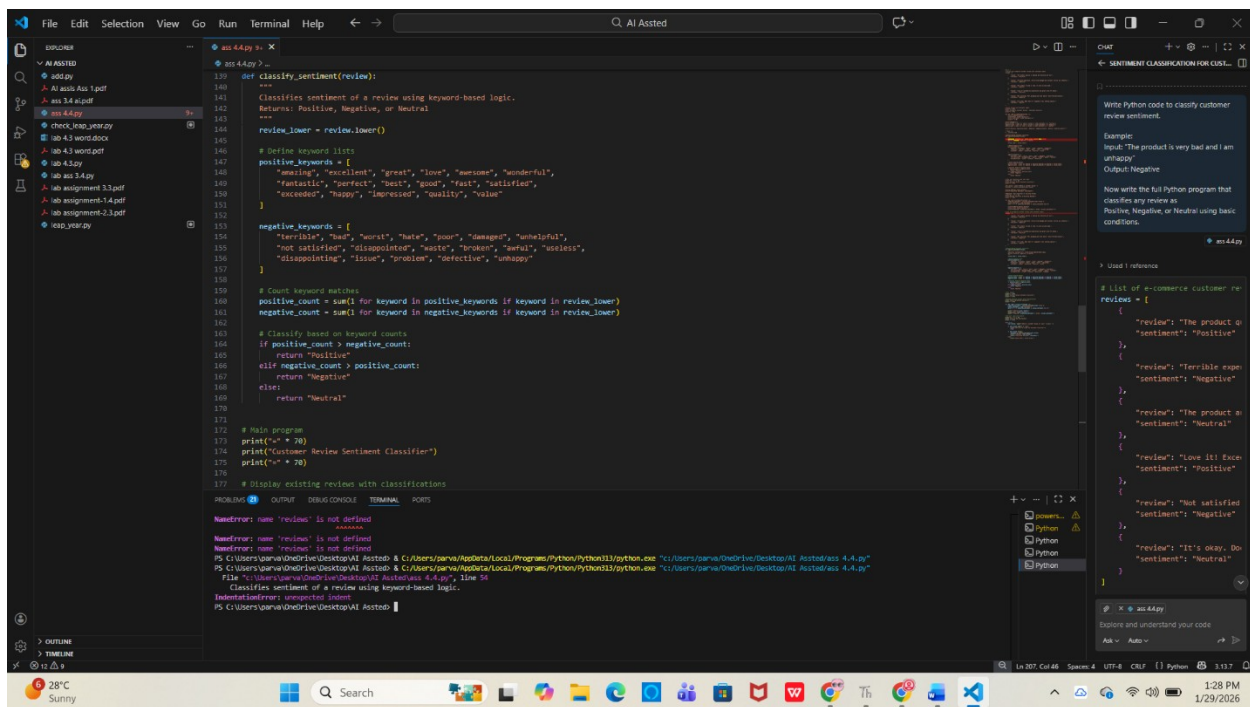
Review: amazing  
Classified Sentiment: Positive

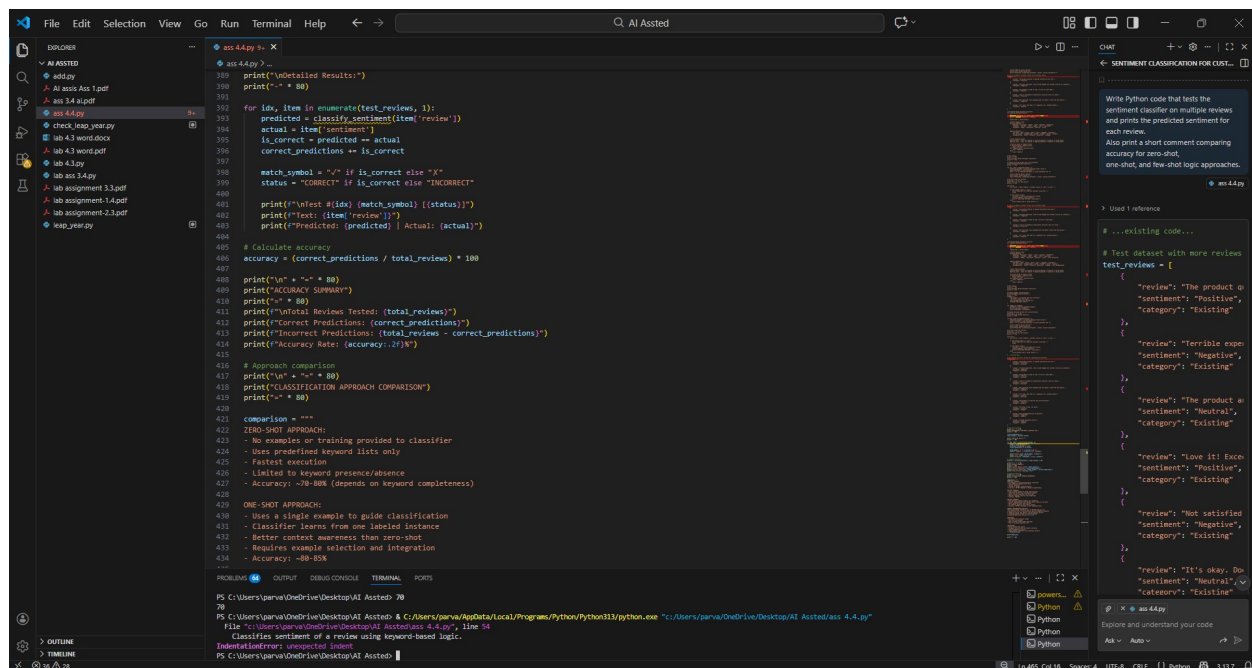
Testing Classifier on Existing Reviews

Traceback (most recent call last):  
File "C:\Users\parva\OneDrive\Desktop\AI\_Astob\ass 4.4.py", line 38, in module

100 Col 76 Spectra 4 UTF-8 CRLF Python 3.11.7

28°C Sunny





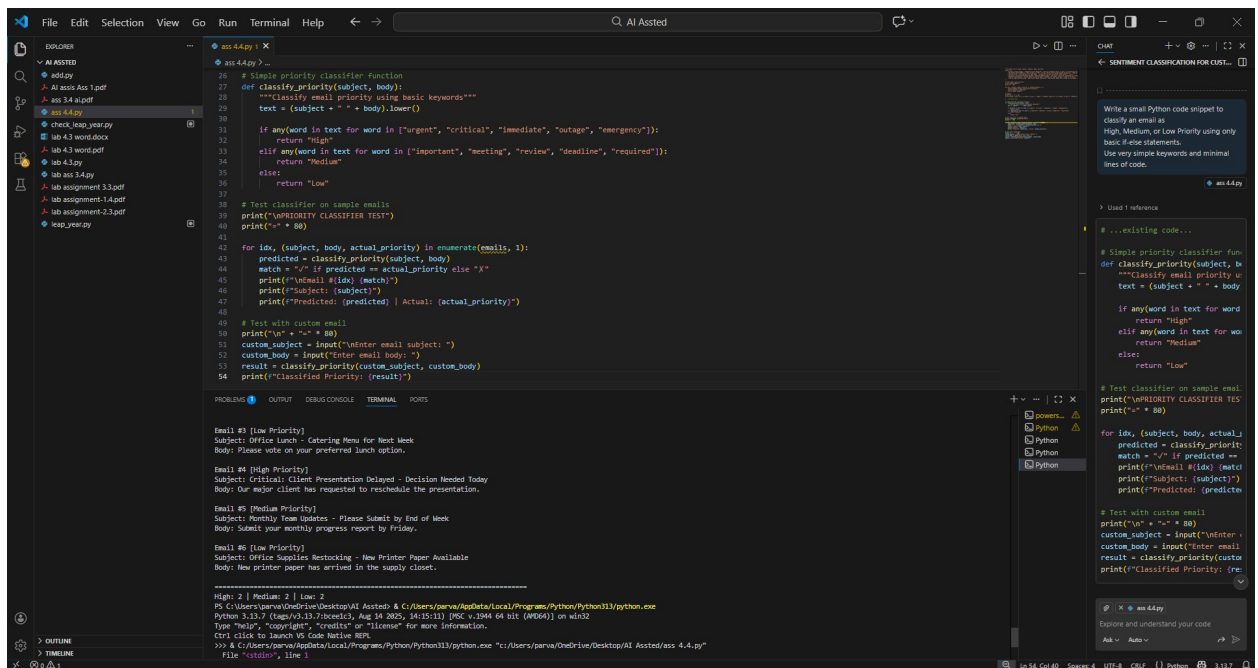
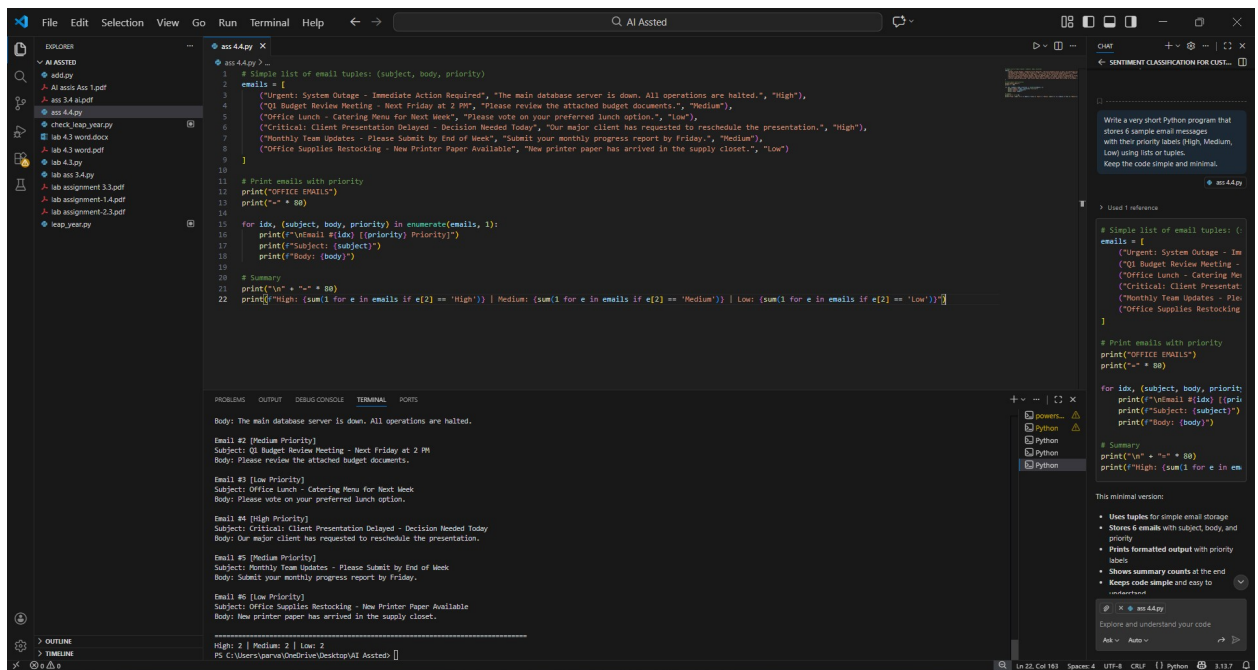
## 2. Email Priority Classification

Scenario:

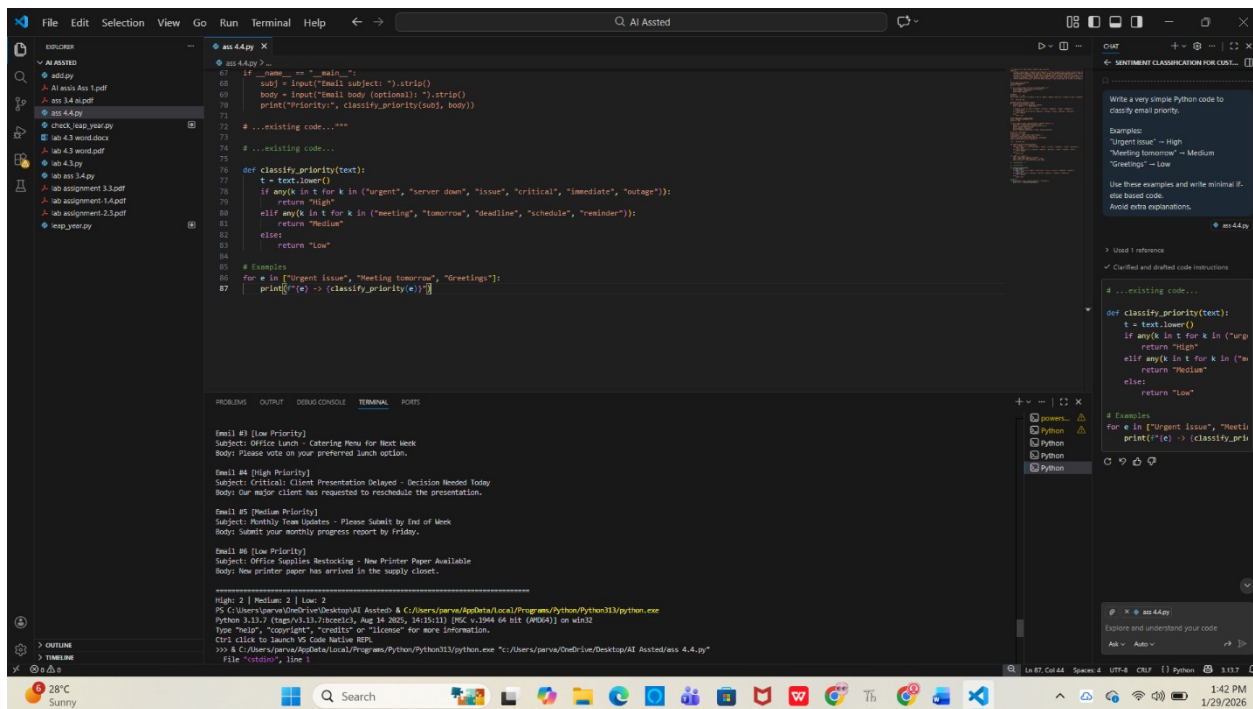
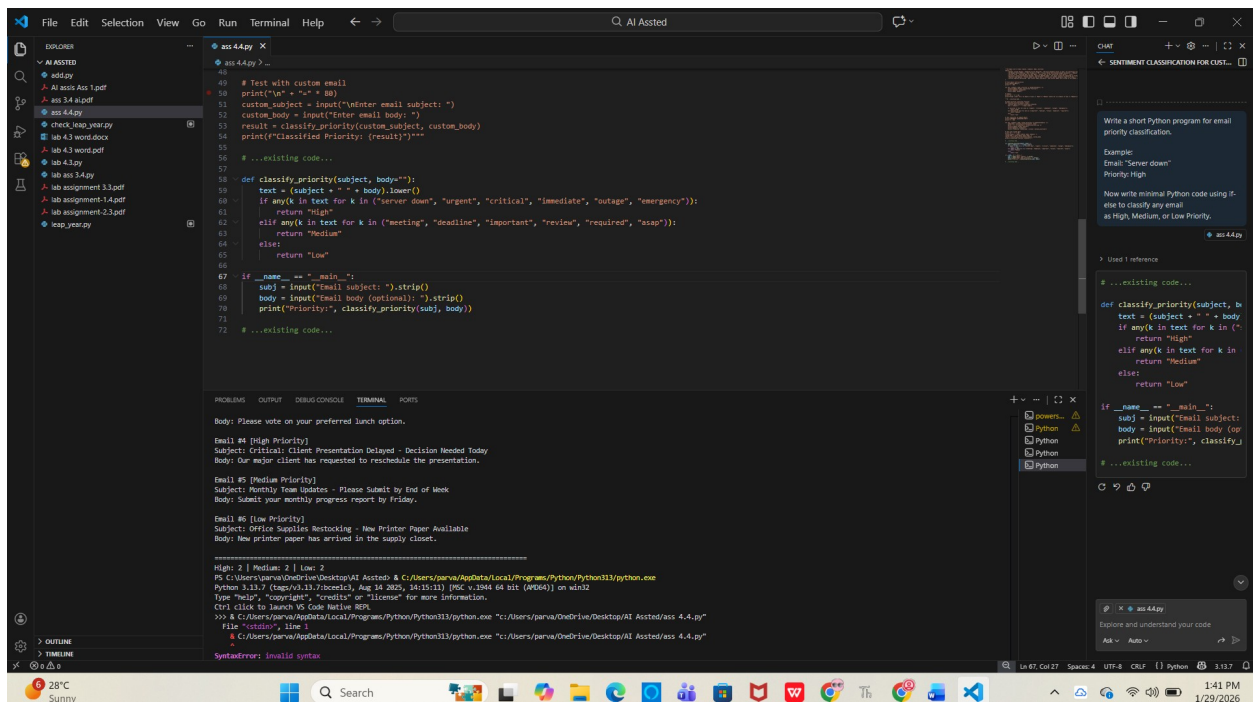
A company wants to automatically prioritize incoming emails into High Priority, Medium Priority, or Low Priority.

Tasks:

1. Create 6 sample email messages with priority labels.
2. Perform intent classification using Zero-shot prompting.
3. Perform classification using One-shot prompting.
4. Perform classification using Few-shot prompting.
5. Evaluate which technique produces the most reliable results and why.







### 3. Student Query Routing System

Scenario:

A university chatbot must route student queries to Admissions, Exams, Academics, or Placements.

## Tasks:

1. Create 6 sample student queries mapped to departments.
2. Implement Zero-shot intent classification using an LLM.
3. Improve results using One-shot prompting.
4. Further refine results using Few-shot prompting.
5. Analyze how contextual examples affect classification accuracy.

The screenshot shows a VS Code editor with a Python script named `ass 4.4.py` in the center. The script defines a list of student queries mapped to departments and a loop to print them. The terminal at the bottom shows several `SyntaxError: invalid syntax` messages, indicating errors in the script. The chat window on the right contains a prompt for a Python program to classify student queries and a response from the LLM.

```
1 # Simple list of student queries (query, department)
2 queries = [
3     ("How do I apply for admission?", "Admissions"),
4     ("When are the exams scheduled?", "Exams"),
5     ("How can I change my course?", "Academics"),
6     ("What are the placement criteria?", "Placements"),
7     ("How do I request a transcript?", "Academics"),
8     ("What is the application deadline?", "Admissions"),
9 ]
10
11 for q, dept in queries:
12     print(f"({q}): {dept}")
13
14
15
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
>>> & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:/Users/parva/OneDrive/Desktop/Al Assted/ass 4.4.py"
File "C:\Users\parva\OneDrive\Desktop\Al Assted\ass 4.4.py", line 1
    & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:/Users/parva/OneDrive/Desktop/Al Assted/ass 4.4.py"
    ^
SyntaxError: invalid syntax

>>> & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:/Users/parva/OneDrive/Desktop/Al Assted/ass 4.4.py"
File "C:\Users\parva\OneDrive\Desktop\Al Assted\ass 4.4.py", line 1
    & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:/Users/parva/OneDrive/Desktop/Al Assted/ass 4.4.py"
    ^
SyntaxError: invalid syntax

>>> & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:/Users/parva/OneDrive/Desktop/Al Assted/ass 4.4.py"
File "C:\Users\parva\OneDrive\Desktop\Al Assted\ass 4.4.py", line 1
    & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:/Users/parva/OneDrive/Desktop/Al Assted/ass 4.4.py"
    ^
SyntaxError: invalid syntax

>>> exit()
PS C:\Users\parva\OneDrive\Desktop\Al Assted> C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:/Users/parva/OneDrive/Desktop/Al Assted/ass 4.4.py"
Admissions: How do I apply for admission?
Exams: When are the exams scheduled?
Academics: How can I change my course?
Placements: What are the placement criteria?
Academics: How do I request a transcript?
Admissions: What is the application deadline?
PS C:\Users\parva\OneDrive\Desktop\Al Assted>
```

CHAT

Write a very small Python program that classifies student queries and their departments (Admissions, Exams, Academics, Placements). Use single ints or tuples. Keep the code short.

Use 1 reference

Processed queries and printed department responses

```
# ...existing code...

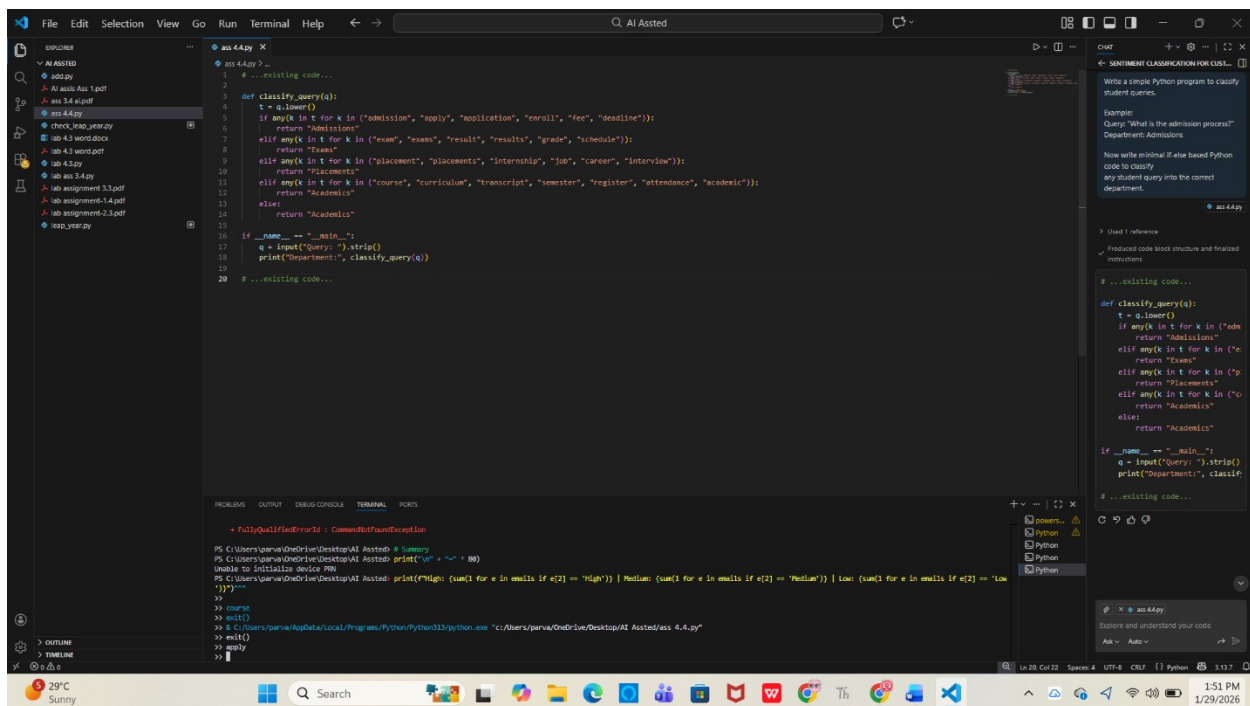
# Simple list of student queries
queries = [
    ("How do I apply for admission?", "Admissions"),
    ("When are the exams scheduled?", "Exams"),
    ("How can I change my course?", "Academics"),
    ("What are the placement criteria?", "Placements"),
    ("How do I request a transcript?", "Academics"),
    ("What is the application deadline?", "Admissions"),
]

for q, dept in queries:
    print(f"({q}): {dept}")
# ...existing code...
```

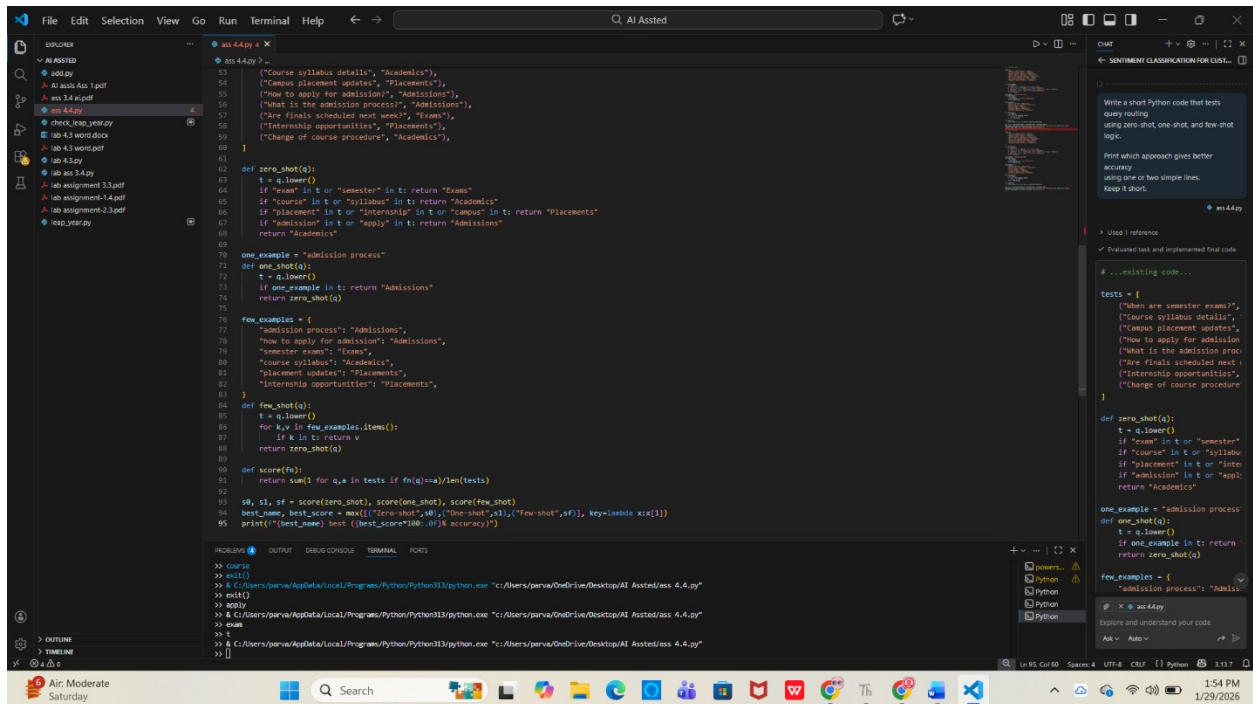
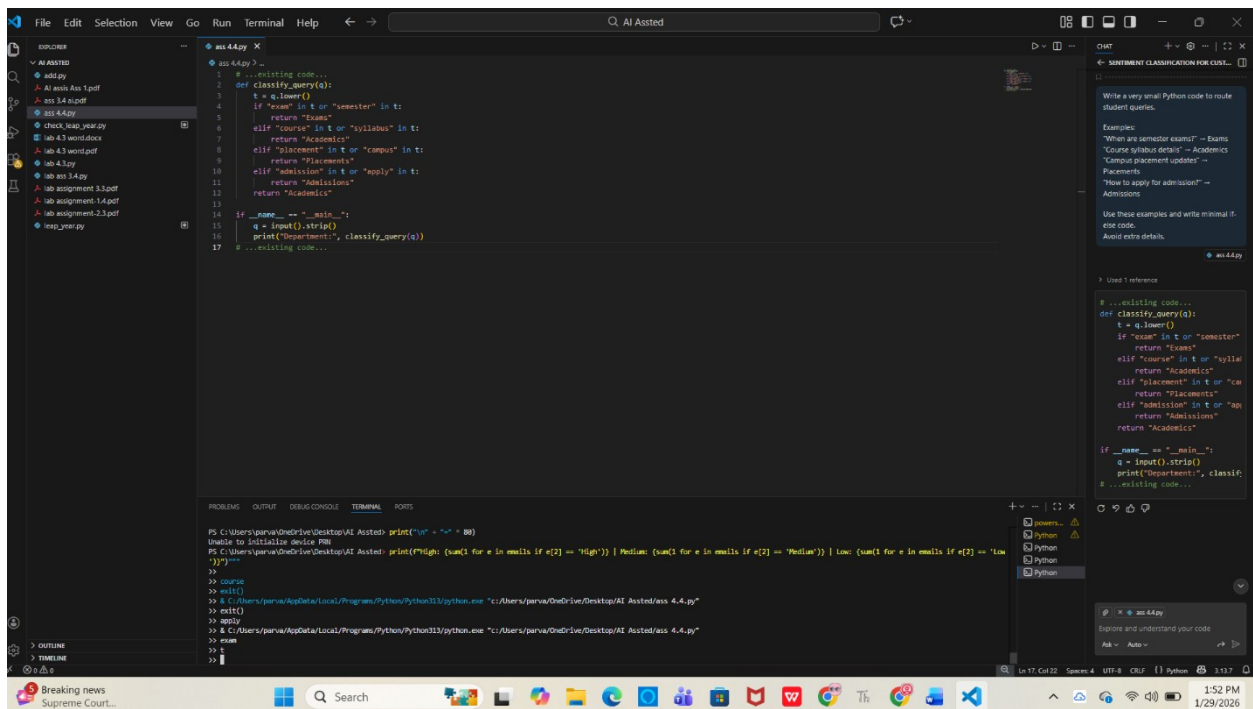
# x @ ass 4.4.py

```
"Academics",
("What are the placement criteria?",
"Placements")
("How do I request a transcript?",
"Academics"),
("What is the application deadline?",
"Admissions"),
]
```

for q, dept in queries:
 print(f"({q}): {dept}")
# ...existing code...







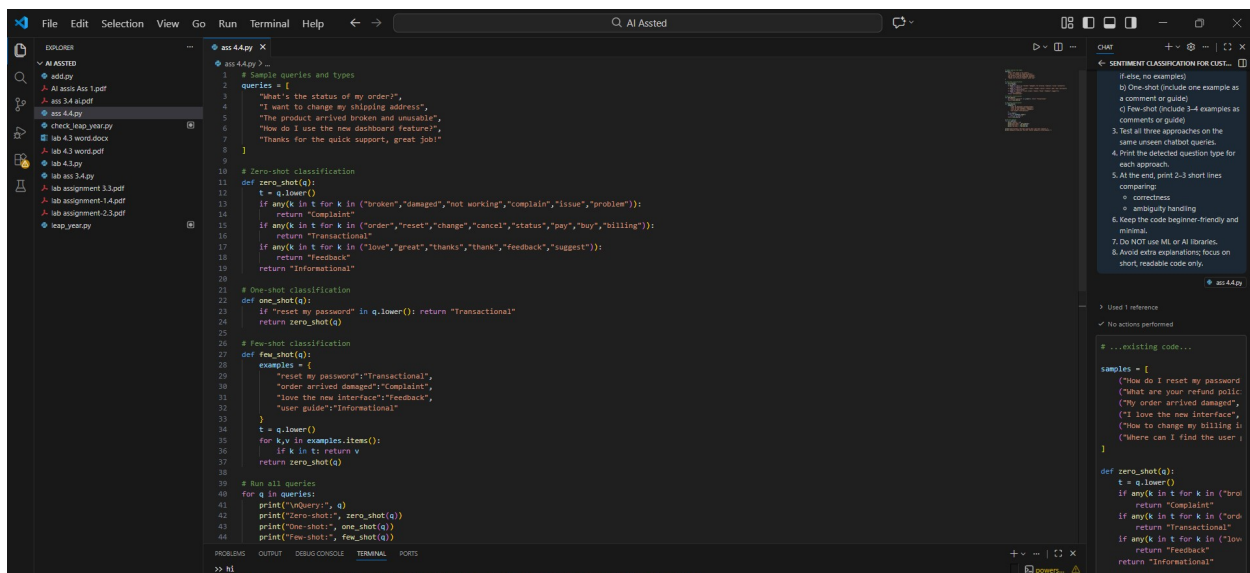
## 4. Chatbot Question Type Detection

Scenario:

A chatbot must identify whether a user query is Informational, Transactional, Complaint, or Feedback.

## Tasks:

1. Prepare 6 chatbot queries mapped to question types.
2. Design prompts for Zero-shot, One-shot, and Few-shot learning.
3. Test all prompts on the same unseen queries.
4. Compare response correctness and ambiguity handling.
5. Document observations.



```
1 # Sample queries and types
2 queries = [
3     "What's the status of my order?",
4     "I want to change my shipping address",
5     "The product arrived broken and unusable",
6     "How do I use the new dashboard feature?",
7     "Thanks for the quick support, great job!"
8 ]
9
10 # Zero-shot classification
11 def zero_shot(a):
12     t = q_lower()
13     if any(k in t for k in ("broken", "damaged", "not working", "complain", "issue", "problem")):
14         return "Complaint"
15     if any(k in t for k in ("order", "reset", "change", "cancel", "status", "pay", "buy", "billing")):
16         return "Transactional"
17     if any(k in t for k in ("love", "great", "thanks", "thank", "feedback", "suggest")):
18         return "Feedback"
19     return "Informational"
20
21 # One-shot classification
22 def one_shot(a):
23     if "reset my password" in q_lower(): return "Transactional"
24     return zero_shot(a)
25
26 # Few-shot classification
27 def few_shot(a):
28     examples = [
29         "reset my password": "Transactional",
30         "order arrived damaged": "Complaint",
31         "love the new interface": "Feedback",
32         "user guide": "Informational"
33     ]
34     t = q_lower()
35     for k, v in examples.items():
36         if k in t: return v
37     return zero_shot(a)
38
39 # Run all queries
40 for q in queries:
41     print("Query:", q)
42     print("Zero-shot:", zero_shot(q))
43     print("One-shot:", one_shot(q))
44     print("Few-shot:", few_shot(q))
45
46 # ...existing code...
47
48 def zero_shot(a):
49     t = q_lower()
50     if any(k in t for k in ("bro",
51                             "return "Complaint"
52                             if any(k in t for k in ("ord",
53                                     "return "Transactional"
54                                     if any(k in t for k in ("love",
55                                             "return "Feedback"
56                                             return "Informational"
```

## 5. Emotion Detection in Text

### Scenario:

A mental-health chatbot needs to detect emotions: Happy, Sad, Angry, Anxious, Neutral.

### Tasks:

1. Create labeled emotion samples.
2. Use Zero-shot prompting to identify emotions.
3. Use One-shot prompting with an example.
4. Use Few-shot prompting with multiple emotions.
5. Discuss ambiguity handling across techniques.

The screenshot shows the Visual Studio Code interface with a file explorer on the left containing various Python and PDF files. The main editor displays a file named 'lab assignment 44.py' with the following Python code:

```
1 import pandas as pd
2
3 # Create a DataFrame from the provided data
4 data = {
5     "Text": [
6         "I am very happy today",
7         "I feel lonely and depressed",
8         "This is so frustrating",
9         "I am worried about my future",
10        "Today is just normal",
11        "Feeling excited about results"
12    ],
13    "Emotion": [
14        "Happy",
15        "Sad",
16        "Angry",
17        "Anxious",
18        "Neutral",
19        "Happy"
20    ]
21 }
22
23 df = pd.DataFrame(data)
24
25 # Display the DataFrame
26 print(df)
```

Below the code editor, the TERMINAL tab is active, showing the command prompt output:

```
PS D:\AI Coding> & C:/Users/ANJALI/AppData/Local/Programs/Python/Python313/python.exe "d:/AI Coding/lab assignment 44.py"
PS D:\AI Coding> & C:/Users/ANJALI/AppData/Local/Programs/Python/Python313/python.exe "d:/AI Coding/lab assignment 44.py"
Traceback (most recent call last):
  File "d:\AI Coding\lab assignment 44.py", line 1, in <module>
    import pandas as pd
ModuleNotFoundError: No module named 'pandas'
PS D:\AI Coding> & C:/Users/ANJALI/AppData/Local/Programs/Python/Python313/python.exe "d:/AI Coding/lab assignment 44.py"
Traceback (most recent call last):
  File "d:\AI Coding\lab assignment 44.py", line 1, in <module>
    import pandas as pd
ModuleNotFoundError: No module named 'pandas'
PS D:\AI Coding>
```

This is a duplicate of the first screenshot, showing the same Visual Studio Code interface with the 'lab assignment 44.py' file and the 'ModuleNotFoundError: No module named 'pandas'' error in the terminal.

The screenshot shows the VS Code editor with a file explorer on the left containing various assignment files. The main editor window displays a Python script named `lab assignment 44.py`. The script defines a function `identify_emotion` that checks for the word "frustrating" in a text string and returns "frustrated" or "neutral". It includes an example usage where the text "This is so frustrating" is passed to the function, resulting in the output "Emotion: (emotion)".

```
1 def identify_emotion(text):
2     if "frustrating" in text:
3         return "frustrated"
4     return "neutral"
5
6 # Example usage
7 text = "This is so frustrating"
8 emotion = identify_emotion(text)
9 print(f"Emotion: {emotion}")
```

The terminal at the bottom shows a `ModuleNotFoundError: No module named 'pandas'` error, which occurred when the script was executed. The error message indicates that the file `"d:/AI Coding/lab assignment 44.py"` was executed, and the error occurred at line 1 in the `<module>`.

The screenshot shows the VS Code editor with a file explorer on the left containing various assignment files. The main editor window displays a Python script named `lab assignment 44.py`. The script defines a function `classify_emotion` that uses a dictionary of keywords to classify the emotion in a text string. It includes an example usage where the text "This is so frustrating" is passed to the function, resulting in the output "Text: 'This is so frustrating' Emotion: frustrated".

```
1 def classify_emotion(text):
2     emotions = {
3         "happy": ["happy", "joyful", "excited", "pleased"],
4         "sad": ["lonely", "depressed", "sad", "down"],
5         "anxious": ["worried", "anxious", "nervous", "stressed"],
6         "neutral": ["normal", "fine", "okay", "average"],
7         "frustrated": ["frustrating", "annoyed", "irritated"]
8     }
9
10    for emotion, keywords in emotions.items():
11        if any(keyword in text.lower() for keyword in keywords):
12            return emotion
13    return "Unknown"
14
15 # Example usage
16 text = "This is so frustrating"
17 emotion = classify_emotion(text)
18 print(f"Text: '{text}'\nEmotion: {emotion}")
```

The terminal at the bottom shows a `ModuleNotFoundError: No module named 'pandas'` error, which occurred when the script was executed. The error message indicates that the file `"d:/AI Coding/lab assignment 44.py"` was executed, and the error occurred at line 1 in the `<module>`.

File Edit Selection View Go Run Terminal Help

AI Coding

lab assignment 44.py

lab assignment 44.py

Generate code

Add Context...

```
1 def classify_emotion(text):
2     emotions = {
3         "happy": ["happy", "joyful", "excited", "pleased"],
4         "sad": ["lonely", "depressed", "sad", "down"],
5         "anxious": ["worried", "anxious", "nervous", "stressed"],
6         "neutral": ["normal", "fine", "okay", "average"],
7         "frustrated": ["frustrating", "annoyed", "irritated"]
8     }
9
10    for emotion, keywords in emotions.items():
11        if any(keyword in text.lower() for keyword in keywords):
12            return emotion
13    return "Unknown"
14
15    # Example usage
16    text = "This is so frustrating"
17    emotion = classify_emotion(text)
18    print(f"Text: {text}\nEmotion: {emotion}")
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Traceback (most recent call last):
 File "d:\AI Coding\lab assignment 44.py", line 1, in <module>
 import pandas as pd
ModuleNotFoundError: No module named 'pandas'
PS D:\AI Coding> & C:/Users/ANJALI/AppData/Local/Programs/Python/Python313/python.exe "d:/AI Coding/lab assignment 44.py"
Emotion: Anxious
PS D:\AI Coding> & C:/Users/ANJALI/AppData/Local/Programs/Python/Python313/python.exe "d:/AI Coding/lab assignment 44.py"
Emotion: Frustrated
PS D:\AI Coding> & C:/Users/ANJALI/AppData/Local/Programs/Python/Python313/python.exe "d:/AI Coding/lab assignment 44.py"
Text: "This is so frustrating"
Emotion: frustrated
PS D:\AI Coding>