

2303A51893

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.

```
File Edit Selection View Go Run Terminal Help
ass 4.4.py X
ass 4.4.py
AI ask Ass 1.pdf
ass 3.4 ai.pdf
ass 4.4.py
check_map_year.py
lab 4.3 word.docx
lab 4.3 word.pdf
lab 4.3 word.docx
lab assignment 3.3.pdf
lab assignment 1.4.pdf
lab assignment 2.3.pdf
lab_year.py

# ass 4.4.py
24
25
26 "review": "It's okay. Does what it's supposed to do, nothing special.",
27 "sentiment": "Neutral"
28
29
30 # Print reviews with sentiment labels
31 print("\n" * 70)
32 print("E-Commerce Customer Reviews - Sentiment Analysis")
33 print("\n" * 70)
34
35 for idx, item in enumerate(reviews, 1):
36     print(f"Review #{idx}")
37     print(f"Review: {item['review']}")
38     print(f"Sentiment: {item['sentiment']}")
39     print("\n" * 70)
40
41 print("Summary:")
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
Yenti: Terrible experience. Item arrived damaged and customer service was unhelpful.
Sentiment: Negative
Review #3
Yenti: The product arrived on time. It works as described.
Sentiment: Neutral
Review #4
Yenti: Love it! Exceeded my expectations and great value for money.
Sentiment: Positive
Review #5
Yenti: Not satisfied. Poor packaging and item doesn't match the description.
Sentiment: Negative
Review #6
Yenti: 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_Asstod>
```

Generate Python code that creates a list of 6 short e-commerce customer reviews. Each review should be mapped to a sentiment label: Positive, Negative, or Neutral. Print the reviews and their labels in a clear format.

```
# List of e-commerce customer reviews
reviews = [
    {
        "review": "The product is 'sentiment': 'Positive'
    },
    {
        "review": "Terrible experience 'sentiment': 'Negative'
    },
    {
        "review": "The product is 'sentiment': 'Neutral'
    },
    {
        "review": "Love it! Exceeded 'sentiment': 'Positive'
    },
    {
        "review": "Not satisfied 'sentiment': 'Negative'
    },
    {
        "review": "It's okay. Does 'sentiment': 'Neutral'
    }
]
```

Print reviews with sentiment labels

```
print("\n" * 70)
print("E-Commerce Customer Reviews - Sentiment Analysis")
print("\n" * 70)
```

ass 4.4.py

Explore and understand your code

Ask Auto

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1:21 PM 1/29/2026

```
File Edit Selection View Go Run Terminal Help
ass 4.4.py X
ass 4.4.py
AI ask Ass 1.pdf
ass 3.4 ai.pdf
ass 4.4.py
check_map_year.py
lab 4.3 word.docx
lab 4.3 word.pdf
lab 4.3 word.docx
lab assignment 3.3.pdf
lab assignment 1.4.pdf
lab assignment 2.3.pdf
lab_year.py

# ass 4.4.py
52 def classify_sentiment(review):
53
54     # Classify based on keyword counts
55     if positive_count > negative_count:
56         return "Positive"
57     elif negative_count > positive_count:
58         return "Negative"
59     else:
60         return "Neutral"
61
62
63 # Test the classifier with user input
64 print("\n" * 70)
65 print("Customer Review Sentiment Classifier")
66 print("\n" * 70)
67
68 user_review = input("Enter a customer review: ")
69 sentiment = classify_sentiment(user_review)
70
71 print(f"Review: {user_review}")
72 print(f"Classified Sentiment: {sentiment}")
73
74 # Optional: Test classifier on existing reviews
75 print("\n" * 70)
76 print("Testing Classifier on Existing Reviews")
77 print("\n" * 70)
78
79
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PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Review #5
Yenti: Not satisfied. Poor packaging and item doesn't match the description.
Sentiment: Negative
Review #6
Yenti: 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_Asstod & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "C:\Users\parva\OneDrive\Desktop\AI_Asstod\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_Asstod\ass 4.4.py", line 38, in module
```

Write Python code that takes a customer review as input and classifies its sentiment as Positive, Negative, or Neutral using simple keyword-based logic. Do not use any machine learning libraries.

```
# ass 4.4.py
# ...existing code...

# Keyword-based sentiment classifier
def classify_sentiment(review):
    """
    Classifies sentiment of a review.
    Returns: Positive, Negative, or Neutral.
    """
    review_lower = review.lower()

    # Define keyword lists
    positive_keywords = [
        "amazing", "excellent",
        "fantastic", "perfect",
        "exceeded", "happy", "im
    ]
    negative_keywords = [
        "terrible", "bad", "worse",
        "not satisfied", "disappointing", "issue"
    ]

    # Count keyword matches
    positive_count = sum(1 for keyword in positive_keywords if keyword in review_lower)
    negative_count = sum(1 for keyword in negative_keywords if keyword in review_lower)

    # Classify based on keyword counts
    if positive_count > negative_count:
        return "Positive"
    elif negative_count > positive_count:
        return "Negative"
    else:
        return "Neutral"
```

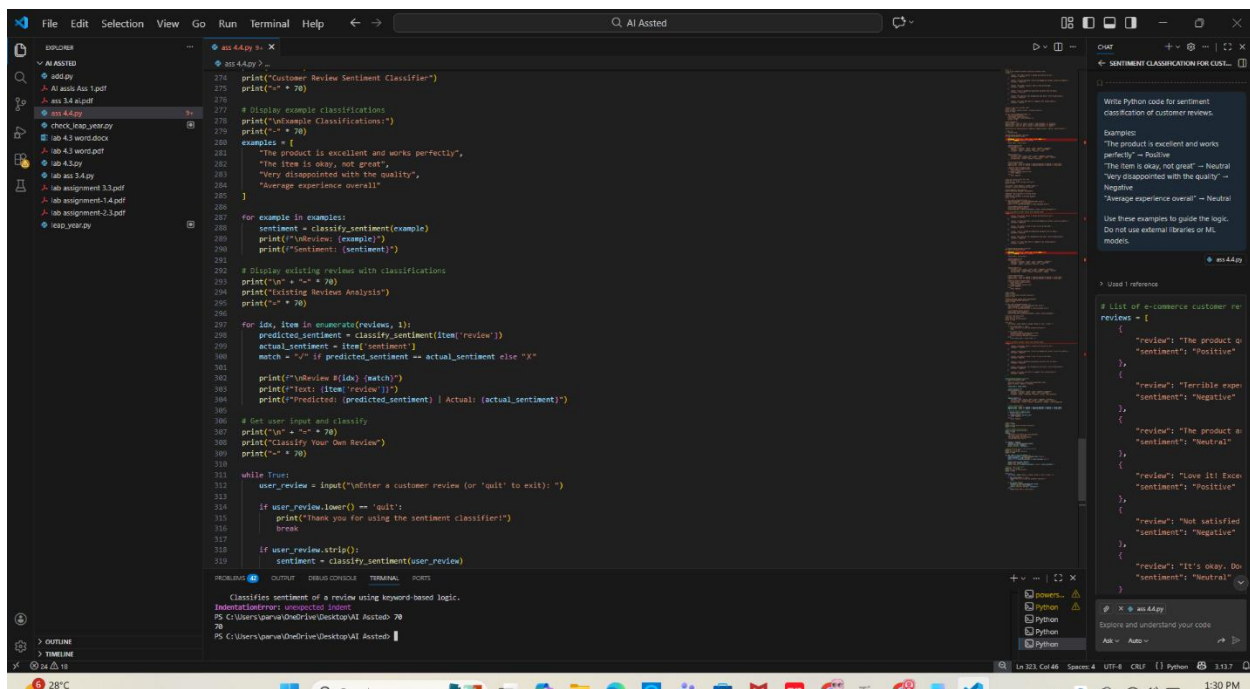
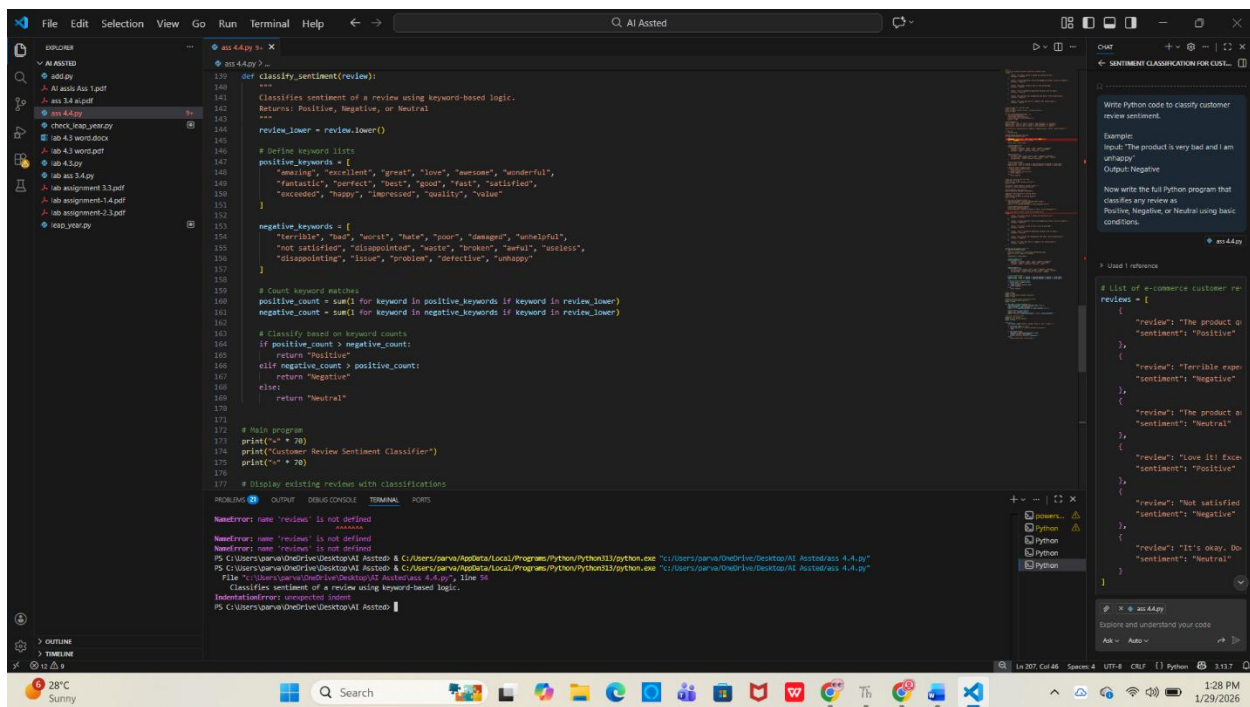
ass 4.4.py

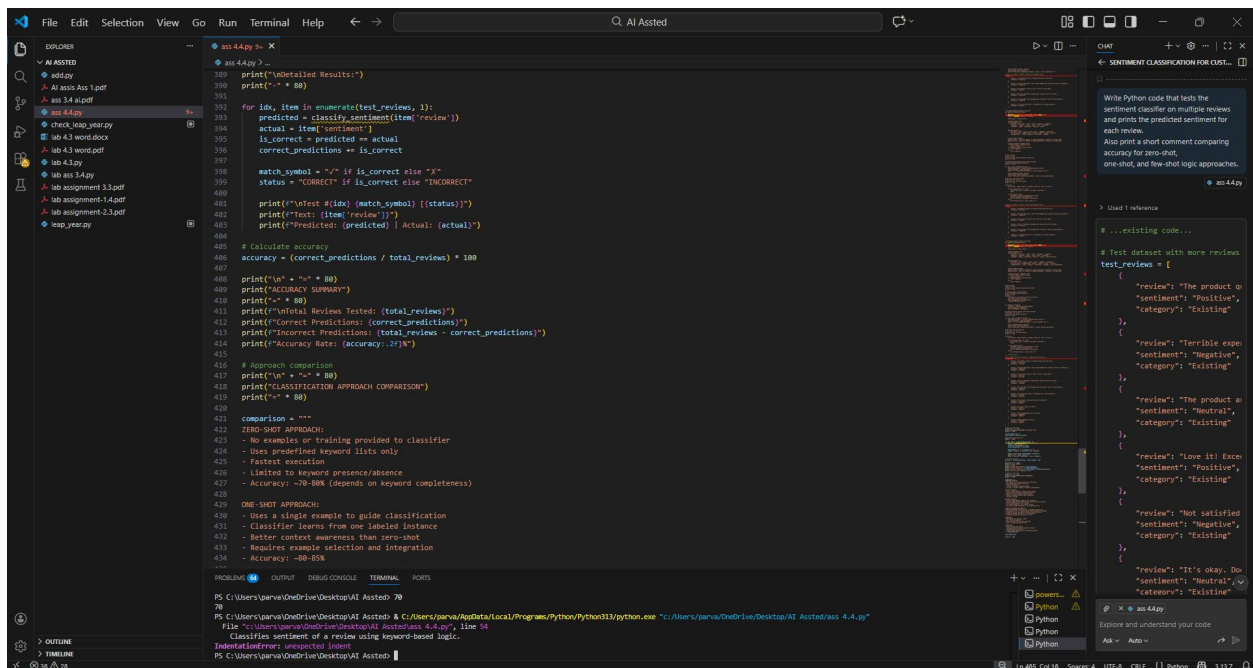
Explore and understand your code

Ask Auto

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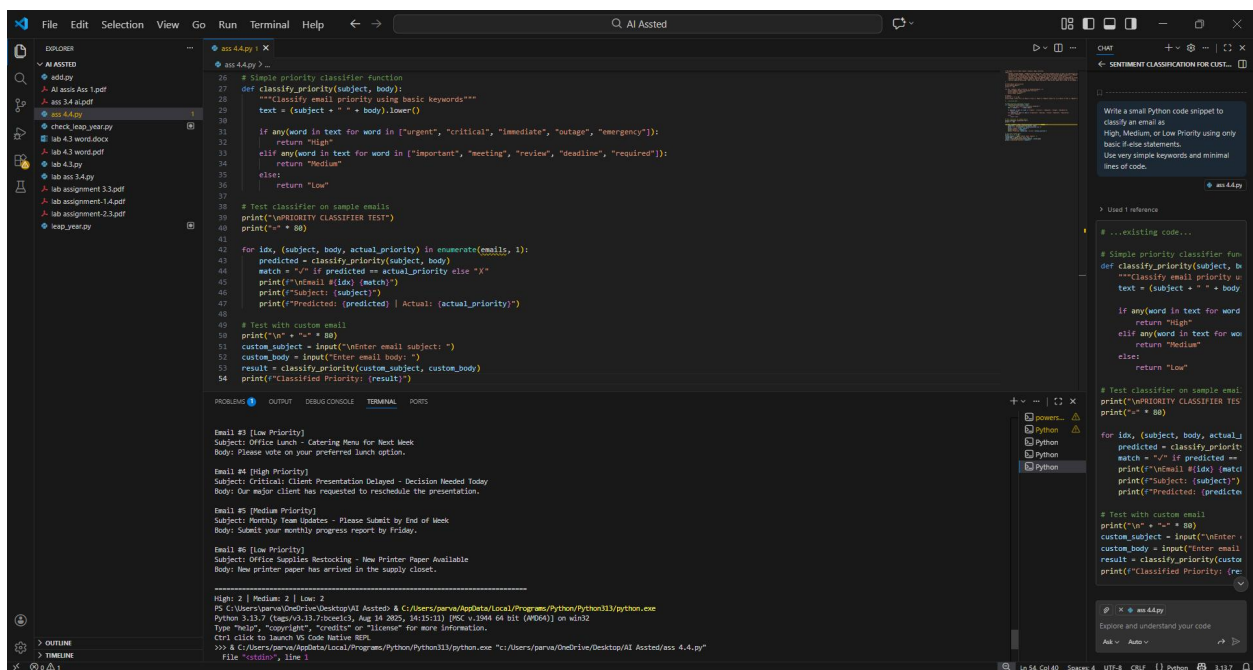
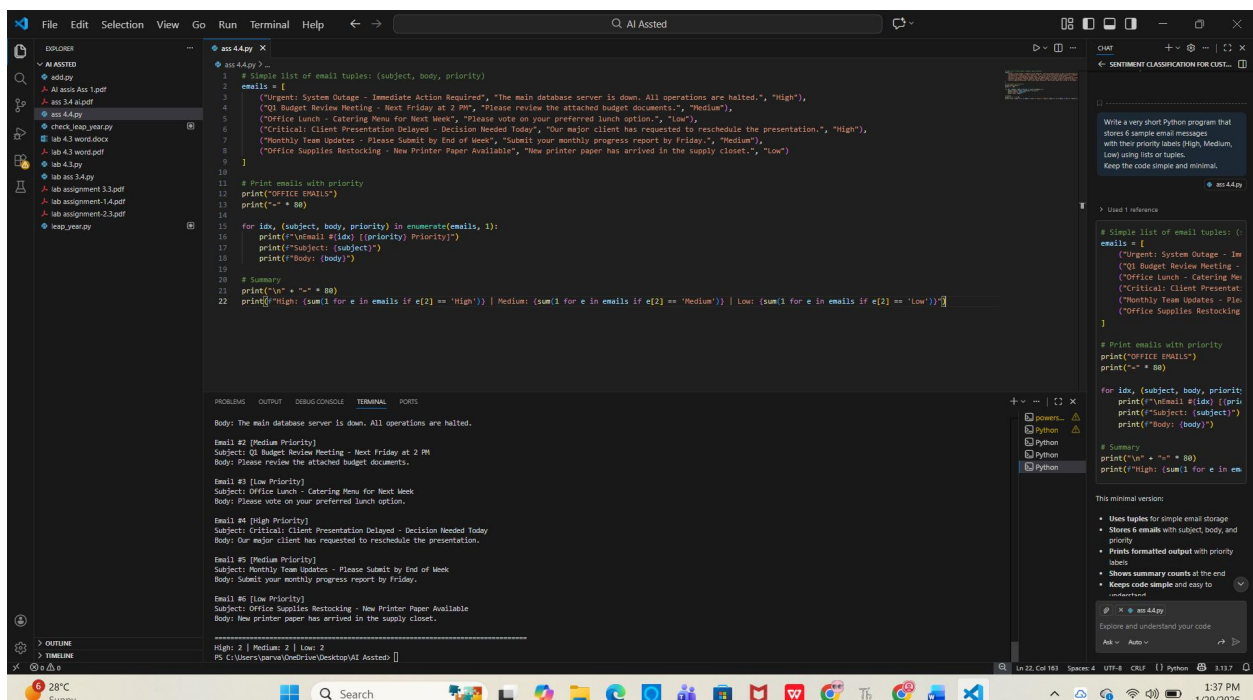
2. Email Priority Classification

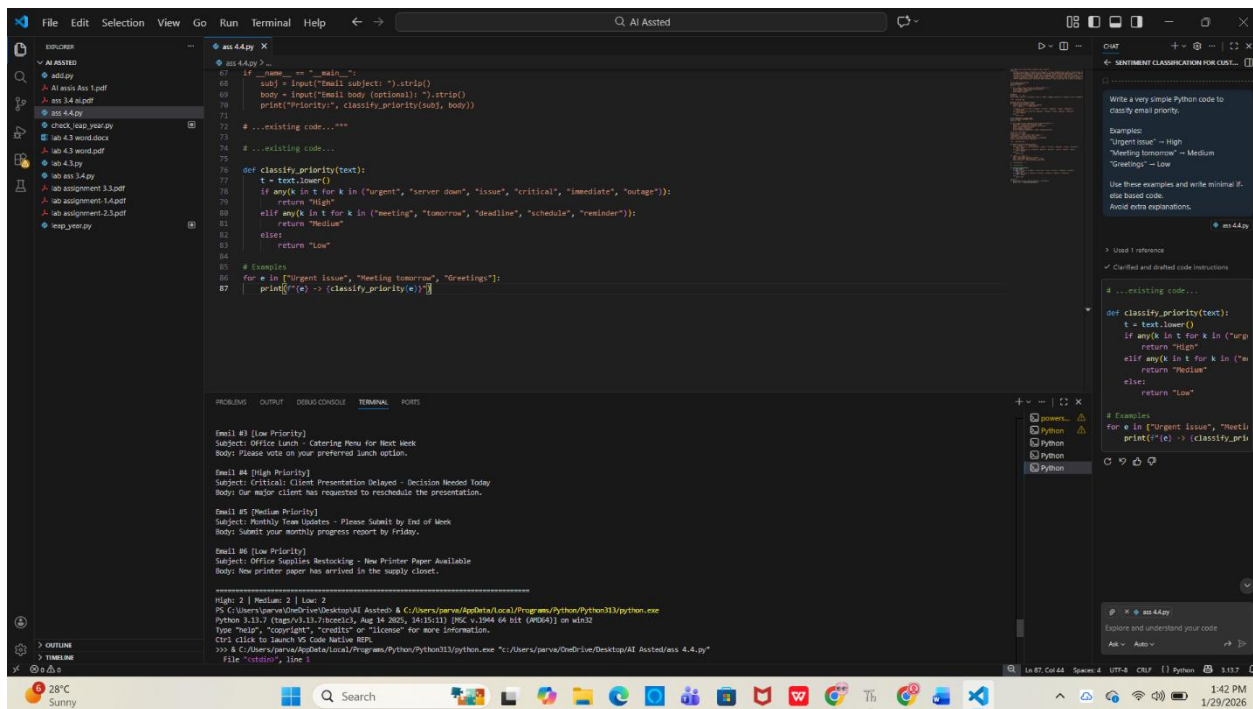
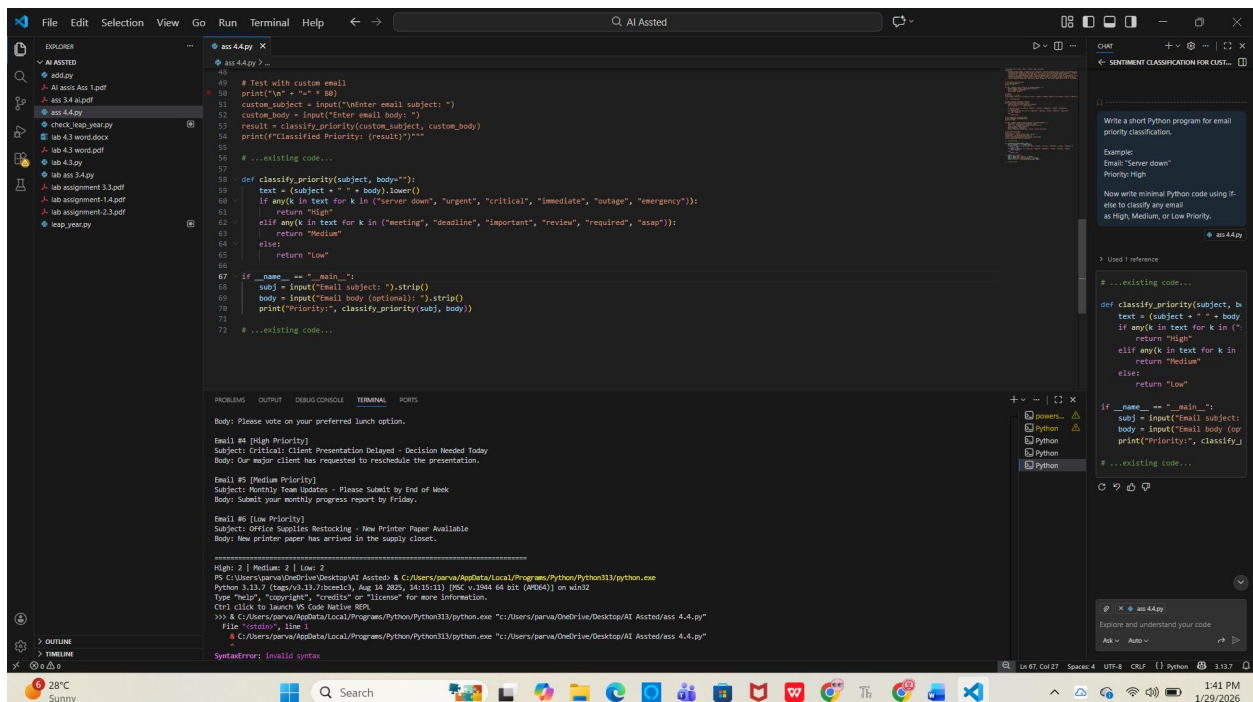
Scenario:

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 file explorer on the left, a main editor window, a terminal at the bottom, and a chat window on the right.

Main Editor Window: The file `ass 4.4.py` contains the following Python code:

```
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"{dept}: {q}")
13
14
```

Terminal: The terminal shows the execution of the script, which results in syntax errors. The errors are:

```
>>> & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:\Users\parva\OneDrive\Desktop\AI Assted\ass 4.4.py"
File "stdin", line 1
    C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:\Users\parva\OneDrive\Desktop\AI Assted\ass 4.4.py"
SyntaxError: invalid syntax
>>> & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:\Users\parva\OneDrive\Desktop\AI Assted\ass 4.4.py"
File "stdin", line 1
    C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:\Users\parva\OneDrive\Desktop\AI Assted\ass 4.4.py"
SyntaxError: invalid syntax
>>> & C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:\Users\parva\OneDrive\Desktop\AI Assted\ass 4.4.py"
File "stdin", line 1
    C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:\Users\parva\OneDrive\Desktop\AI Assted\ass 4.4.py"
SyntaxError: invalid syntax
>>> exit()
PS C:\Users\parva\OneDrive\Desktop\AI Assted> C:\Users\parva\AppData\Local\Programs\Python\Python311\python.exe "c:\Users\parva\OneDrive\Desktop\AI 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\AI Assted>
```

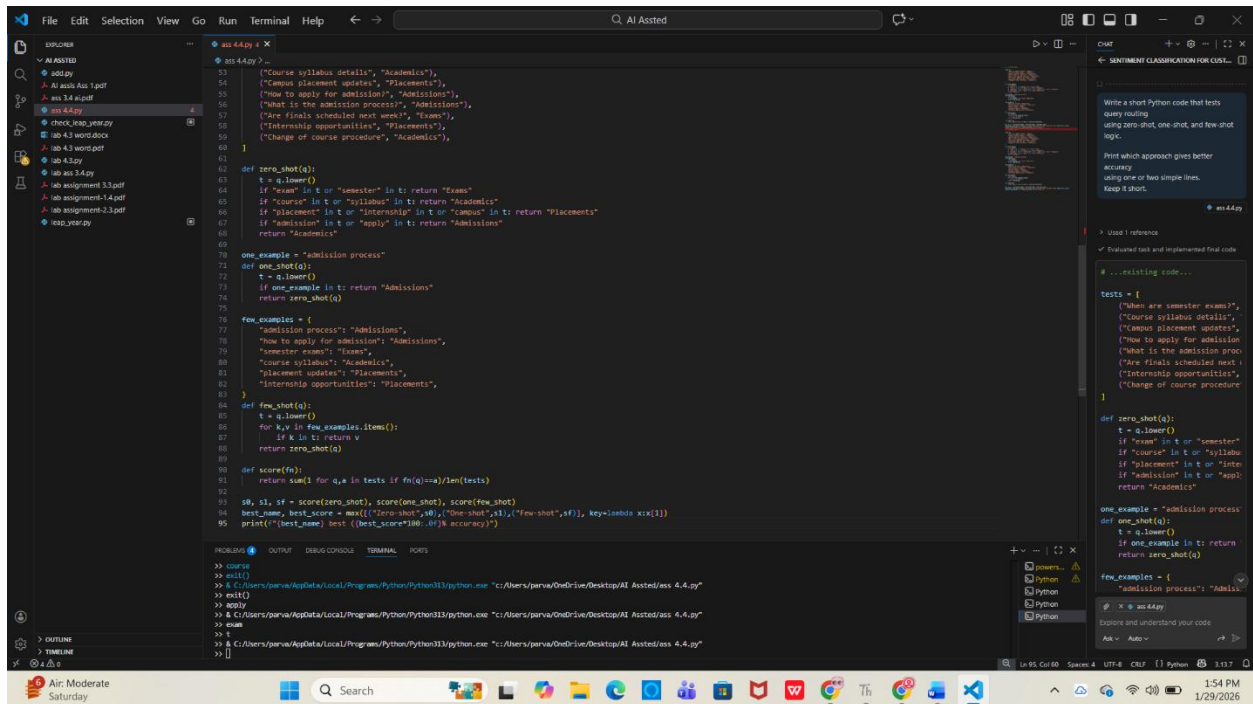
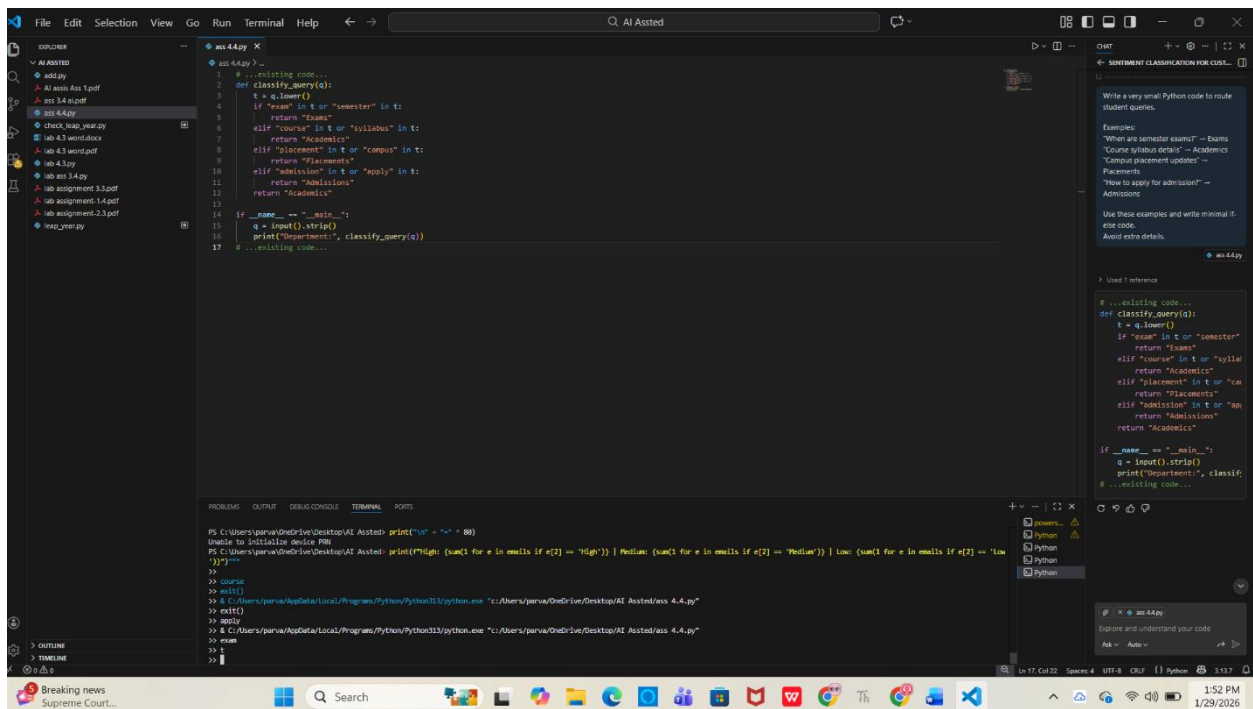
Chat Window: The chat window shows a conversation with an LLM. The prompt is:

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

The LLM response is:

```
# 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"{dept}: {q}")
# ...existing code...
```

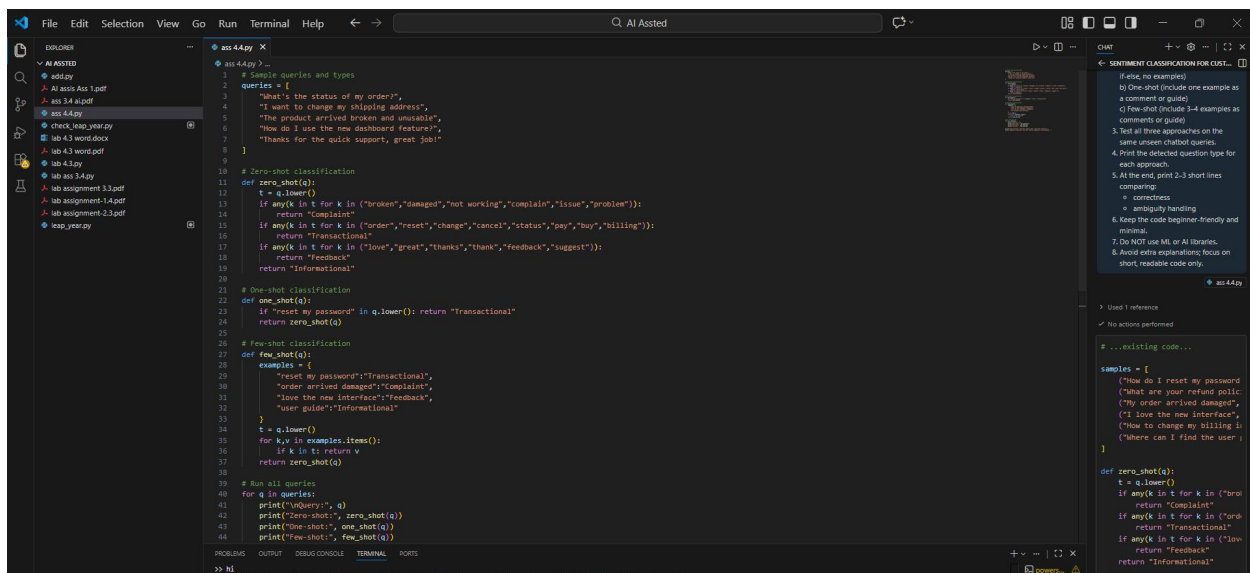
4. Chatbot Question Type Detection

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 # Small 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 # Run all queries
47 for q in queries:
48     print("Query:", q)
49     print("Zero-shot:", zero_shot(q))
50     print("One-shot:", one_shot(q))
51     print("Few-shot:", few_shot(q))
```

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. The Explorer sidebar on the left lists files under 'AI CODING', including 'add.py', 'AI lab43.py', and 'lab assignment 44.py'. The main editor displays the code for 'lab assignment 44.py'. The code imports pandas as 'pd' and creates a DataFrame from a dictionary of text and emotion data. The terminal at the bottom shows the command to run the script, which results in a 'ModuleNotFoundError: No module named 'pandas''.

```
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)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
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 environment and the 'ModuleNotFoundError: No module named 'pandas'' error in the terminal.

The screenshot shows the VS Code interface with a file explorer on the left containing various assignment files. The main editor displays a Python script named `lab assignment 44.py`. The script defines a function `identify_emotion(text)` that checks for the word "frustrating" 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 interface with a file explorer on the left containing various assignment files. The main editor displays a Python script named `lab assignment 44.py`. The script defines a function `classify_emotion(text)` that uses a dictionary of keywords to classify emotions. 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>`.

