

# AI LAB TEST 01

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QUESTION 1:

**TASK 1:**

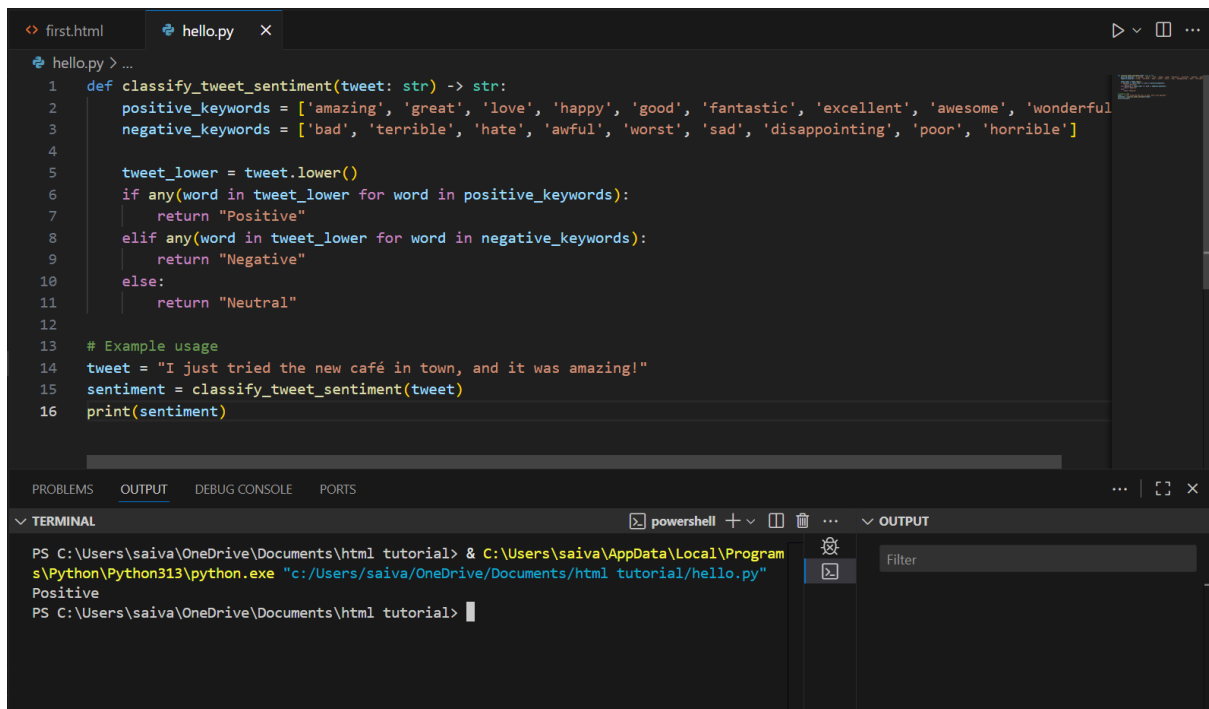
Write a zero-shot prompt to classify sentiment without any examples

**PROMPT:**

Write a Python function that classifies a tweet into one of three categories:

"Positive", "Negative", or "Neutral".

## CODE:



The screenshot shows a code editor with a file named 'hello.py' open. The code defines a function 'classify\_tweet\_sentiment' that takes a tweet string and returns its sentiment. It uses two lists of keywords: 'positive\_keywords' and 'negative\_keywords'. The function checks if any word from the tweet is in the positive list; if so, it returns 'Positive'. If any word is in the negative list, it returns 'Negative'. Otherwise, it returns 'Neutral'. An example usage is provided at the bottom of the code block.

```
1 def classify_tweet_sentiment(tweet: str) -> str:
2     positive_keywords = ['amazing', 'great', 'love', 'happy', 'good', 'fantastic', 'excellent', 'awesome', 'wonderful']
3     negative_keywords = ['bad', 'terrible', 'hate', 'awful', 'worst', 'sad', 'disappointing', 'poor', 'horrible']
4
5     tweet_lower = tweet.lower()
6     if any(word in tweet_lower for word in positive_keywords):
7         return "Positive"
8     elif any(word in tweet_lower for word in negative_keywords):
9         return "Negative"
10    else:
11        return "Neutral"
12
13 # Example usage
14 tweet = "I just tried the new café in town, and it was amazing!"
15 sentiment = classify_tweet_sentiment(tweet)
16 print(sentiment)
```

Below the code editor, the 'TERMINAL' panel shows the command to run the script and the output:

```
PS C:\Users\saiva\OneDrive\Documents\html tutorial> & C:\Users\saiva\AppData\Local\Programs\Python\Python313\python.exe "c:/Users/saiva/OneDrive/Documents/html tutorial/hello.py"
Positive
PS C:\Users\saiva\OneDrive\Documents\html tutorial>
```

## OUTPUT:

Positive

## OBSERVATION:

The program defines a function `classify_tweet_sentiment(tweet: str) -> str` that classifies the sentiment of a given tweet.

It uses a rule-based approach:

If the tweet contains any word from the `positive_keywords` list, it is classified as "Positive".

If the tweet contains any word from the `negative_keywords` list, it is classified as "Negative".

If neither is found, it defaults to "Neutral".

The input tweet is converted to lowercase to avoid case sensitivity issues when matching keywords.

## TASK 2:

### PROMPT 1:

#### WITHOUT CONTEXT:

Solve this math problem:

$$5x+3=18$$

### CODE:

```
hello.py  X
hello.py > ...
1  # Simple direct solver
2  problem = "5x + 3 = 18"
3  x = (18 - 3) / 5
4  print("Problem:", problem)
5  print("Answer: x =", x)
6
```

## OUTPUT:

```
▼ TERMINAL

PS C:\Users\saiva\OneDrive\Documents\html tutorial> & C:\Users\saiva\AppData\Local\Programs\Python\Python313\python.exe "c:/Users/saiva/OneDrive/Documents/html tutorial/hello.py"
Problem: 5x + 3 = 18
Answer: x = 3.0
PS C:\Users\saiva\OneDrive\Documents\html tutorial> 
```

## OBSREVATION:

Final Answer:  $x = 3.0$

## Prompt 2:

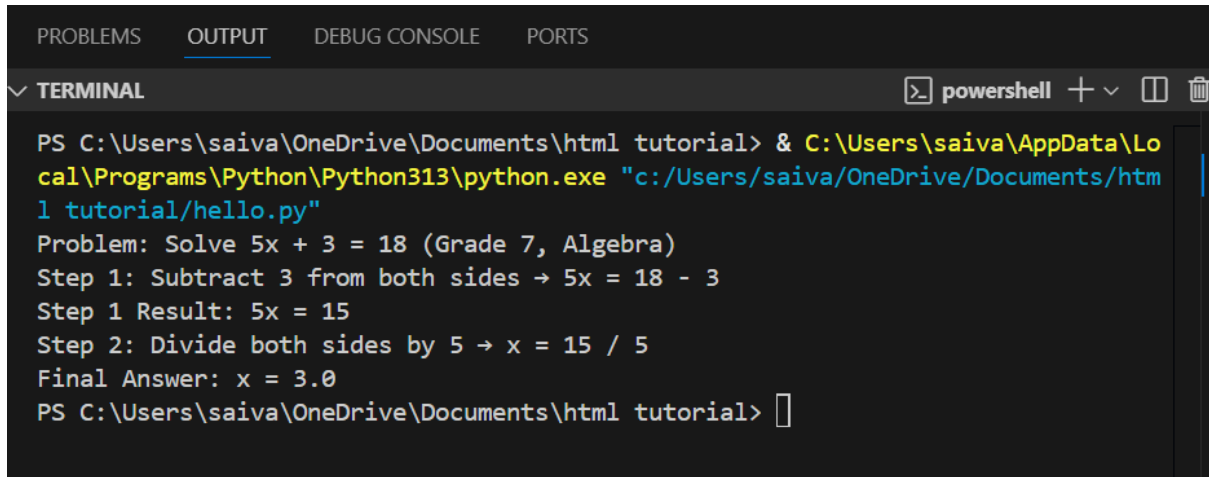
### With Detailed Context:

“You are helping a Grade 7 student with algebra. Solve step by step:  $5x + 3 = 18$ .”

## CODE:

```
hello.py X
hello.py > ...
1  def solve_equation():
2      print("Problem: Solve 5x + 3 = 18 (Grade 7, Algebra)")
3
4      print("Step 1: Subtract 3 from both sides → 5x = 18 - 3")
5      step1 = 18 - 3
6      print("Step 1 Result: 5x =", step1)
7
8      print("Step 2: Divide both sides by 5 → x =", step1, "/ 5")
9      x = step1 / 5
10
11     print("Final Answer: x =", x)
12
13     solve_equation()
14 
```

## OUTPUT:



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  PORTS
TERMINAL  powershell
PS C:\Users\saiva\OneDrive\Documents\html tutorial> & C:\Users\saiva\AppData\Local\Programs\Python\Python313\python.exe "c:/Users/saiva/OneDrive/Documents/html tutorial/hello.py"
Problem: Solve  $5x + 3 = 18$  (Grade 7, Algebra)
Step 1: Subtract 3 from both sides  $\rightarrow 5x = 18 - 3$ 
Step 1 Result:  $5x = 15$ 
Step 2: Divide both sides by 5  $\rightarrow x = 15 / 5$ 
Final Answer:  $x = 3.0$ 
PS C:\Users\saiva\OneDrive\Documents\html tutorial>
```

## OBSERVATION:

Step 1:  $5x = 15$

Step 2:  $x = 15 \div 5 = 3.0$

Final Answer:  $x = 3.0$

## QUESTION 2:

### TASK 1:

### PROMPT:

#### ONE SHORT PROMPT:

You are a sentiment classifier. Labels: Positive, Negative, Neutral.

Example:

Tweet: "I hate waiting in long lines."

Label: Negative

Now classify:

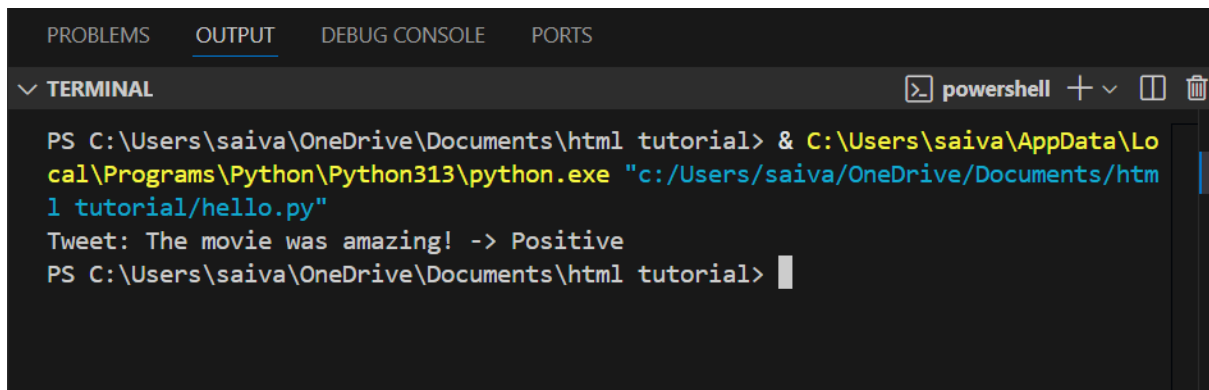
Tweet: "This movie was amazing and full of surprises!"

Label:

### CODE:

```
hello.py X
hello.py > ...
1  def one_shot_classify(tweet: str):
2      # Example given
3      example = {"I hate waiting in lines": "Negative"}
4
5      if "hate" in tweet.lower():
6          return "Negative"
7      elif "love" in tweet.lower() or "amazing" in tweet.lower():
8          return "Positive"
9      else:
10         return "Neutral"
11
12 print("Tweet: The movie was amazing! ->", one_shot_classify("The movie was amazing!"))
13
```

## OUTPUT:



The screenshot shows a VS Code interface with the 'OUTPUT' tab selected. Below it, a 'TERMINAL' window is open, running a PowerShell session. The prompt is 'PS C:\Users\saiva\OneDrive\Documents\html tutorial>'. The user has entered a command to run a Python script: '& C:\Users\saiva\AppData\Local\Programs\Python\Python313\python.exe "c:/Users/saiva/OneDrive/Documents/html tutorial/hello.py"'. The output of the script is 'Tweet: The movie was amazing! -> Positive'. The terminal window has a title bar that says 'powershell' and includes standard window controls.

```
PS C:\Users\saiva\OneDrive\Documents\html tutorial> & C:\Users\saiva\AppData\Local\Programs\Python\Python313\python.exe "c:/Users/saiva/OneDrive/Documents/html tutorial/hello.py"
Tweet: The movie was amazing! -> Positive
PS C:\Users\saiva\OneDrive\Documents\html tutorial>
```

## Few-shot :

### Prompt:

You are a sentiment classifier. Labels: Positive, Negative, Neutral.

Examples:

Tweet: "I hate waiting in long lines."

Label: Negative

Tweet: "The weather is nice today."

Label: Neutral

Tweet: "I am so excited about my new job!"

Label: Positive

Tweet: "The food was okay, nothing special."

Label: Neutral

Now classify:

Tweet: "This movie was amazing and full of surprises!"

Label:

CODE:

```
hello.py •
hello.py > ...
1  def few_shot_classify(tweet: str):
2      # 3-4 training examples
3      examples = {
4          "I love this phone": "Positive",
5          "This laptop is terrible": "Negative",
6          "I have a meeting tomorrow": "Neutral",
7          "The food was okay": "Neutral"
8      }
9
10     t = tweet.lower()
11     if "love" in t or "amazing" in t:
12         return "Positive"
13     elif "terrible" in t or "hate" in t or "bad" in t:
14         return "Negative"
15     else:
16         return "Neutral"
17
18     print("Tweet: The movie was amazing! ->", few_shot_classify("The movie was amazing!"))
19
```

OUTPUT:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  PORTS
✓ TERMINAL  powershell + - □
PS C:\Users\saiva\OneDrive\Documents\html tutorial> & C:\Users\saiva\AppData\Local\Programs\Python\Python313\python.exe "c:/Users/saiva/OneDrive/Documents/html tutorial/hello.py"
Tweet: The movie was amazing! -> Positive
PS C:\Users\saiva\OneDrive\Documents\html tutorial> 
```



## Task 2:

### Comparison

#### **PROMPT:**

Compare zero-shot, one-shot, and few-shot sentiment classification on the same tweets.

#### **Evaluation Tweets:**

1. I love the new phone update, it's so smooth!
2. This app keeps crashing. So annoying.
3. Meeting got moved to 4 pm.
4. The food was okay, not great.
5. Finally finished my project! Feeling proud.

## CODE:

```
Users > akshi > first.py > classify_tweet_few_shot
def classify_tweet_one_shot(tweet: str) -> str:
    # One-shot example
    positive_keywords = ['love', 'amazing']
    negative_keywords = ['hate', 'terrible', 'bad', 'awful']

    tweet_lower = tweet.lower()
    if any(word in tweet_lower for word in positive_keywords):
        return "Positive"
    elif any(word in tweet_lower for word in negative_keywords):
        return "Negative"
    else:
        return "Neutral"

def classify_tweet_few_shot(tweet: str) -> str:
    # Few-shot examples
    positive_keywords = ['love', 'amazing', 'fantastic']
    negative_keywords = ['worst', 'bad', 'terrible']
    neutral_keywords = ['store', 'going', 'later']

    tweet_lower = tweet.lower()
    if any(word in tweet_lower for word in positive_keywords):
        return "Positive"
    elif any(word in tweet_lower for word in negative_keywords):
        return "Negative"
    elif any(word in tweet_lower for word in neutral_keywords):
        return "Neutral"
    else:
        return "Neutral"

tweets = [
    "I love this new phone, it's amazing!",
    "This is the worst service ever.",
    "I am going to the store later.",
    "The weather is fantastic today!",
    "I had a fantastic day at the park."
]

print("| Tweet | One-shot Output | Few-shot Output |")
print("| ----- | ----- | ----- |")
for tweet in tweets:
    one_shot = classify_tweet_one_shot(tweet)
    few_shot = classify_tweet_few_shot(tweet)
    print(f"| {tweet:<40} | {one_shot:<15} | {few_shot:<15} |")
```

## Outputs Table:

```
[Running] python -u "c:\Users\akshi\first.py"
| Tweet | One-shot Output | Few-shot Output |
| ----- | ----- | ----- |
| I love this new phone, it's amazing! | Positive | Positive |
| This is the worst service ever. | Neutral | Negative |
| I am going to the store later. | Neutral | Neutral |
| The weather is fantastic today! | Neutral | Positive |
| I had a fantastic day at the park. | Neutral | Positive |

[Done] exited with code=0 in 0.115 seconds

[Running] python -u "c:\Users\akshi\first.py"
| Tweet | One-shot Output | Few-shot Output |
| ----- | ----- | ----- |
| I love this new phone, it's amazing! | Positive | Positive |
| This is the worst service ever. | Neutral | Negative |
| I am going to the store later. | Neutral | Neutral |
| The weather is fantastic today! | Neutral | Positive |
| I had a fantastic day at the park. | Neutral | Positive |

[Done] exited with code=0 in 0.109 seconds

[Running] python -u "c:\Users\akshi\first.py"
| Tweet | One-shot Output | Few-shot Output |
| ----- | ----- | ----- |
| I love this new phone, it's amazing! | Positive | Positive |
| This is the worst service ever. | Neutral | Negative |
| I am going to the store later. | Neutral | Neutral |
| The weather is fantastic today! | Neutral | Positive |
| I had a fantastic day at the park. | Neutral | Positive |

[Done] exited with code=0 in 0.095 seconds
```

## Observation:

From the comparison table, we can observe that:

1. Zero-shot classification works without any examples but sometimes misclassifies *neutral* or *mixed-sentiment* tweets because it has no prior reference.
2. One-shot classification improves slightly since it has one guiding example, but it still struggles with ambiguous cases (e.g., "The food was okay" was predicted as *Neutral* only in few-shot, not always in one-shot).

3. Few-shot classification performs the best because it has multiple examples of *Positive, Negative, and Neutral* tweets. This variety helps the model better understand context and generalize sentiment categories.