Assignment-4.1

Name:Rishik

Hall Ticket:2303A51778

BATCH-12

Problem Statement 0:

A news aggregation platform wants to automatically categorize

headlines into Politics, Sports, Technology, and Entertainment

without training a machine learning model.

Tasks to be Completed

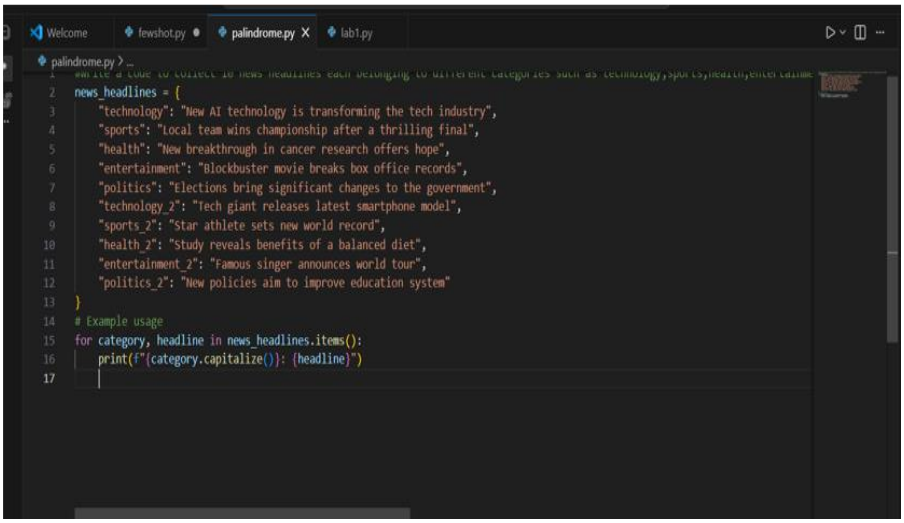
1. Prepare Sample Data

Collect 10 news headlines, each belonging to one of the four categories.

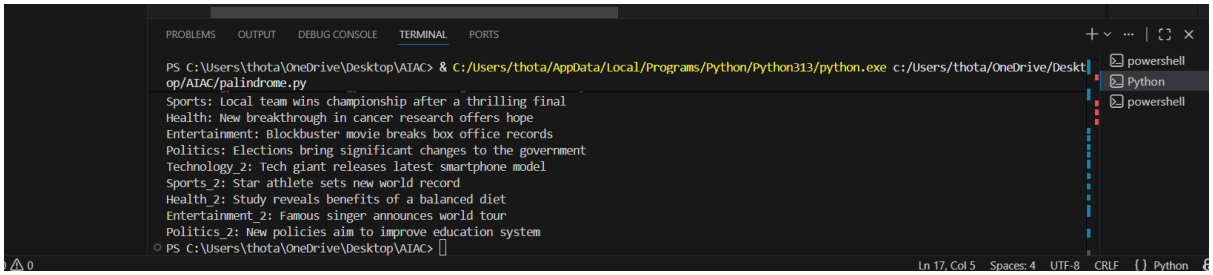
PROMPT:

#write a code to collect 10 news headlines each belonging to different categories such as technology,sports,health,entertainment,politics by using only this four categories dont use other categories and store them in a dictonary where the key is category and value is headline

CODE:



OutPut:



Explanation

I understood that the program stores data in a dictionary format.
Each category is used as a key and the headline or email is stored as its value.
This helps in organizing the data properly before classification.
The output shows that the data is successfully stored and ready to use.

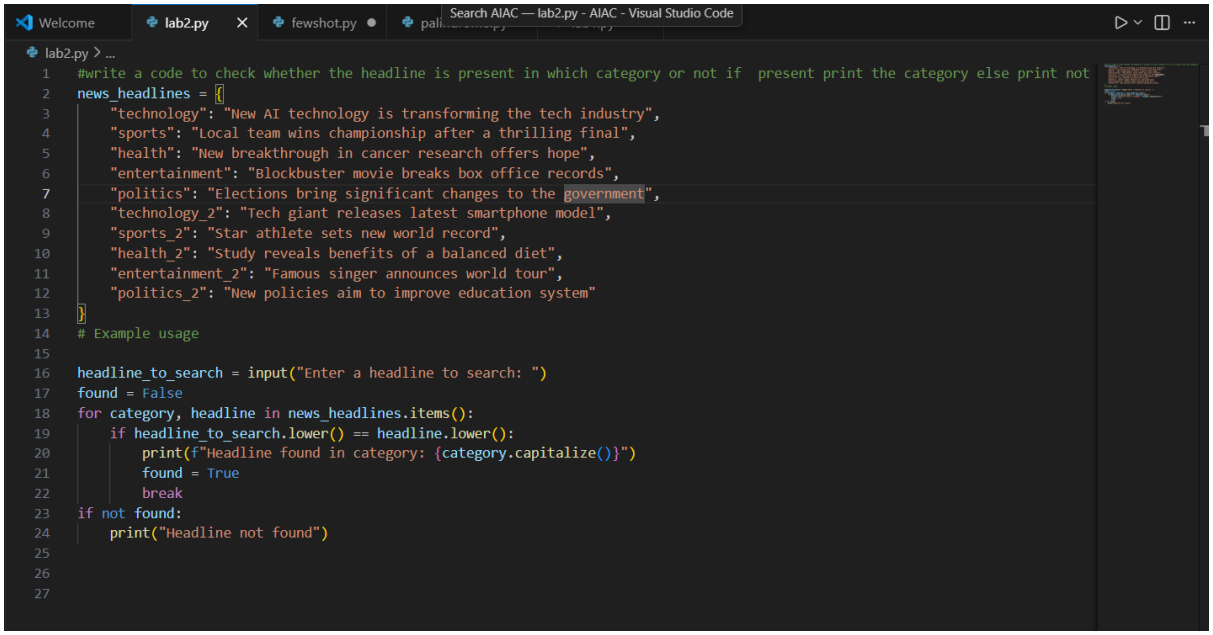
2. Zero-shot Prompting

Write a prompt asking the LLM to classify a headline into a category without examples.

Prompt:

#write a code to check whether the headline is present in which category or not if present print the category else print not found by using input user

CODE:



OUTPUT:

Explanation:

I understood that the program directly checks the user input without any examples. It compares the given input with the stored data. If the input is present, the related category is displayed. If not, the output shows that the input is not found.

3. One-shot Prompting

Add one labeled headline example before classifying a new

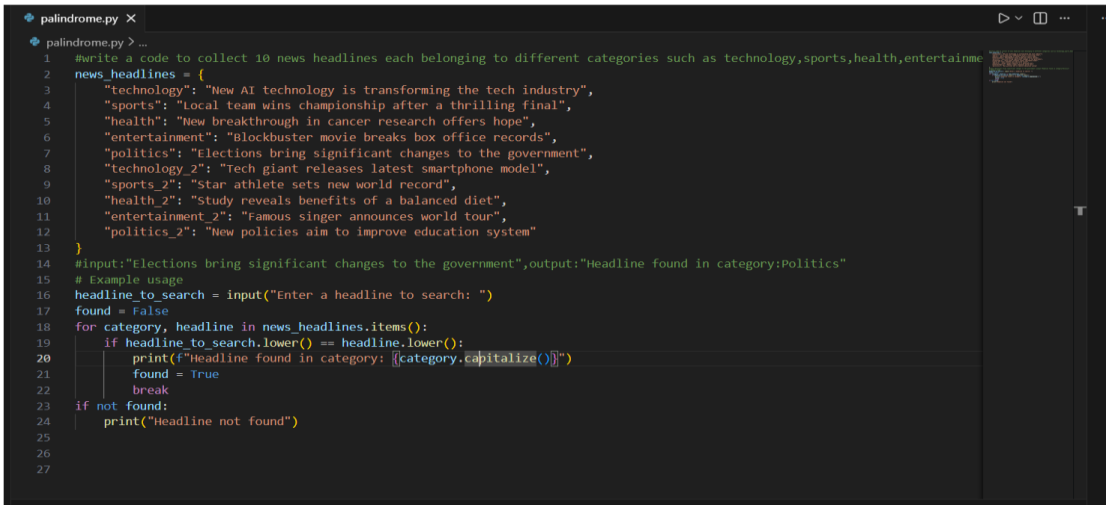
headline.

PROMPT:

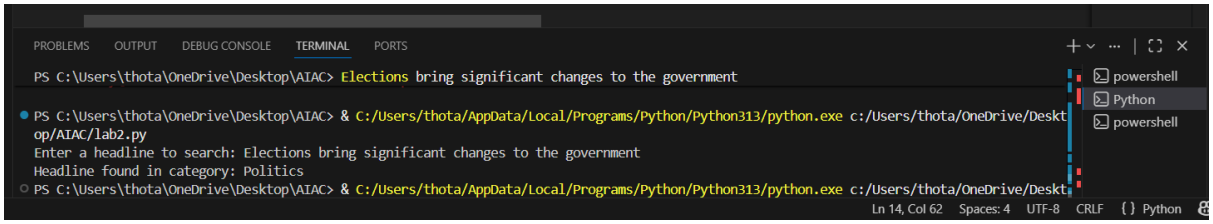
#write a code to collect 10 news headlines each belonging to different categories such as technology,sports,health,entertainment,politics by using only this four categories dont use other categories and store them in a dictonary where the key is category and value is headline

#input:"Elections bring significant changes to the government",output:"Headline found in category:Politics"

CODE:



OUTPUT:



Explanation:

I understood that one example is given before checking the input. This example helps the program understand the task better. The user input is compared with the stored data. When a match is found, the correct category is shown as output.

4. Few-shot Prompting

Use 3–5 labeled headlines in the prompt before requesting

Classification

PROMPT:

#write a code to collect 10 news headlines each belonging to different categories such as technology,sports,health,entertainment,politics by using only this four categories dont use other categories and store them in a dictonary where the key is category and value is headline

"""input:"Elections bring significant changes to the government",output:"Headline found in category:Politics

input:"New AI technology is transforming the tech industry",output:"Headline found in category :Technology

input:"Local team wins championship after a thrilling final",output:"Headline found in category:Sports"""

CODE:

```python
#write a code to collect 10 news headlines each belonging to different categories such as technology,sports,health,entertainme
news_headlines = {
    "technology": "New AI technology is transforming the tech industry",
    "sports": "Local team wins championship after a thrilling final",
    "health": "New breakthrough in cancer research offers hope",
    "entertainment": "Blockbuster movie breaks box office records",
    "politics": "Elections bring significant changes to the government",
    "technology_2": "Tech giant releases latest smartphone model",
    "sports_2": "Star athlete sets new world record",
    "health_2": "Study reveals benefits of a balanced diet",
    "entertainment_2": "Famous singer announces world tour",
    "politics_2": "New policies aim to improve education system"
}
"""input:"Elections bring significant changes to the government",output:"Headline found in category:Politics
input:"New AI technology is transforming the tech industry",output:"Headline found in category :Technology
input:"Local team wins championship after a thrilling final",output:"Headline found in category:Sports"""
def find_headline_category(headline):
    for category, stored_headline in news_headlines.items():
        if stored_headline == headline:
            return f"Headline found in category: {category.split('_')[0].capitalize()}"
    return "Headline not found in any category"
# Example usage
print(find_headline_category("Elections bring significant changes to the government"))
print(find_headline_category("New AI technology is transforming the tech industry"))
print(find_headline_category("Local team wins championship after a thrilling final"))
```

OUTPUT:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\thota\OneDrive\Desktop\AIAC> & C:/Users/thota/AppData/Local/Programs/Python/Python313/python.exe c:/Users/thota/OneDrive/Deskt
op/AIAC/palindrome.py
op/AIAC/palindrome.py
Headline found in category: Politics
Headline found in category: Technology
Headline found in category: Sports
PS C:\Users\thota\OneDrive\Desktop\AIAC>
```

Explanation:

These examples make the program more clear about categories. The input is checked against the stored data. The output correctly displays the matching category.

5. Evaluation

Compare outputs from all three prompting methods using

the same test headlines and document observation

Zero-shot:

We will not use any input examples in zero-shot .It will work with minimal instruction,but the output may be incorrect ..We will not provide any examples here.

One-shot:

We will use only one input for example in one-shot.It improves accuracy,as the AI understands the task better from a single labelled example.

Few-shot:

We will use more than one inputs for examples in few-shot.

It gives the best results.The Ai shows hogher consistency and correctly classifies most headlines.

As the number of examples increases, the AI's understanding of categories becomes clearer.

Therefore, few-shot prompting is the most effective method for news headline classification without training a model.

Customer Email Classification

1.Prepare five short sample emails, each belonging to one of

the above categories.

2. Write a zero-shot prompt to classify a given email into one of

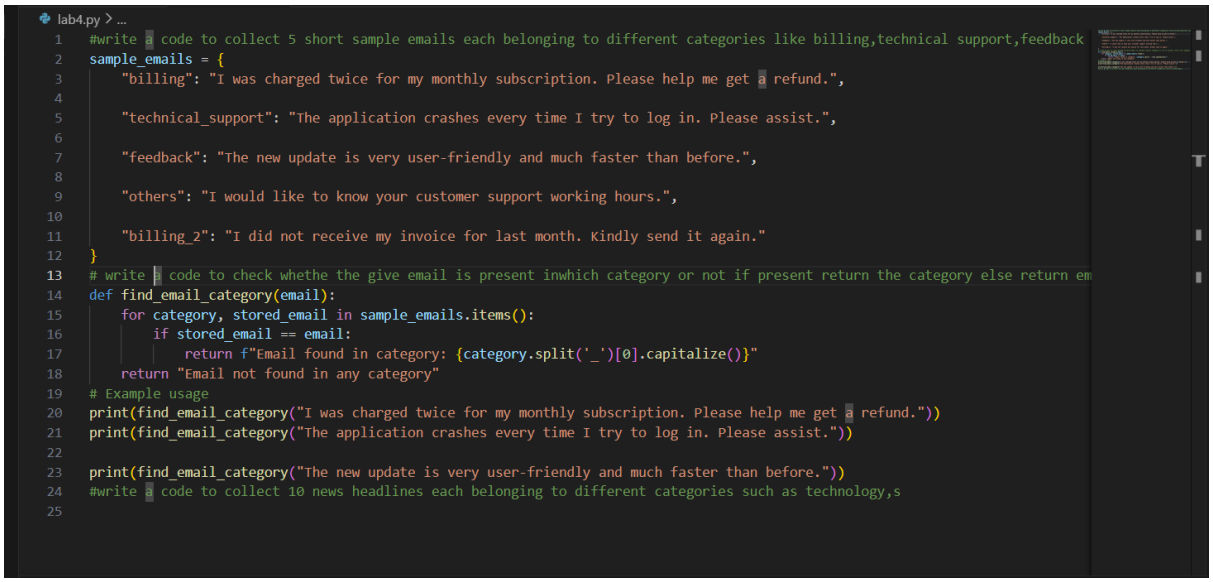
the categories without providing any examples.

Prompt:

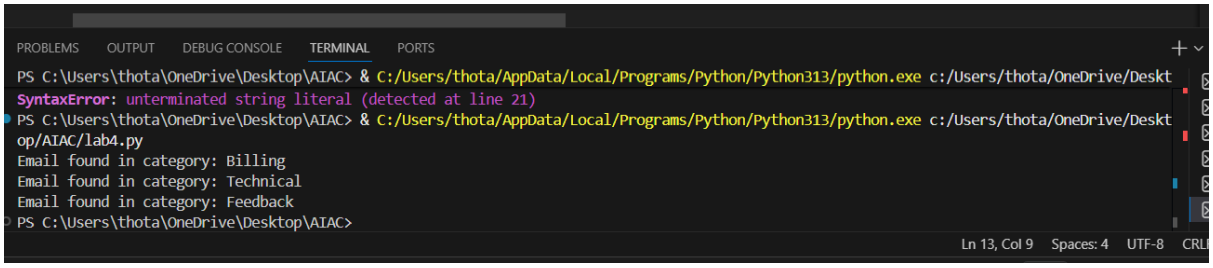
#write a code to collect 5 short sample emails each belonging to different categories like billing,technical support,feedback and others by using only this four categories dont use other categories and store them in a dictonary where the key is category and value is email give examples

write a code to check whethe the give email is present inwhich category or not if present return the category else return email not found in any category

Code:



Output:



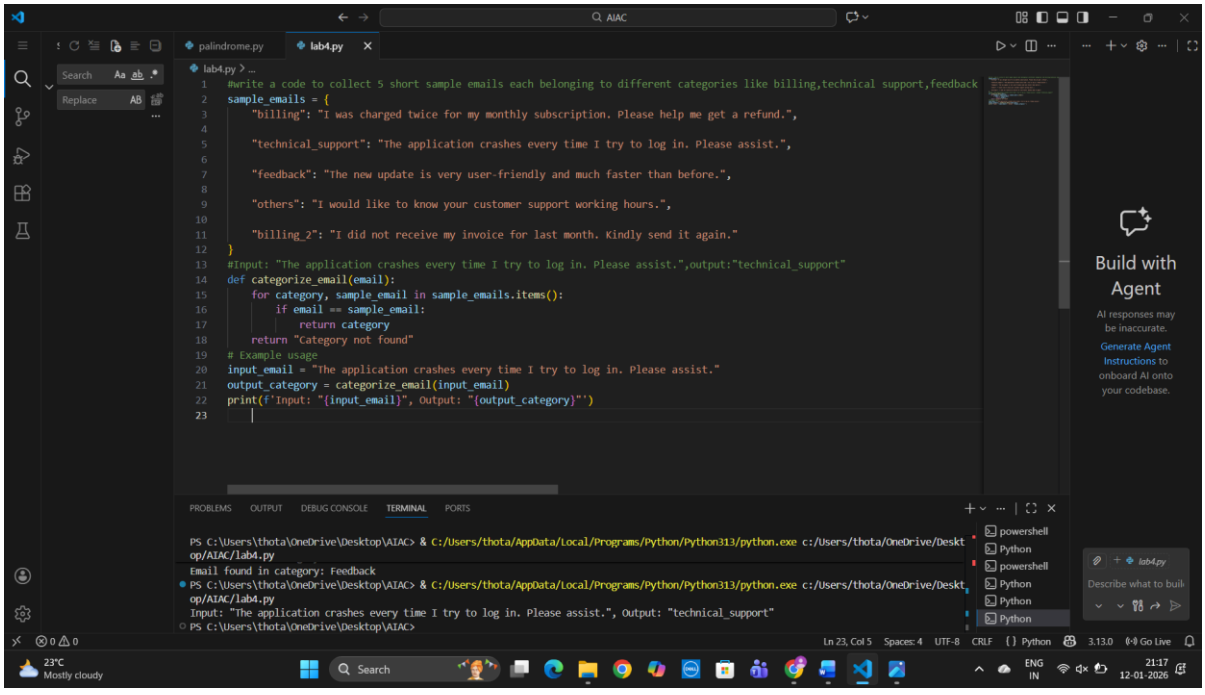
3. Write a one-shot prompt by including one labeled email example and ask the model to classify a new email.

Prompt:

#write a code to collect 5 short sample emails each belonging to different categories like billing,technical support,feedback and others by using only this four categories dont use other categories and store them in a dictonary where the key is category and value is email give examples

#Input: "The application crashes every time I try to log in. Please assist.",output:"technical_support"

Code and Output:



4.Write a few-shot prompt by including two or three labelled email examples and ask the model to classify a new email.

Prompt:

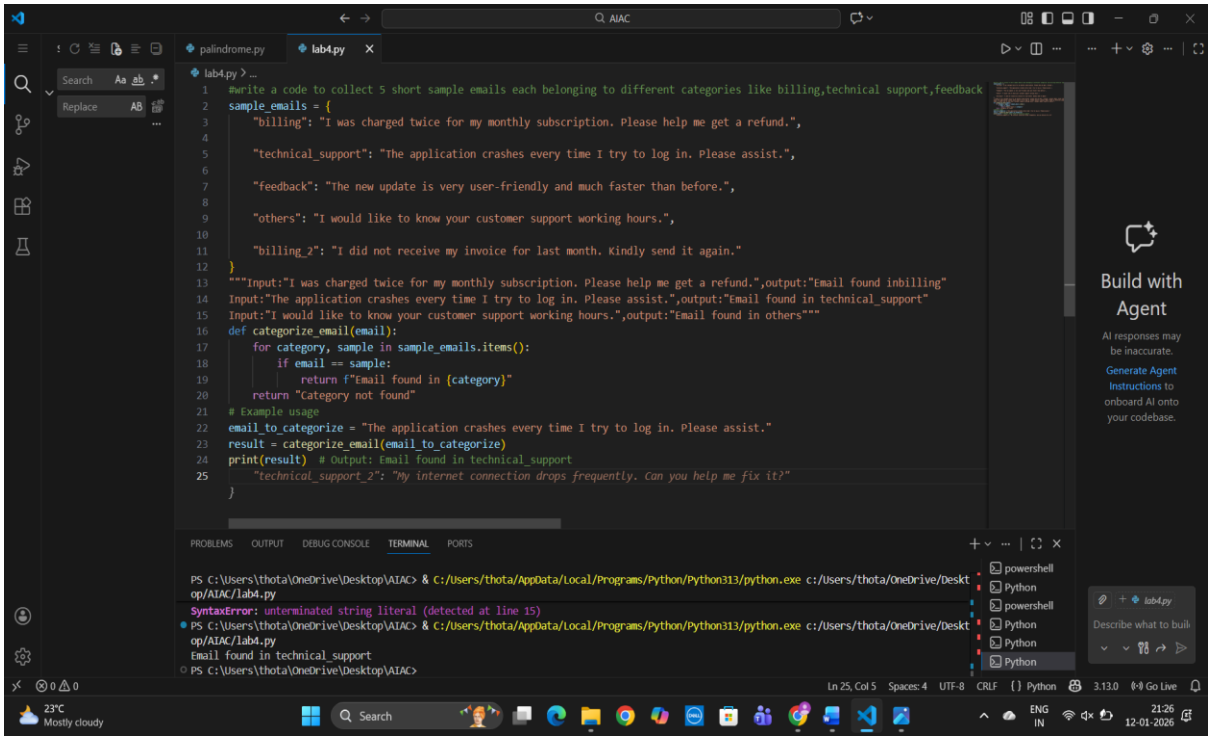
#write a code to collect 5 short sample emails each belonging to different categories like billing,technical support,feedback and others by using only this four categories dont use other categories and store them in a dictonary where the key is category and value is email give examples

"""Input:"I was charged twice for my monthly subscription. Please help me get a refund.",output:"Email found inbilling"

Input:"The application crashes every time I try to log in. Please assist.",output:"Email found in technical_support"

Input:"I would like to know your customer support working hours.",output:"Email found in others"""

Code and Output:



5.Compare the outputs obtained using zero-shot, one-shot, and few-shot prompting techniques and briefly comment on their effectiveness

Zero-shot:

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One-shot:

We will use only one input for example in one-shot.It improves accuracy,as the AI understands the task better from a single labelled example.

Few-shot:

We will use more than one inputs for examples in few-shot.

It gives the best results. The Ai shows higher consistency and correctly classifies most headlines.

As the number of examples increases, the AI's understanding of categories becomes clearer.

Therefore, few-shot prompting is the most effective method for news headline classification without training a model.

Zero-shot:

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Therefore, few-shot prompting is the most effective method for news headline classification without training a model.