ASSIGNMENT-4.5

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BATCH-29

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ADVANCED PROMPT ENGINEERING: ZERO-SHOT, ONE-SHOT & FEW-SHOT

TASK-1:

ZERO-SHOT

A. Preparing Sample data:

```
test_emails = [
    "My payment failed but money was deducted.",
    "The app is not opening on my phone.",
    "Great customer service, very satisfied.",
    "What is your customer care number?",
    "Invoice amount seems incorrect."
]
```

Expected Labels (for evaluation): true_labels =

```
[
    "Billing",
    "Technical Support",
```

"Feedback",

"Others",

"Billing"

]

PROMPT:

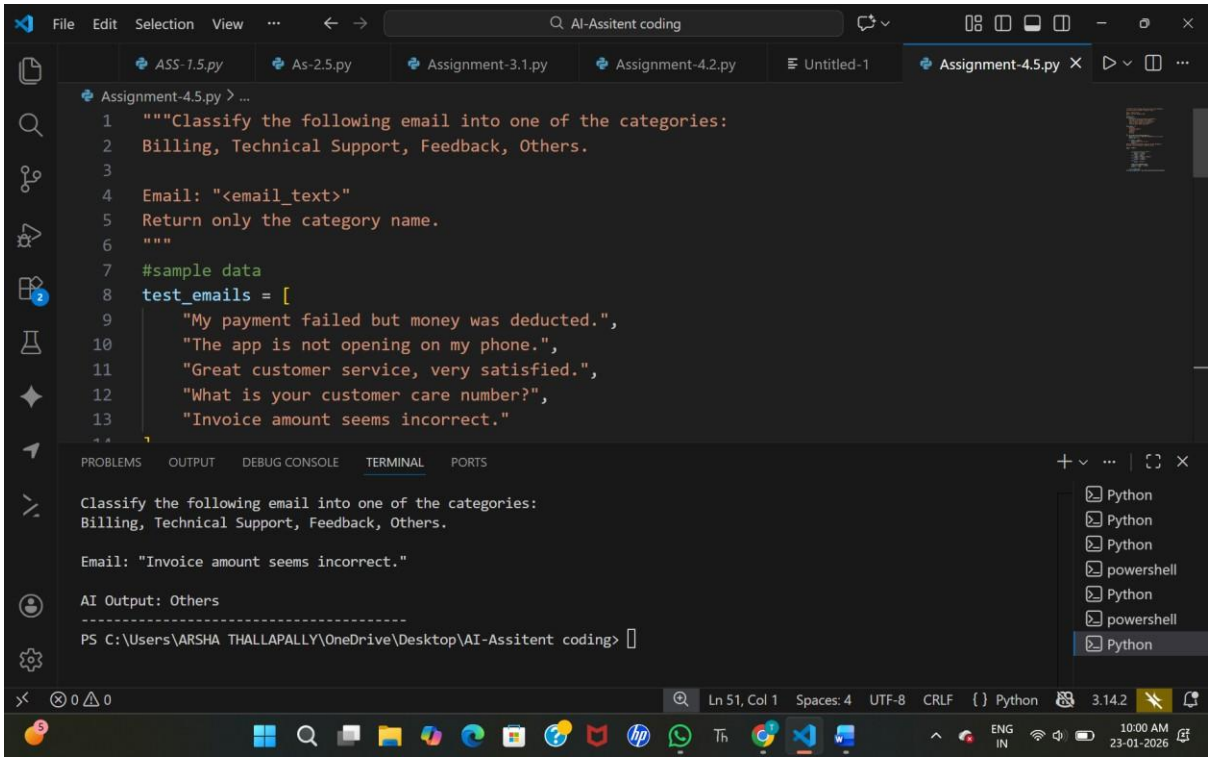
Classify the following email into one of the categories:

Billing, Technical Support, Feedback, Others.

Email: "<email_text>"

Return only the category name.

CODE:



OBSERVATION:

Classifies emails using only instructions, without examples.

Works if keywords are clear, may misclassify ambiguous emails.

Quick and simple, but less accurate for complex cases.

ONE-SHOT : PROMPT:

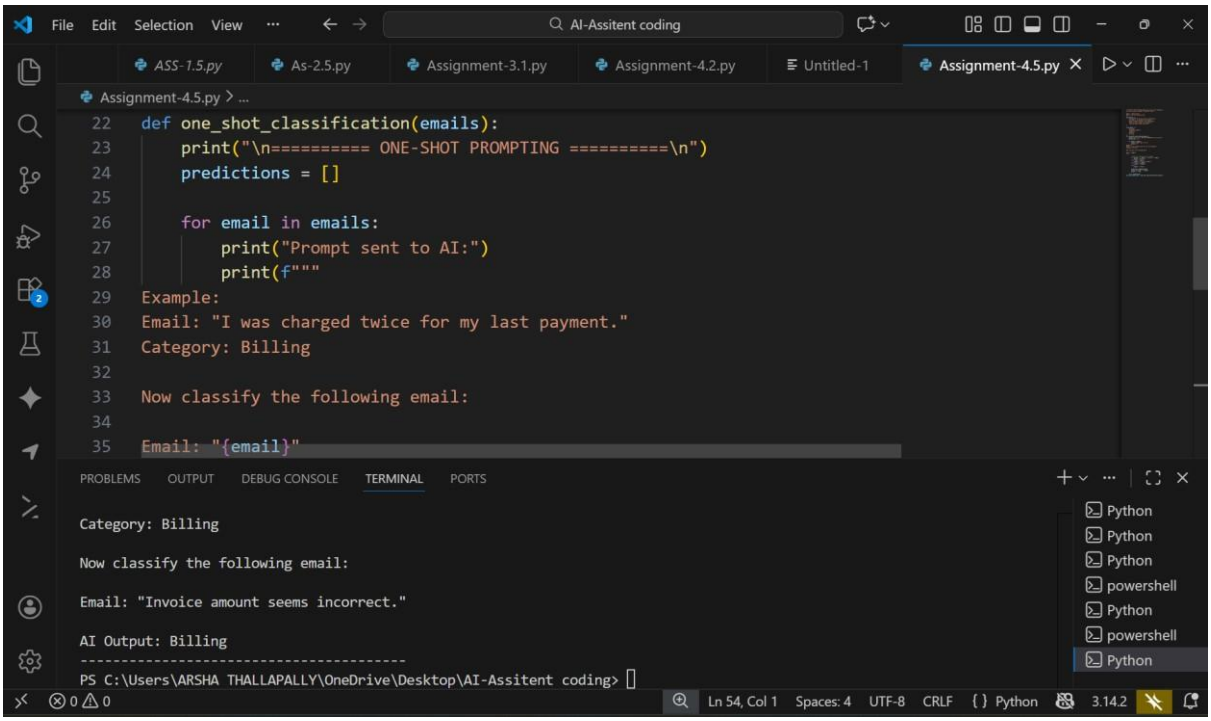
Example:

Email: "I was charged twice for my last payment."

Category: Billing

Now classify the following email:

Email: "<email_text>" CODE:



OBSERVATION:

Provides one example to guide the AI's reasoning. Improves accuracy over zero-shot and handles slightly ambiguous emails better.
Still limited; accuracy depends on how representative the example is.

One example helps the AI understand the expected format and category mapping.
Classification accuracy improves compared to zero-shot, especially for similar issues.
Performance depends heavily on how relevant the single example is to the new email.

FEW SHOT:

PROMPT:

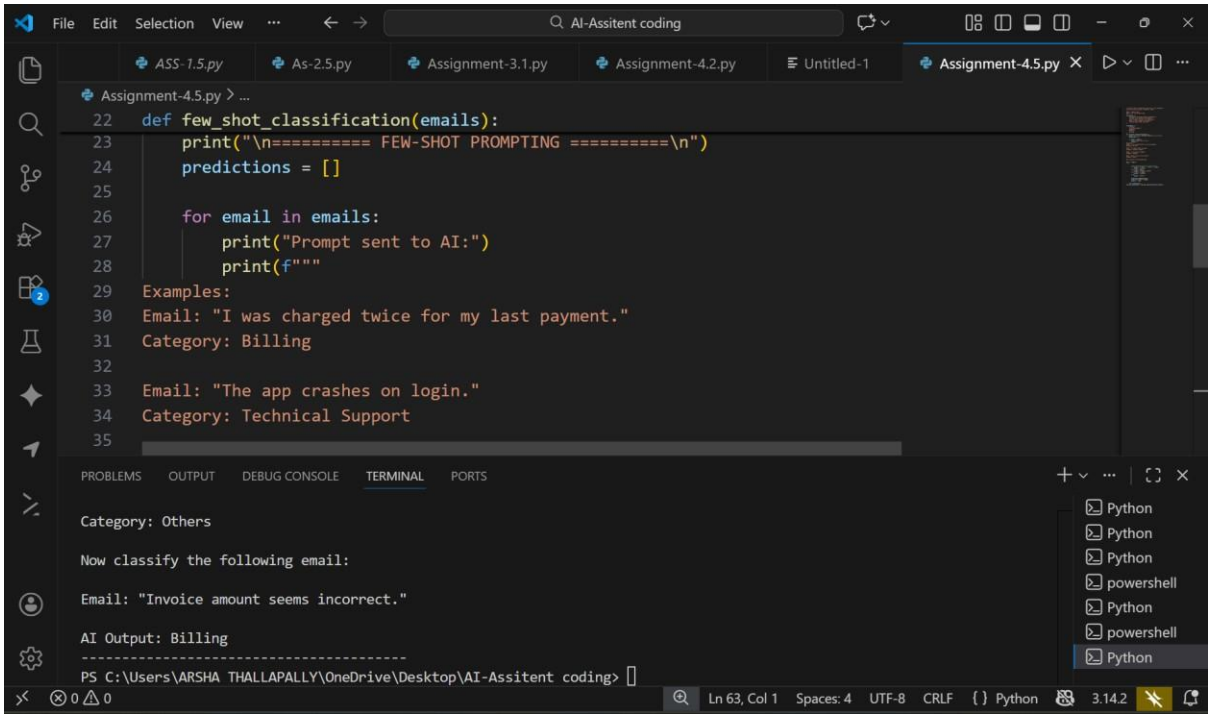
Email: "I was charged twice for my last payment." → Billing

Email: "The app crashes on login." → Technical Support

Email: "I love the new update." → Feedback

Email: "What are your office hours?" → Others

CODE:



OBSERVATION:

Provides multiple examples to show patterns to the AI.
Highest accuracy; AI can generalize better for unseen emails. Slightly longer prompts but most reliable for real-world use TASK-2:

Sample travel queries (short & simple) travel_queries =

[

"Book a flight from Delhi to Mumbai.",

"Cancel my hotel reservation in Paris.",

"What is the baggage allowance?",

"I need a hotel in London for 2 nights.",

"Cancel my flight ticket to New York."

]

True labels for evaluation

true_labels = ["Flight

Booking",

"Cancellation",

"General Travel Info",

"Hotel Booking",

"Cancellation"

]

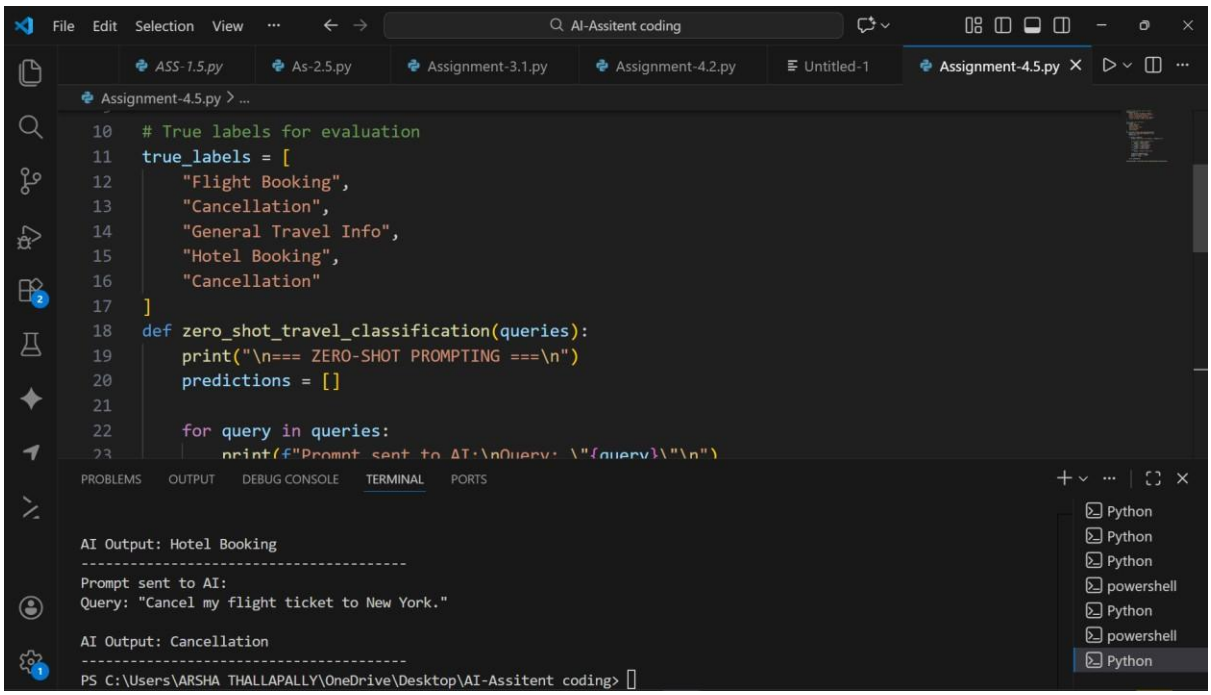
ZERO-SHOT:

PROMPT: Classify the following travel query into one of the categories:

Flight Booking, Hotel Booking, Cancellation, General Travel Info.

Query: "<travel_query>"

CODE:



OBSERVATION:

Classifies queries using only instructions, without examples. Works for obvious keywords like “flight” or “cancel”, may misclassify tricky queries.
Fast and simple, but accuracy is lower for ambiguous cases.

ONE-SHOT: PROMPT:

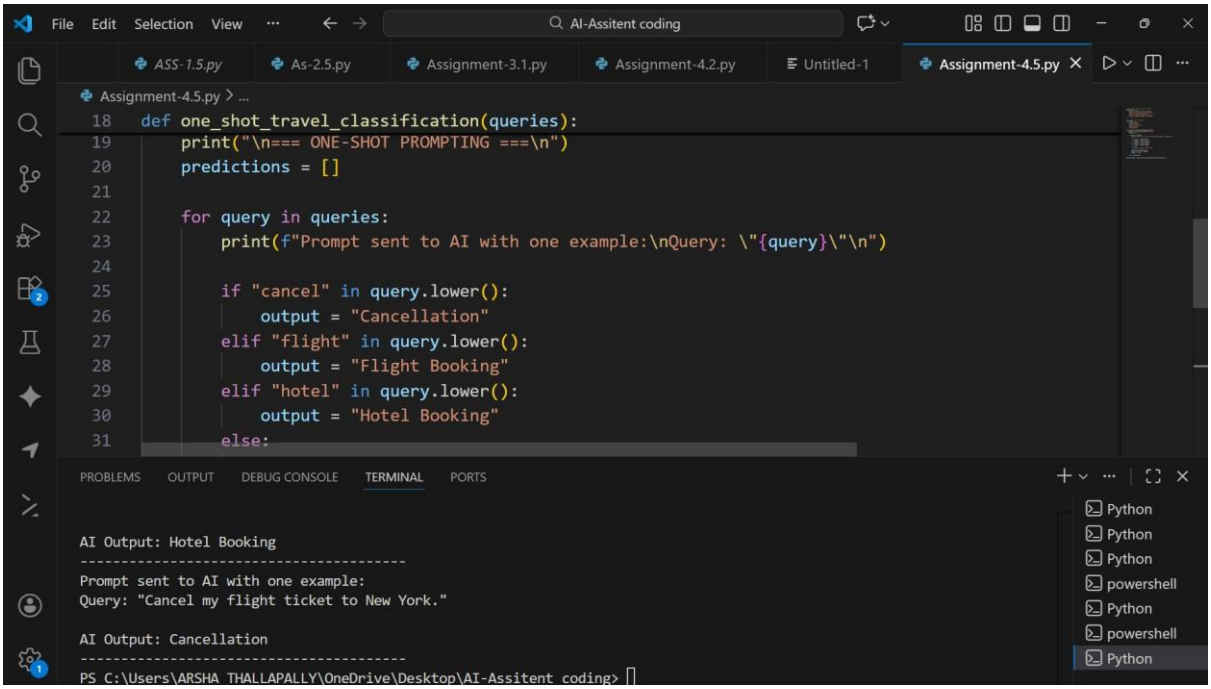
Example:

Query: "Cancel my flight ticket."

Category: Cancellation

Now classify the following query:

Query: "<travel_query>" CODE:



OBSERVATION:

Provides one example to guide AI’s reasoning.
Improves accuracy and handles slightly ambiguous queries better.
Accuracy depends on how representative the example is.

FEW SHOT:

PROMPT:

Examples:

Query: "Book a flight to Mumbai."

Category: Flight Booking

Query: "Cancel my hotel reservation."

Category: Cancellation

Query: "I need a hotel in London."

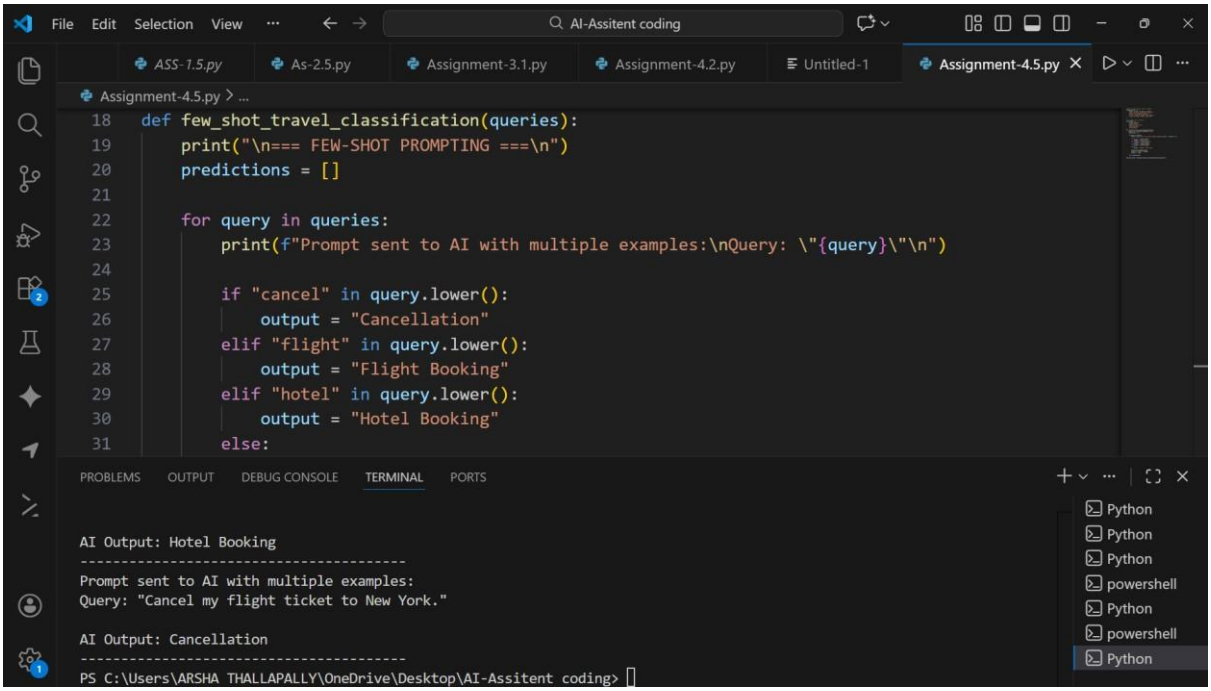
Category: Hotel Booking

Query: "What is the baggage allowance?"

Category: General Travel Info

Now classify the following query:

Query: "<travel_query>" CODE:



OBSERVATION:

Provides multiple examples to show patterns to AI.
Highest accuracy; AI generalizes better for unseen queries.
Slightly longer prompts but most reliable for real-world use. TASK-

3: SAMPLE DATA:

Sample coding queries (short & simple) coding_queries = [

"Why am I getting IndexError in my Python list?",

"My sorting algorithm is too slow for large inputs.",

"I wrote a function but it returns wrong results.",

"Explain the difference between list and tuple in Python.",

"How can I optimize my recursive Fibonacci function?"

]

True labels for evaluation

true_labels = ["Syntax

Error",

"Optimization",

"Logic Error",

"Conceptual Question",

"Optimization"

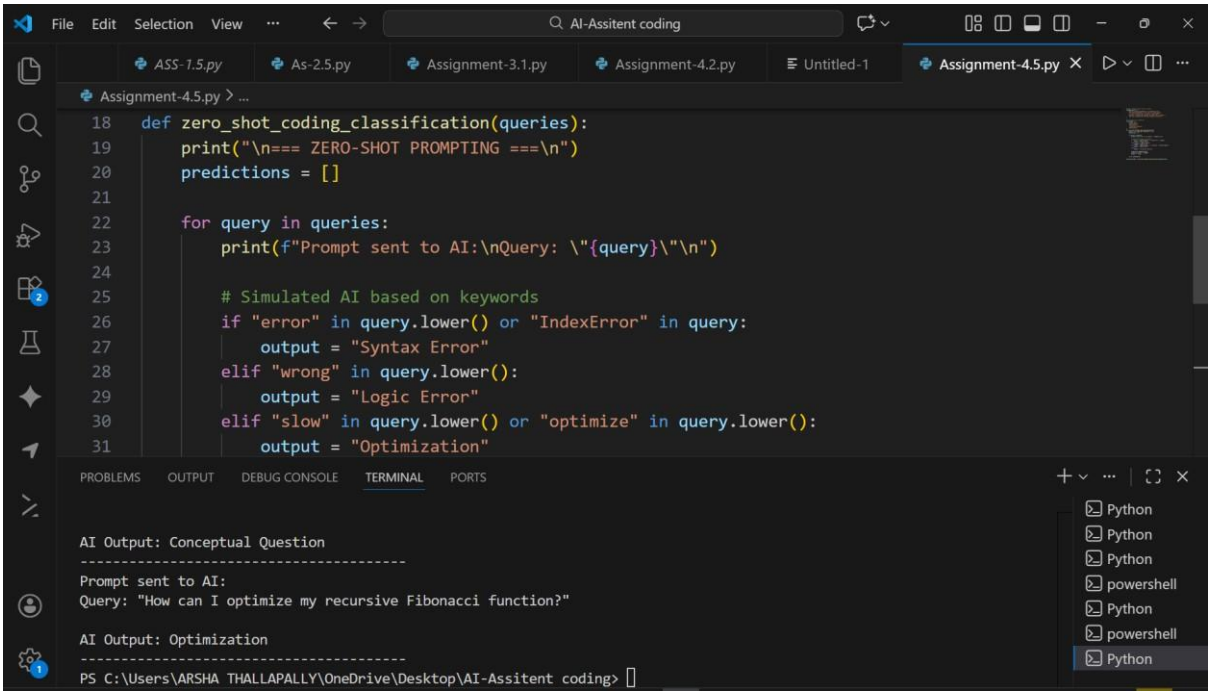
]

ZERO-SHOT

PROMPT: Classify the following coding query into one of the categories:

Syntax Error, Logic Error, Optimization, Conceptual Question.

Query: "<coding_query>" CODE:



OBSERVATION:

ONE SHOT PROMPT:

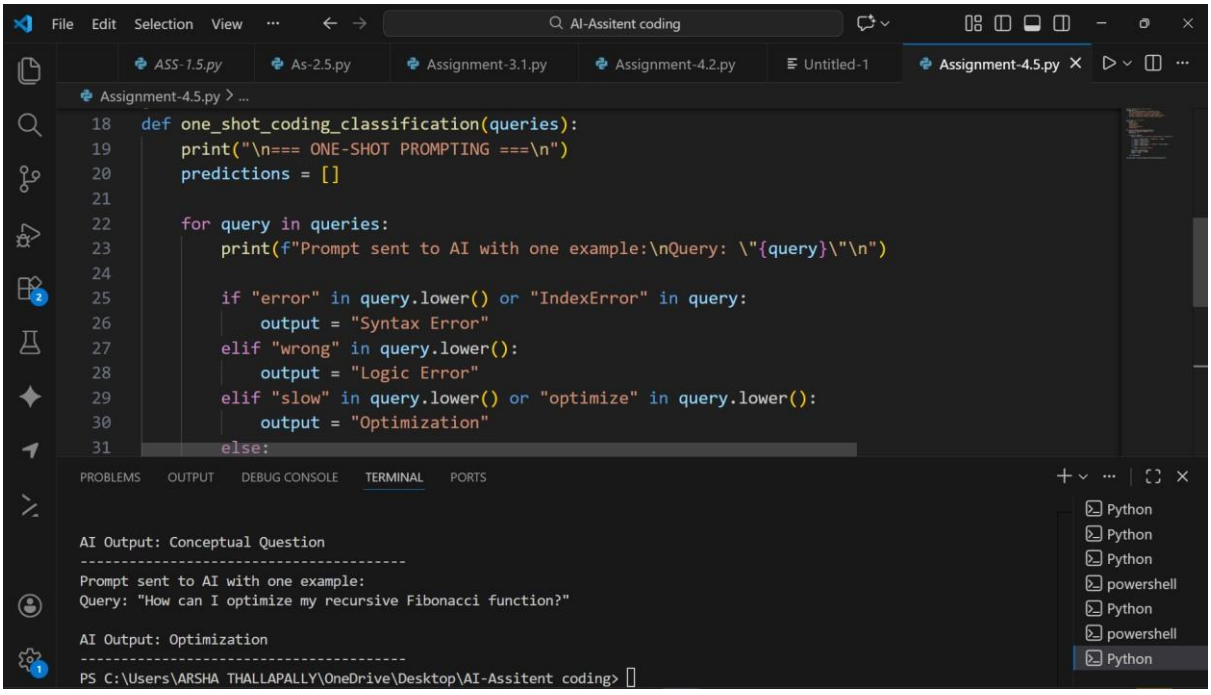
Example:

Query: "I want to cancel my Python function."

Category: Logic Error

Now classify the following coding query:

Query: "<coding_query>" CODE:



OBSERVATION:

Provides one example to guide AI's reasoning.
Improves accuracy and handles slightly ambiguous queries better.
Accuracy depends on how representative the single example is.

FEW SHOT PROMPT:

Examples:

Query: "Why does my Python list give IndexError?"

Category: Syntax Error

Query: "My function returns wrong output."

Category: Logic Error

Query: "My loop is too slow for large data."

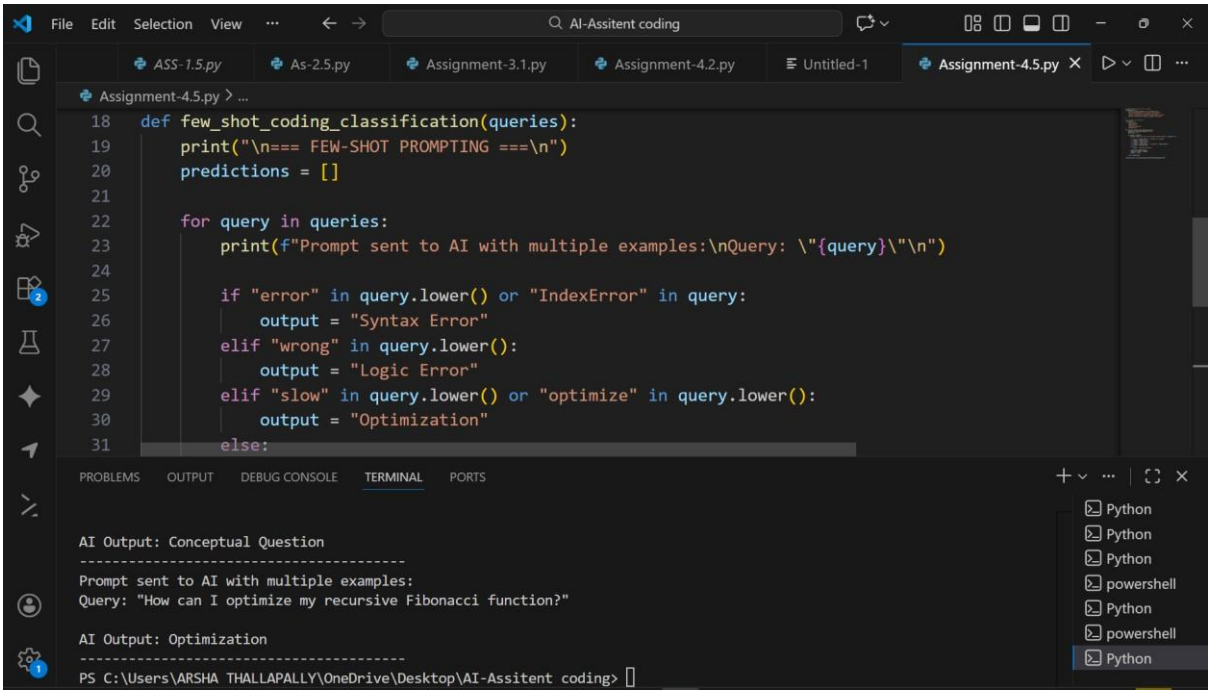
Category: Optimization

Query: "Explain Python variable scopes."

Category: Conceptual Question

Now classify the following coding query:

Query: "<coding_query>" CODE:



OBSERVATION:

Provides multiple examples showing patterns to AI.
Highest accuracy; AI generalizes better for unseen queries. Slightly longer prompts but most reliable for technical classification.

TASK-4

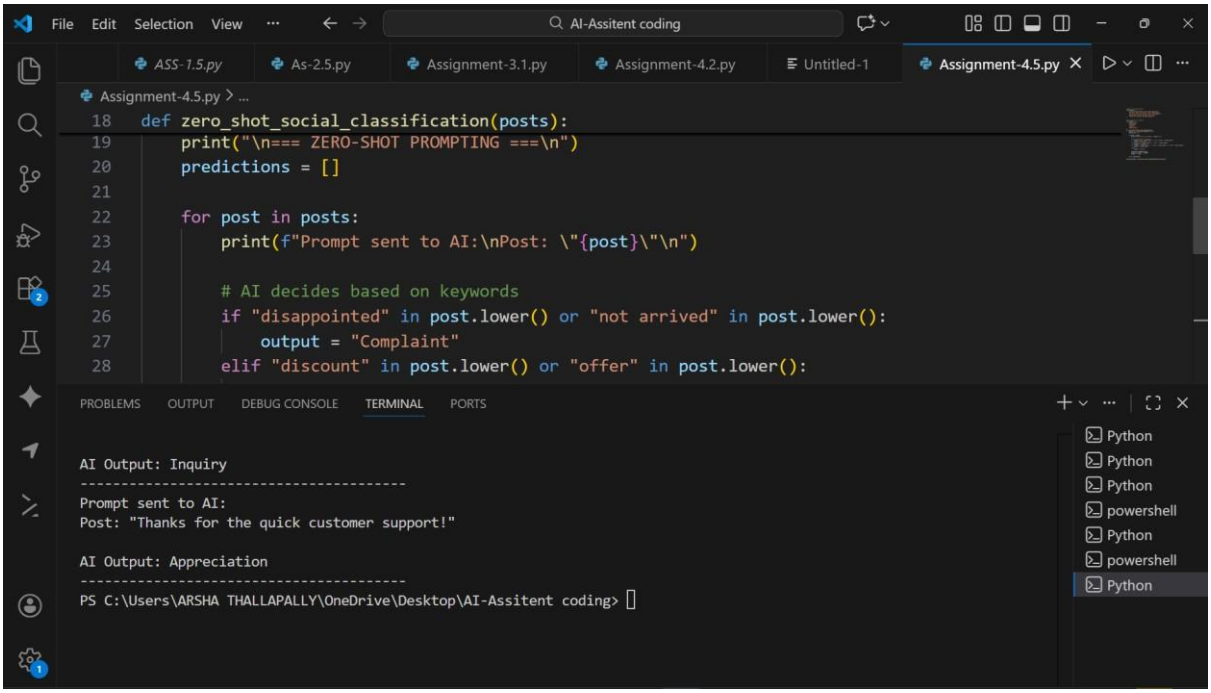
ZERO-SHOT

PROMPT:

Classify the following social media post into one of the categories:

Promotion, Complaint, Appreciation, Inquiry.

Post: "<social_post>" CODE:



OBSERVATION:

Classifies posts using only instructions, without examples. Works for clear keywords but may misinterpret informal or slang language.

Fast and simple, lower accuracy for ambiguous or sarcastic posts.

ONE-SHOT PROMPT:

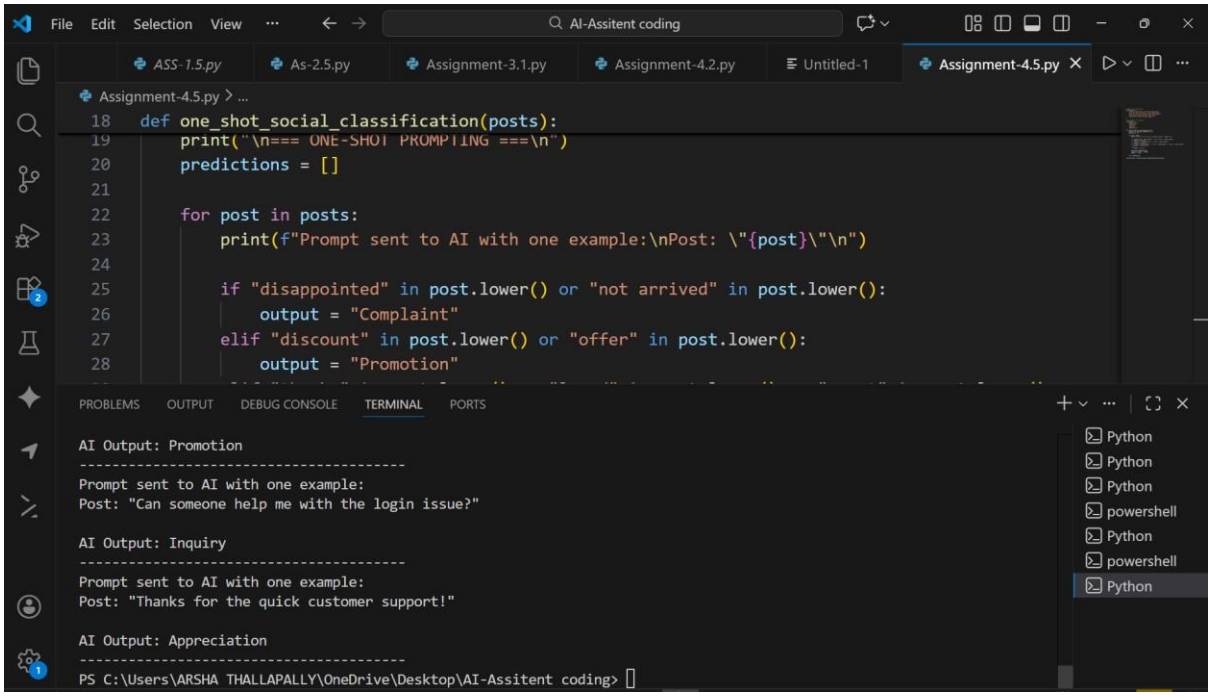
Example:

Post: "My order is late."

Category: Complaint

Now classify the following social media post:

Post: "<social_post>" CODE:



OBSERVATION:

Provides one example to guide AI reasoning.
Improves accuracy and handles some informal expressions better.
Depends on how representative the example is for informal language.

FEW-SHOT PROMPT:

Examples:

Post: "Loved the new feature!" → Appreciation

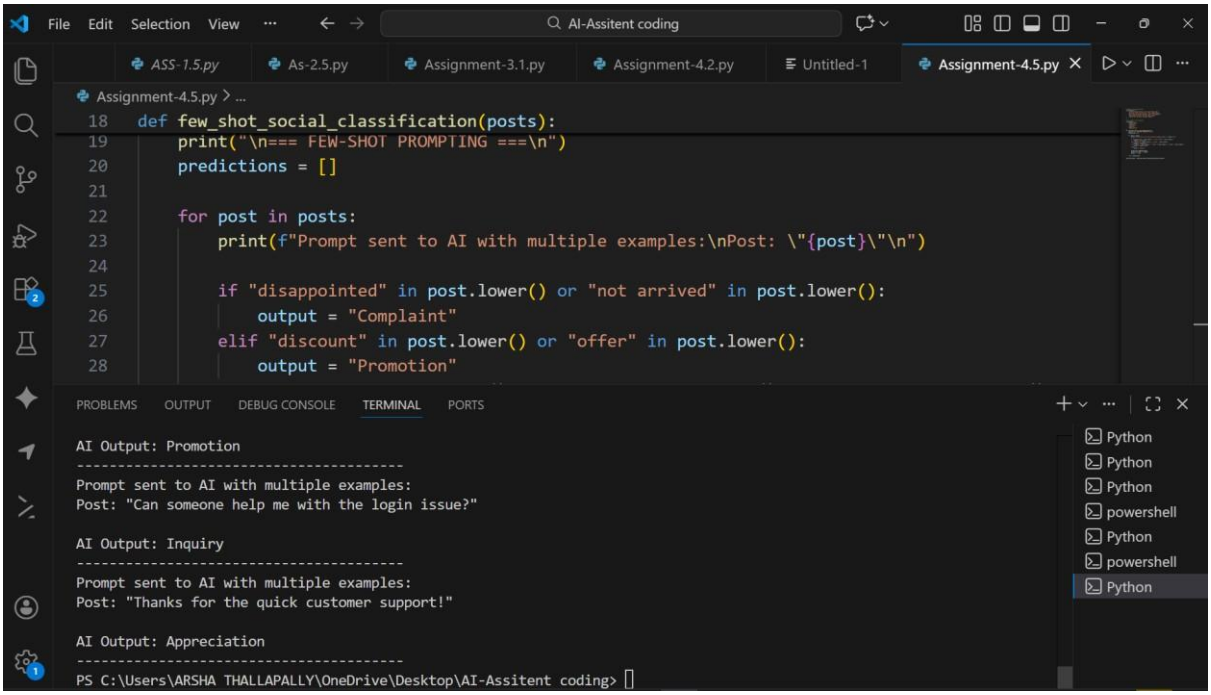
Post: "My order hasn’t arrived." → Complaint

Post: "Check out our discount offer!" → Promotion

Post: "How can I reset my password?" → Inquiry

Now classify the following social media post:

Post: "<social_post>" CODE:



OBSERVATION:

Provides multiple examples showing patterns to AI. Highest accuracy; better handles informal, slang, or mixedlanguage posts.

Slightly longer prompts but most reliable for social media classification.