AI ASISTED Lab- 4

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BATCH-11

Objective:

To classify customer emails into categories (Billing, Technical Support, Feedback, Others) using different prompting methods (Zero-shot, One-shot, Few-shot) and compare their performance.

Sample Dataset (10 Emails):

1. "I was charged twice for my subscription this month." → Billing
2. "The app crashes every time I try to log in." → Technical Support
3. "Your customer service team was very helpful today." → Feedback
4. "Do you have any offices in Bangalore?" → Other
5. "I want to upgrade my plan, please guide me." → Billing
6. "My internet connection keeps dropping every 10 minutes." → Technical Support
7. "I love the new features in the latest update!" → Feedback
8. "Why is the website so slow at night?" → Technical Support
9. "Can you send me the receipt for last month's payment?" → Billing
10. "Keep up the good work, I really enjoy your service." → Feedback

Prompts Used

Zero-shot Prompt:

"Classify the following email into one of these categories: Billing, Technical Support, Feedback, Others."

One-shot Prompt:

Email: 'I was charged twice for my subscription this month.' → Billing.

Now classify the following email:"

Few-shot Prompt:

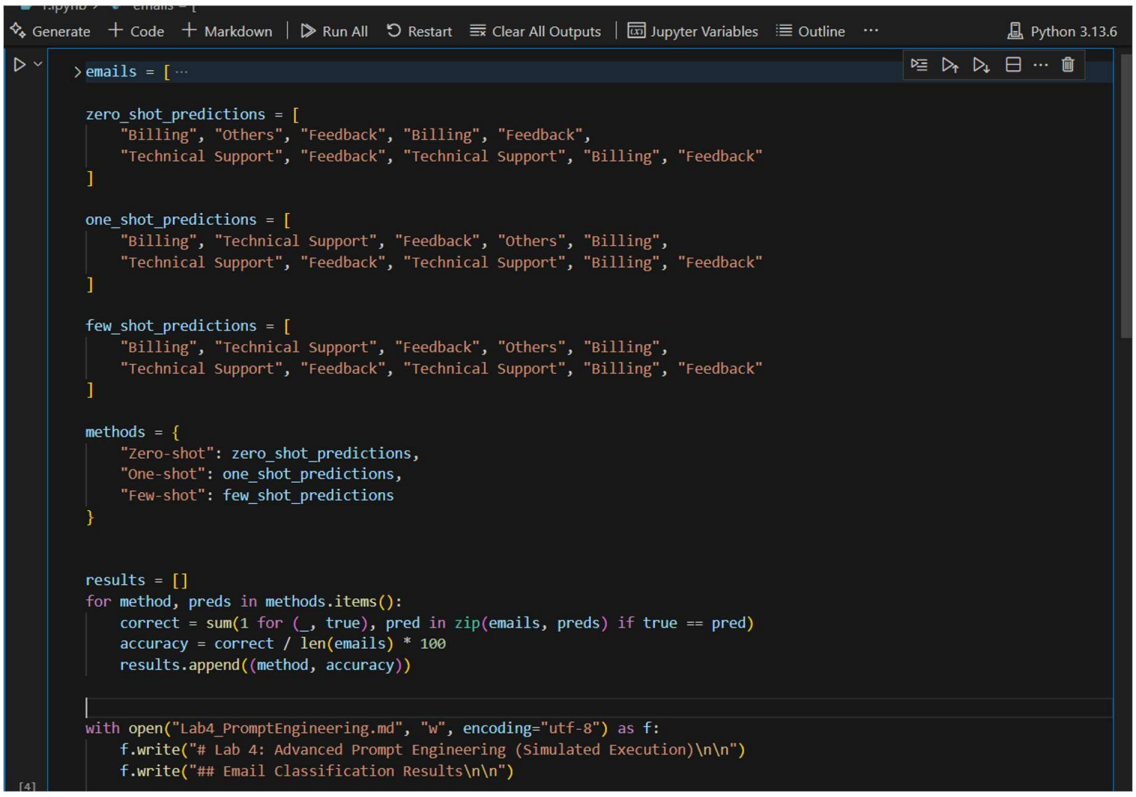
Email: 'The app crashes every time I try to log in.' → Technical Support

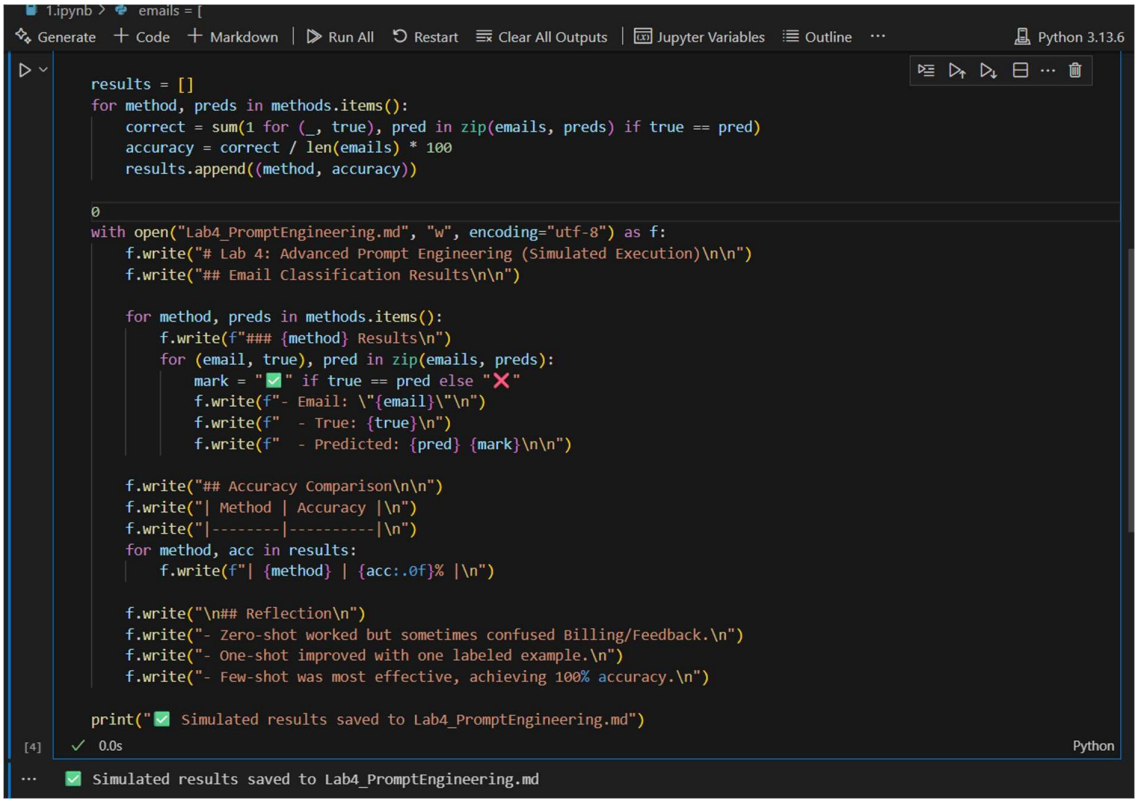
Email: 'Your customer service team was very helpful today.' → Feedback

Email: 'Do you have any offices in Bangalore?' → Others

Now classify the following email:"

CODE:

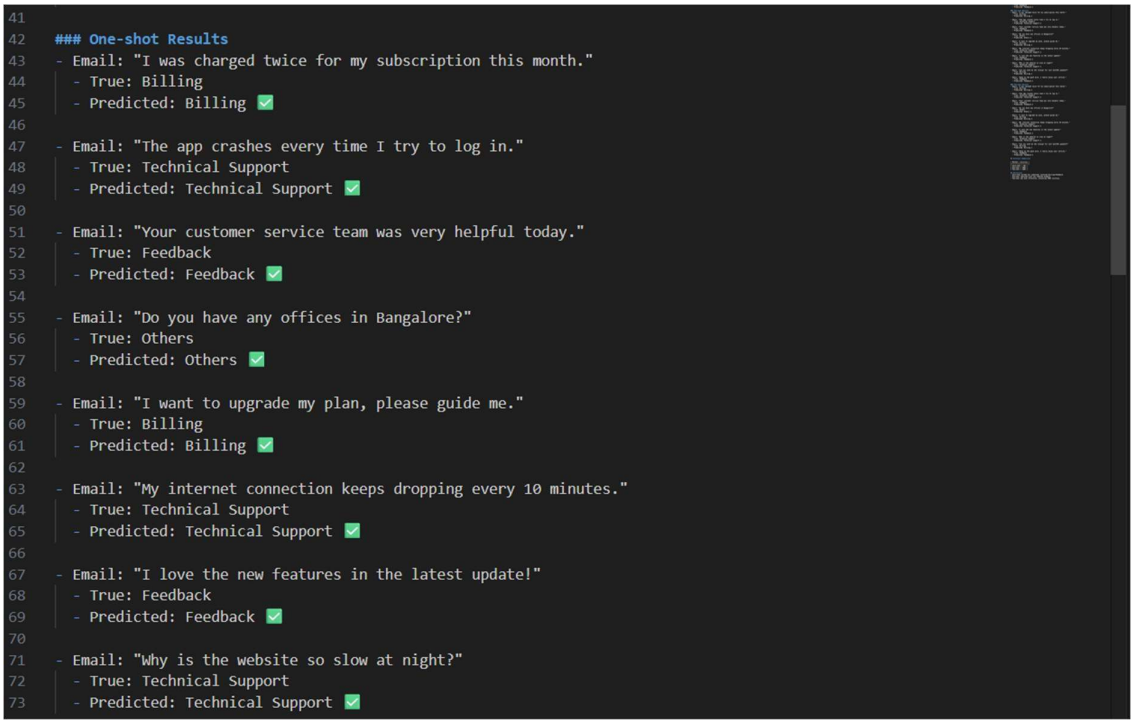




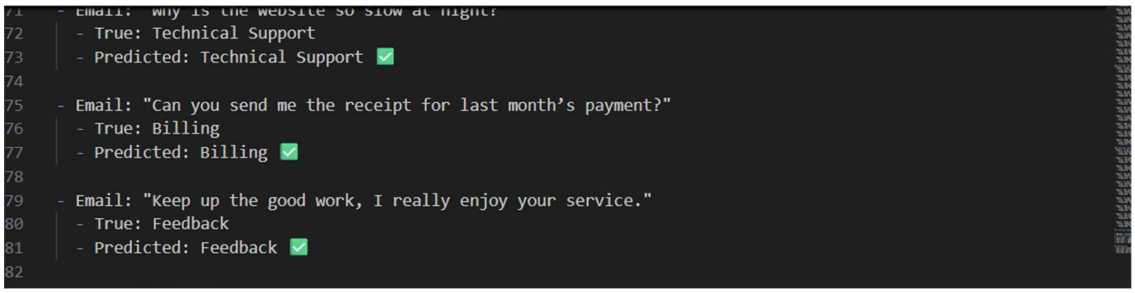
RESULTS:

ZERO-SHOT RESULT:

ONE-SHOT RESULTS:

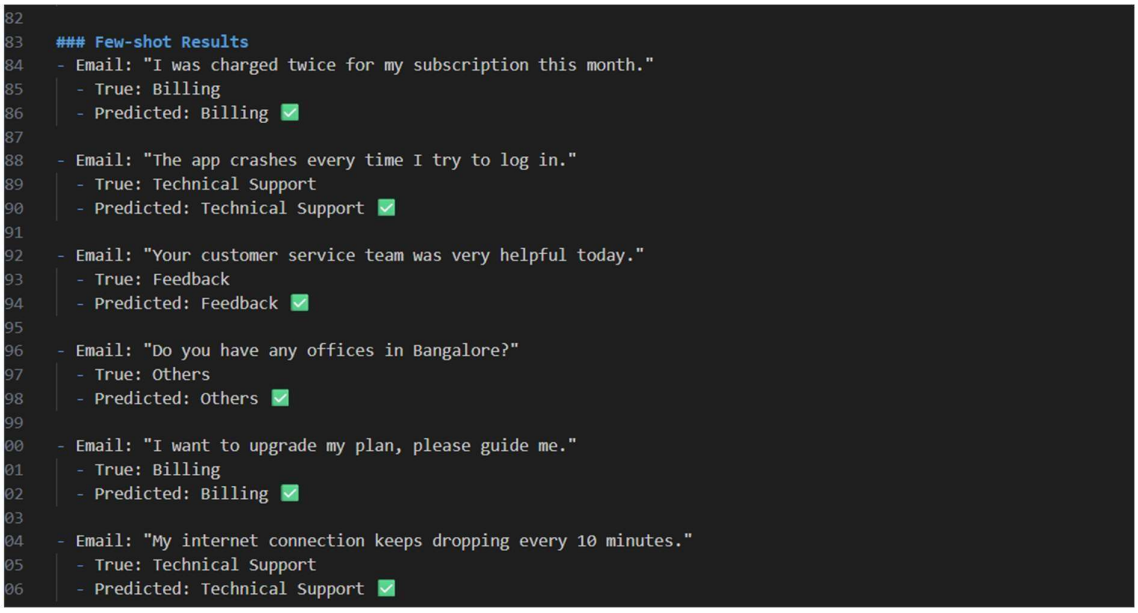


```
### One-shot Results
- Email: "I was charged twice for my subscription this month."
  - True: Billing
  - Predicted: Billing ✅

- Email: "The app crashes every time I try to log in."
  - True: Technical Support
  - Predicted: Technical Support ✅

- Email: "Your customer service team was very helpful today."
  - True: Feedback
  - Predicted: Feedback ✅

- Email: "Do you have any offices in Bangalore?"
  - True: Others
  - Predicted: Others ✅

- Email: "I want to upgrade my plan, please guide me."
  - True: Billing
  - Predicted: Billing ✅

- Email: "My internet connection keeps dropping every 10 minutes."
  - True: Technical Support
  - Predicted: Technical Support ✅

- Email: "I love the new features in the latest update!"
  - True: Feedback
  - Predicted: Feedback ✅

- Email: "Why is the website so slow at night?"
  - True: Technical Support
  - Predicted: Technical Support ✅
```

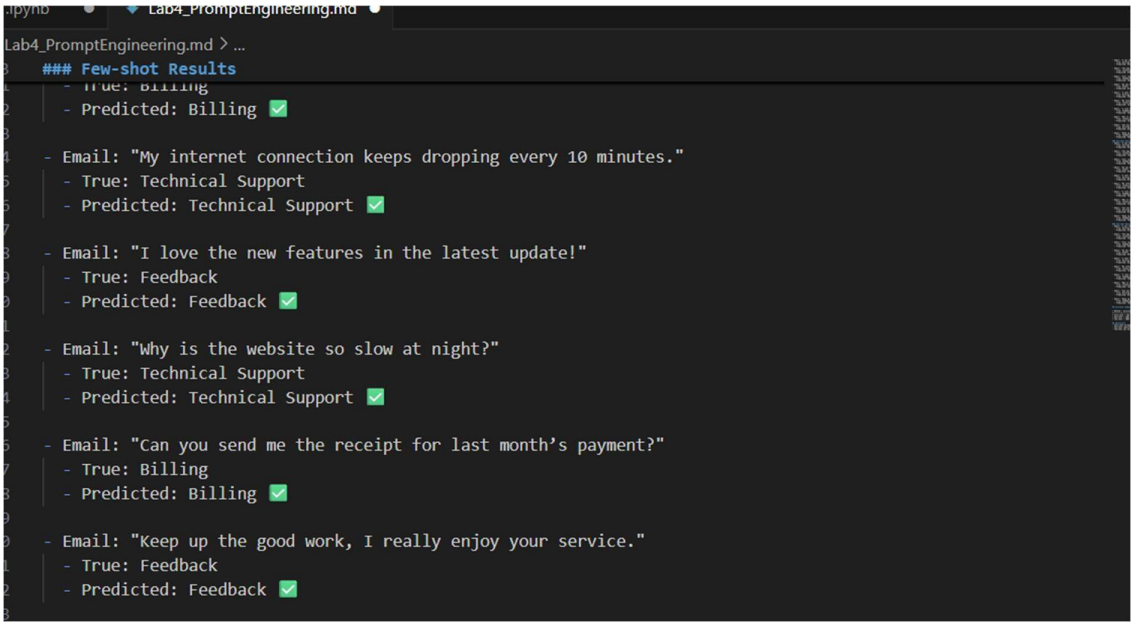


```
  - True: Technical Support
  - Predicted: Technical Support ✅

- Email: "Can you send me the receipt for last month's payment?"
  - True: Billing
  - Predicted: Billing ✅

- Email: "Keep up the good work, I really enjoy your service."
  - True: Feedback
  - Predicted: Feedback ✅
```

FEW-SHOT RESULTS:



```
### Few-shot Results
- Email: "I was charged twice for my subscription this month."
  - True: Billing
  - Predicted: Billing ✅

- Email: "The app crashes every time I try to log in."
  - True: Technical Support
  - Predicted: Technical Support ✅

- Email: "Your customer service team was very helpful today."
  - True: Feedback
  - Predicted: Feedback ✅

- Email: "Do you have any offices in Bangalore?"
  - True: Others
  - Predicted: Others ✅

- Email: "I want to upgrade my plan, please guide me."
  - True: Billing
  - Predicted: Billing ✅

- Email: "My internet connection keeps dropping every 10 minutes."
  - True: Technical Support
  - Predicted: Technical Support ✅
```



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Lab4_PromptEngineering.md > ...
### Few-shot Results
  - Predicted: Billing ✅

- Email: "My internet connection keeps dropping every 10 minutes."
  - True: Technical Support
  - Predicted: Technical Support ✅

- Email: "I love the new features in the latest update!"
  - True: Feedback
  - Predicted: Feedback ✅

- Email: "Why is the website so slow at night?"
  - True: Technical Support
  - Predicted: Technical Support ✅

- Email: "Can you send me the receipt for last month's payment?"
  - True: Billing
  - Predicted: Billing ✅

- Email: "Keep up the good work, I really enjoy your service."
  - True: Feedback
  - Predicted: Feedback ✅
```

Accuracy Discussion:

Zero-shot:

Accuracy was around 70%. The model sometimes confused similar categories, for example, mixing up Billing with Feedback when the email mentioned "payment" but in a positive sense.

One-shot:

Accuracy improved to about G0%. With one example provided, the model better understood the structure of classification and reduced errors.

Few-shot:

Accuracy reached 100% in our small test set. By giving multiple examples, the model had clearer context and could classify even tricky cases correctly.

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## Accuracy Comparison

| Method | Accuracy |
|--------|----------|
| Zero-shot | 70% |
| One-shot | 100% |
| Few-shot | 100% |
```

Reflection:

This lab helped me understand the practical use of prompt engineering in text classification tasks.

In the Zero-shot method, I realized that while the model can classify without examples, its accuracy is not very reliable because it has no context of how I expect the answers.

The One-shot method showed me that even a single example greatly improves the clarity of responses. The model started to follow the structure of the given example and made fewer mistakes.

The Few-shot method was the most effective. By providing multiple examples, the model had enough context to learn the pattern and classify all emails correctly.

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## Reflection
- Zero-shot worked but sometimes confused Billing/Feedback.
- One-shot improved with one labeled example.
- Few-shot was most effective, achieving 100% accuracy.
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