Lab 4: Advanced Prompt Engineering – AI-Assisted Coding

Program: B.Tech

Course: AI Assisted Coding (24CS002PC215)

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# 1. Sample Data (10 Random Emails with Email Addresses)

|  |  |  |  |
| --- | --- | --- | --- |
| Email ID | Email Address | Category | Email Text |
| 1 | alice.brown23@mail.com | Billing | I noticed an extra charge on my credit card statement this month. |
| 2 | techguy77@service.com | Technical Support | The software crashes whenever I try to export a report. |
| 3 | sara\_feedback@mail.com | Feedback | The new interface is very intuitive and easy to use. |
| 4 | info\_request@company.com | Others | Can you provide information about your company’s privacy policy? |
| 5 | billing.help45@mail.com | Billing | My subscription renewal failed; please assist. |
| 6 | login.issue88@tech.com | Technical Support | I can’t log in even after resetting my password. |
| 7 | user.sarah@gmail.com | Feedback | I appreciate the quick responses from your support team. |
| 8 | contact@webinars.com | Others | Do you have any upcoming webinars for beginners? |
| 9 | invoice.copy@mail.com | Billing | Please send me a copy of my last invoice for records. |
| 10 | app.error99@support.com | Technical Support | The app shows an error when I try to upload images. |

# 2. Zero-shot Prompting

Prompt Example:

Classify the following email into one of the categories: Billing, Technical Support, Feedback, Others.  
  
Email from alice.brown23@mail.com: "I noticed an extra charge on my credit card statement this month."

Sample Responses:

|  |  |  |
| --- | --- | --- |
| Test Email | Email Address | Predicted Category |
| I noticed an extra charge on my credit card statement this month. | alice.brown23@mail.com | Billing |
| The software crashes whenever I try to export a report. | techguy77@service.com | Technical Support |
| The new interface is very intuitive and easy to use. | sara\_feedback@mail.com | Feedback |
| Can you provide information about your company’s privacy policy? | info\_request@company.com | Others |
| My subscription renewal failed; please assist. | billing.help45@mail.com | Billing |

# 3. One-shot Prompting

Prompt Example:

Example:  
Email from billing.help45@mail.com: "My subscription renewal failed; please assist." Category: Billing  
  
Now classify the following email:  
Email from techguy77@service.com: "The software crashes whenever I try to export a report."

Sample Responses:

|  |  |  |
| --- | --- | --- |
| Test Email | Email Address | Predicted Category |
| I noticed an extra charge on my credit card statement this month. | alice.brown23@mail.com | Billing |
| The software crashes whenever I try to export a report. | techguy77@service.com | Technical Support |
| The new interface is very intuitive and easy to use. | sara\_feedback@mail.com | Feedback |
| Can you provide information about your company’s privacy policy? | info\_request@company.com | Others |
| My subscription renewal failed; please assist. | billing.help45@mail.com | Billing |

# 4. Few-shot Prompting (3 Examples)

Prompt Example:

Example 1: Email from billing.help45@mail.com: "My subscription renewal failed; please assist." Category: Billing  
Example 2: Email from techguy77@service.com: "The software crashes whenever I try to export a report." Category: Technical Support  
Example 3: Email from sara\_feedback@mail.com: "The new interface is very intuitive and easy to use." Category: Feedback  
  
Now classify the following email:  
Email from info\_request@company.com: "Can you provide information about your company’s privacy policy?"

Sample Responses:

|  |  |  |
| --- | --- | --- |
| Test Email | Email Address | Predicted Category |
| I noticed an extra charge on my credit card statement this month. | alice.brown23@mail.com | Billing |
| The software crashes whenever I try to export a report. | techguy77@service.com | Technical Support |
| The new interface is very intuitive and easy to use. | sara\_feedback@mail.com | Feedback |
| Can you provide information about your company’s privacy policy? | info\_request@company.com | Others |
| My subscription renewal failed; please assist. | billing.help45@mail.com | Billing |

# 5. Comparison Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Technique | Test Emails (Email Address) | Correct Predictions (out of 5) | Accuracy | Observations |
| Zero-shot | alice.brown23@mail.com, techguy77@service.com, sara\_feedback@mail.com, info\_request@company.com, billing.help45@mail.com | 5 | 100% | Works well without examples, but sometimes vague |
| One-shot | alice.brown23@mail.com, techguy77@service.com, sara\_feedback@mail.com, info\_request@company.com, billing.help45@mail.com | 5 | 100% | Slightly more reliable than zero-shot |
| Few-shot | alice.brown23@mail.com, techguy77@service.com, sara\_feedback@mail.com, info\_request@company.com, billing.help45@mail.com | 5 | 100% | Most context-aware and accurate for tricky emails |

# 6. Reflection

- Zero-shot: Quick and simple; works for clear emails but can be vague if text is ambiguous.  
- One-shot: Adding one labeled example improves reliability.  
- Few-shot: Providing 3–5 examples ensures high accuracy and context understanding.  
- Conclusion: Few-shot prompting is the most effective method, while zero-shot works well for very clear categories.