

LAB – 4.1

AI-Assisted Coding

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Lab 4: Advanced Prompt Engineering – Zero-shot, One-shot, and Few-shot Techniques

Problem Statement 1: Customer Email Classification

1. Sample Customer Emails

No.	Email Content	Category
E1	"I was charged twice for my last invoice. Please fix this."	Billing
E2	"My application crashes whenever I try to log in."	Technical Support
E3	"I really like the new dashboard design. Great work!"	Feedback
E4	"Can you tell me your office working hours?"	Others
E5	"Why is my refund still not reflected in my account?"	Billing

2. Zero-shot Prompting

Prompt Used:

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

Email: "My application crashes whenever I try to log in."

Output:

Technical Support

Observation:

The model correctly classified the email without any prior examples.

3. One-shot Prompting

Prompt Used:

Example:

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

Category: Billing

Now classify the following email into Billing, Technical Support, Feedback, or Others.

Email: "I really like the new dashboard design. Great work!"

Output:

Feedback

Observation:

Providing one example improved clarity and reduced ambiguity.

4. Few-shot Prompting

Prompt Used:

Example 1:

Email: "My application crashes when I log in."

Category: Technical Support

Example 2:

Email: "I was charged twice for my invoice."

Category: Billing

Example 3:

Email: "The new update looks amazing!"

Category: Feedback

Now classify the following email.

Email: "Why is my refund still pending?"

Output:
Billing

Observation:
Few-shot prompting produced the most confident and accurate classification.

5. Evaluation

Technique Accuracy Consistency

Zero-shot	Good	Medium
One-shot	Better	High
Few-shot	Best	Very High

Problem Statement 2: Intent Classification for Chatbot Queries

1. Sample User Queries

Query	Intent
"I forgot my password and can't log in."	Account Issue
"Where is my order right now?"	Order Status
"Does this product support wireless charging?"	Product Inquiry
"What are your customer support hours?"	General Question
"My account was locked suddenly."	Account Issue
"When will my order be delivered?"	Order Status

2. Zero-shot Prompting

Prompt Used:

Classify the following query into one of these intents:

Account Issue, Order Status, Product Inquiry, General Question.

Query: "Where is my order right now?"

Output:
Order Status

3. One-shot Prompting

Prompt Used:

Example:
Query: "I forgot my password."
Intent: Account Issue

Now classify the following query.

Query: "Does this product support wireless charging?"

Output:
Product Inquiry

4. Few-shot Prompting

Prompt Used:

Example 1:
Query: "My account was locked."
Intent: Account Issue

Example 2:
Query: "When will my order be delivered?"
Intent: Order Status

Example 3:
Query: "What features does this phone have?"
Intent: Product Inquiry

Example 4:
Query: "What are your support hours?"
Intent: General Question

Now classify the following query.

Query: "I forgot my password and can't log in."

Output:
Account Issue

5. Evaluation

Few-shot prompting reduced confusion between similar intents and produced the most reliable results.

Problem Statement 3: Student Feedback Analysis

a) Zero-shot Prompt

Classify the sentiment of the following student feedback as Positive, Negative, or Neutral.

Feedback: "The lectures were informative and engaging."

Output:
Positive

b) One-shot Prompt

Example:
Feedback: "The course material was confusing."
Sentiment: Negative

Now classify the following feedback.

Feedback: "The assignments were fair."

Output:
Neutral

c) Few-shot Prompt

Example 1:
Feedback: "I loved the teaching style."
Sentiment: Positive

Example 2:

Feedback: "The exams were too difficult."
Sentiment: Negative

Example 3:
Feedback: "The syllabus was average."
Sentiment: Neutral

Now classify the following feedback.

Feedback: "The instructor explained concepts very clearly."

Output:
Positive

d) Explanation

Providing examples helps the model better understand tone, context, and sentiment boundaries, improving classification accuracy.

Problem Statement 4: Course Recommendation System

a) Zero-shot Prompt

Classify the following learner query into Beginner, Intermediate, or Advanced.

Query: "I want to learn Python from scratch."

Output:
Beginner

b) One-shot Prompt

Example:
Query: "I have never programmed before."
Level: Beginner

Now classify the following query.

Query: "I know Python basics and want to learn data analysis."

Output:
Intermediate

c) Few-shot Prompt

Example 1:

Query: "I am new to programming."

Level: Beginner

Example 2:

Query: "I know Python and want to build projects."

Level: Intermediate

Example 3:

Query: "I want to optimize deep learning models."

Level: Advanced

Now classify the following query.

Query: "I want to master neural networks."

Output:

Advanced

d) Discussion

Few-shot prompting improves recommendation quality by clearly defining skill-level boundaries.

Problem Statement 5: Social Media Post Moderation

a) Zero-shot Prompt

Classify the following post as Acceptable, Offensive, or Spam.

Post: "Buy cheap products now!!! Click here."

Output:

Spam

b) One-shot Prompt

Example:

Post: "This product is useless and trash."

Category: Offensive

Now classify the following post.

Post: "Limited offer! Buy now!"

Output:

Spam

c) Few-shot Prompt

Example 1:

Post: "Great job on the update!"

Category: Acceptable

Example 2:

Post: "You are stupid."

Category: Offensive

Example 3:

Post: "Win money instantly. Click here."

Category: Spam

Now classify the following post.

Post: "This app works perfectly."

Output:

Acceptable

d) Challenges of Zero-shot Prompting

Zero-shot prompting may misclassify borderline or context-sensitive content due to lack of guidance, making few-shot prompting more reliable for moderation tasks.