ASSIGNMENT 4.4

Name: T. Swetha

Ht.No: 2303A51317

Batch – 05

Task – 01

a) 6 Short Customer Reviews with Sentiment Labels

Review	Sentiment
1. The product quality is excellent and delivery was fast.	Positive
2. Very happy with the purchase, worth the money.	Positive
3. The product is okay, nothing special.	Neutral
4. Average quality, but delivery was on time.	Neutral
5. The item stopped working after two days.	Negative
6. Terrible experience, very poor customer support.	Negative

b) Zero-Shot Prompt (No Examples Given)

Prompt:

Classify the sentiment of the following customer review as Positive, Negative, or Neutral.

Review: "The product quality is excellent and delivery was fast."

Sentiment:

Explanation:

- The model is not shown any examples.
- It relies only on its general understanding of language.

c) One-Shot Prompt (One Labeled Example Given)

Prompt:

Example:

Review: "The product is amazing and works perfectly."

Sentiment: Positive

Now classify the sentiment of the following review:

Review: "The item stopped working after two days."

Sentiment: Negative

Explanation:

- One example helps guide the model.
- Improves clarity compared to zero-shot prompting.

d) Few-Shot Prompt (3–5 Labeled Examples)

Prompt:

Review: "Excellent quality and fast delivery."

Sentiment: Positive

Review: "Not satisfied with the product."

Sentiment: Negative

Review: "The product is average and usable."

Sentiment: Neutral

Review: "Very poor customer service experience."

Sentiment: Negative

Now classify the sentiment of the following review:

Review: "Very happy with the purchase, worth the money."

Sentiment: Positive

Explanation:

- Multiple examples clearly define sentiment categories.
- Gives the model strong context.

e) Comparison of Outputs and Accuracy

Prompt Type	Accuracy	Reason
Zero-Shot	Medium	No examples, model may misclassify unclear reviews
One-Shot	Good	One example improves understanding
Few-Shot	High	Multiple examples reduce ambiguity

Prompt Type	Accuracy	Reason
Best Method	: Few-Shot	Most reliable and accurate results

Conclusion:

- Zero-shot is fast but less accurate.

- One-shot improves performance slightly.

- Few-shot prompting gives the highest accuracy for sentiment classification.

TASK – 02

Email Priority Classification

1) Six Sample Email Messages with Priority Labels

Email Message	Priority
1. Server is down and customers cannot access the website.	High
2. Payment failure reported by multiple users.	High
3. Please review the attached project report by tomorrow.	Medium
4. Can we reschedule today's meeting to next week?	Medium
5. Newsletter: New company policies for employees.	Low
6. Reminder: Office cafeteria menu for this week.	Low

2) Zero-Shot Prompt (No Examples Provided)

Prompt:

Classify the following email into one of these categories:

High Priority, Medium Priority, or Low Priority.

Email: "Server is down and customers cannot access the website."

Priority:

Explanation:

- No examples are given.

- The model relies on general knowledge to classify urgency.

3) One-Shot Prompt (One Example Provided)

Email: "System outage affecting all users."

Priority: High

Now classify the following email:

Email: "Please review the attached project report by tomorrow."

Priority: Medium

Explanation:

- One labeled example helps the model understand urgency.

- Accuracy improves compared to zero-shot prompting.

4) Few-Shot Prompt (Multiple Examples Provided)

Prompt:

Email: "Website is down due to server failure."

Priority: High

Email: "Please submit the assignment by end of day."

Priority: Medium

Email: "Monthly newsletter and announcements."

Priority: Low

Email: "Multiple customers reported payment issues."

Priority: High

Now classify the following email:

Email: "Can we reschedule today's meeting to next week?"

Priority: Medium

Explanation:

- Multiple examples clearly define each priority level.
- Reduces confusion between medium and low urgency emails.

5) Evaluation of Techniques and Reliability

Technique	Reliability	Reason
Zero-Shot	Medium	No examples, may misjudge urgency
One-Shot	Good	One example provides guidance
Few-Shot	High	Clear patterns improve accuracy
Best Method	Few-Shot	Most consistent and reliable results

Conclusion:

- Few-shot prompting produces the most reliable results.
- It provides enough context for accurate priority classification.
- Best suited for automated email management systems.

TASK – 03

1) Six Sample Student Queries with Department Labels

Student Query	Department
1. "What is the last date to apply for B.Tech admissions?"	Admissions
2. "How can I check my entrance exam results?"	Exams
3. "What are the subjects in the 3rd semester CSE course?"	Academics
4. "When will campus placement drives start?"	Placements
5. "I missed my exam due to illness, what is the procedure?"	Exams
6. "Are there internship opportunities through the college?"	Placements

2) Zero-Shot Intent Classification (No Examples)

Prompt:

Classify the following student query into one of these departments:

Admissions, Exams, Academics, or Placements.

Query: "How can I check my entrance exam results?"

Department:

Explanation:

- No examples are given.
- The model uses general language understanding.

3) One-Shot Prompting (One Labeled Example)

Prompt:

Example:

Query: "What is the eligibility criteria for MBA admission?"

Department: Admissions

Now classify the following query:

Query: "What are the subjects in the 3rd semester CSE course?"

Department: Academics

Explanation:

- One example helps define intent.

- Accuracy improves over zero-shot.

4) Few-Shot Prompting (Multiple Labeled Examples)

Prompt:

Query: "When is the last date to apply for admission?"

Department: Admissions

Query: "I missed my exam due to illness."

Department: Exams

Query: "What electives are offered in final year?"

Department: Academics

Query: "When will companies visit for placements?"

Department: Placements

Now classify the following query:

Query: "Are there internship opportunities through the college?"

Department: Placements

Explanation:

- Multiple examples clearly show intent patterns.
- Reduces ambiguity between departments.

5) Analysis: Effect of Contextual Examples on Accuracy

Prompt Type	Accuracy	Reason
Zero-Shot	Medium	No context, may confuse similar intents
One-Shot	Good	Single example gives direction
Few-Shot	High	Clear intent boundaries
Best Approach	Few-Shot	Most accurate and consistent

Conclusion:

- Contextual examples significantly improve classification.
- Few-shot prompting gives the best routing accuracy.
- Ideal for university chatbots handling multiple departments.

TASK – 04

Chatbot Question Type Detection

1) Six Chatbot Queries with Question Type Labels

User Query	Question Type
1. What are your working hours?	Informational
2. How can I reset my account password?	Informational
3. I want to cancel my subscription.	Transactional

User Query	Question Type
4. Please update my delivery address.	Transactional
5. My order arrived damaged.	Complaint
6. Great service, very satisfied with the support.	Feedback

2) Prompt Design for Zero-Shot, One-Shot, and Few-Shot Learning

a) Zero-Shot Prompt

Classify the following user query into one of these categories:

Informational, Transactional, Complaint, or Feedback.

Query: "I want to cancel my subscription."

Question Type:

b) One-Shot Prompt

Example:

Query: "What is your return policy?"

Question Type: Informational

Now classify the following query:

Query: "Please update my delivery address."

Question Type: Transactional

c) Few-Shot Prompt

Query: "What are your working hours?"

Question Type: Informational

Query: "I want to place an order for a new phone."

Question Type: Transactional

Query: "My package arrived late and damaged."

Question Type: Complaint

Query: "I am happy with your customer support."

Question Type: Feedback

Now classify the following query:

Query: "I want to cancel my subscription."

Question Type: Transactional

3) Testing All Prompts on the Same Unseen Query

Unseen Query:

"The product quality is not good and I am disappointed."

Prompt Type Predicted Output

Zero-Shot   Complaint

One-Shot   Complaint

Few-Shot   Complaint

4) Comparison: Correctness & Ambiguity Handling

Prompt Type Correctness Ambiguity Handling

Prompt Type	Correctness	Ambiguity Handling
Zero-Shot	Medium	May confuse feedback vs complaint
One-Shot	Good	Better clarity
Few-Shot	High	Clear distinction
Best Method : Few-Shot	Most reliable	

5) Observations

1. Zero-shot works but struggles with unclear queries
2. One-shot improves understanding slightly
3. Few-shot gives the highest accuracy
4. Contextual examples reduce ambiguity
5. Few-shot is best for chatbot intent detection
6. Useful for customer support automation

TASK - 05

Emotion Detection in Text

1) Labeled Emotion Samples

Text Sample	Emotion
1. I am feeling great today and everything is going well.	Happy
2. I feel very low and nothing seems right anymore.	Sad
3. I am extremely frustrated with how things turned out.	Angry
4. I am worried about my exams and can't stop thinking.	Anxious

Text Sample	Emotion
5. Today was just a normal day, nothing special happened.	Neutral
6. I feel scared and uneasy about the future.	Anxious

2) Zero-Shot Prompting (No Examples Provided)

Prompt:

Identify the emotion expressed in the following text.

Choose one emotion from:

Happy, Sad, Angry, Anxious, Neutral.

Text: "I feel very low and nothing seems right anymore."

Emotion:

Explanation:

- No examples are provided.
- The model relies on general understanding of emotions.

3) One-Shot Prompting (One Example Provided)

Prompt:

Example:

Text: "I am very excited and joyful today."

Emotion: Happy

Now identify the emotion in the following text:

Text: "I am extremely frustrated with how things turned out."

Emotion: Angry

Explanation:

- One labeled example helps guide the model.

- Accuracy improves compared to zero-shot prompting.

4) Few-Shot Prompting (Multiple Emotion Examples)

Prompt:

Text: "I feel great and full of energy."

Emotion: Happy

Text: "I feel very lonely and hopeless."

Emotion: Sad

Text: "I am angry about the unfair treatment."

Emotion: Angry

Text: "I am nervous and worried about my future."

Emotion: Anxious

Text: "It is just another regular day."

Emotion: Neutral

Now identify the emotion in the following text:

Text: "I am worried about my exams and can't stop thinking."

Emotion:

Explanation:

- Multiple examples clearly define each emotion.

- Reduces confusion between similar emotions.

5) Ambiguity Handling Across Techniques

Technique Accuracy Ambiguity Handling

Zero-Shot Medium May confuse Sad and Anxious

One-Shot Good Better emotional clarity

Few-Shot High Clear emotion boundaries

Observations

1. Zero-shot works for clear emotions

2. One-shot improves emotion understanding

3. Few-shot handles mixed emotions better

4. Contextual examples reduce ambiguity

5. Few-shot gives highest accuracy

6. Ideal for mental-health chatbots

Conclusion

Few-shot prompting provides the most accurate and reliable emotion detection by clearly defining emotional patterns through multiple examples.