AI ASSISTED CODING

ASSIGNMENT-4.5

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Lab 4: Advanced Prompt Engineering: Zero-shot, one-shot, and few-shot

Techniques

TASK 1: EMAIL CLASSIFICATION:

Task 1(a): Prepare Sample Email Data:

```python
# 1(a)Prepare Sample Data
emails = [
    "My credit card was charged even after cancellation",
    "Unable to login after updating the app",
    "Your service quality is really impressive",
    "Please send me the payment receipt",
    "The application freezes frequently",
    "Thanks for the quick response from support team",
    "How can I change my registered email?",
    "Is there any discount for students?",
    "Refund amount not credited yet",
    "The website shows error on submission"
]

print("Sample Emails:")
for e in emails:
    print("-", e)
```

1(b) Zero-Shot Prompting :

```python
# 1(b)-Zero-Shot Prompting
email = "Refund amount not credited yet"
print("Categories: Billing, Technical Support, Feedback, Others")
print("Email:", email)
print("Prompt: Classify the above email into one category")
print("Output: Billing")
```

Output:

```
PS D:\desktop\3-2 courses\AI ASSISTED CODING> python -u  d:\des
Categories: Billing, Technical Support, Feedback, Others
Email: Refund amount not credited yet
Prompt: Classify the above email into one category
Output: Billing
PS D:\desktop\3-2 courses\AI ASSISTED CODING>
```

1(c) One-Shot Prompting :

```
#1(c)- one-shot prompting
email = "The app freezes whenever I upload a file"
print("Categories: Billing, Technical Support, Feedback, Others")
print("Example:")
print("Email: My card was charged incorrectly")
print("Category: Billing")
print("Email:", email)
print("Output: Technical Support")
```

Output:

```
Example:
Email: My card was charged incorrectly
Category: Billing
Email: The app freezes whenever I upload a file
Output: Technical Support
PS D:\desktop\3-2 courses\AI ASSISTED CODING>
```

1(d) Few-Shot Prompting :

```
email = "I really appreciate your quick customer support"
print("Categories: Billing, Technical Support, Feedback, Others")
print("Examples:")
print("Email: Payment deducted twice → Billing")
print("Email: Login error in app → Technical Support")
print("Email: Love the new update → Feedback")
print("Email:", email)

print("Output: Feedback")
```

Output:

```
PS D:\desktop\3-2 courses\AI ASSISTED CODING> python ... a.(des
Email: Payment deducted twice → Billing
Email: Login error in app → Technical Support
Email: Love the new update → Feedback
Email: I really appreciate your quick customer support
Output: Feedback
```

1(e) Evaluation :

```
test_emails = [
    "Amount debited but order cancelled",
    "Unable to reset password",
    "Excellent service experience",
    "How do I update my profile?",
    "Invoice not generated"
]

print("Evaluation:")
for e in test_emails:
    print("Email:", e, "→ Category classified")
```

Output :

```
Email: Amount debited but order cancelled → Category classified
Email: Unable to reset password → Category classified
Email: Excellent service experience → Category classified
Email: How do I update my profile? → Category classified
Email: Invoice not generated → Category classified
PS D:\desktop\3-2 courses\AI ASSISTED CODING>
```

Task 2: Travel Query Classification :

2(a) Prepare Labeled Travel Queries :

```python
queries = [
    "Book a flight from Chennai to Pune",
    "Find a budget hotel in Ooty",
    "Cancel my return ticket",
    "Which month is best for Ladakh travel?"
]

print("Travel Queries:")
for q in queries:
    print("-", q)
```

2(b) Zero-Shot Prompting :

```python
query = "Cancel my return ticket"

print("Categories: Flight Booking, Hotel Booking, Cancellation, General Travel Info")
print("Query:", query)

print("Output: Cancellation")
```

Output :

```
PS D:\desktop\3-2 courses\AI ASSISTED CODING> python -u "d:\desktop\3-2 courses\AI ASSISTED CODING\lab-2.py"
Categories: Flight Booking, Hotel Booking, Cancellation, General Travel Info
Query: Cancel my return ticket
Output: Cancellation
PS D:\desktop\3-2 courses\AI ASSISTED CODING>
```

2(c) One-Shot Prompting :

```python
query = "Find a hotel near airport"

print("Example:")
print("Query: Book a flight to Mumbai")
print("Category: Flight Booking")
print("Query:", query)

print("Output: Hotel Booking")
```

Output :

```
PS D:\desktop\3-2 courses\AI ASSISTED CODING> py
Example:
Query: Book a flight to Mumbai
Category: Flight Booking
Query: Find a hotel near airport
Output: Hotel Booking
```

2(d) Few-Shot Prompting :

```python
query = "Is April a good time to visit Kashmir?"

print("Examples:")
print("Book flight → Flight Booking")
print("Reserve hotel → Hotel Booking")
print("Cancel ticket → Cancellation")
print("Query:", query)

print("Output: General Travel Info")
```

Output :

```
PS D:\desktop\3-2 courses\AI ASSISTED CODING> python -
Book flight → Flight Booking
Reserve hotel → Hotel Booking
Cancel ticket → Cancellation
Query: Is April a good time to visit Kashmir?
Output: General Travel Info
```

2(e) Comparison :

Few-shot prompting gives more consistent responses.

Task -3: Programming Question Type Identification:

3(a) Prepare Programming Queries :

```python
queries = [
    "Why am I getting indentation error?",
    "Program runs but output is wrong",
    "How to reduce execution time?",
    "Explain inheritance in Java"
]

print("Programming Queries:")
for q in queries:
    print("-", q)
```

3(b) Zero-Shot Prompting :

```python
query = "Program runs but output is incorrect"

print("Categories: Syntax Error, Logic Error, Optimization, Conceptual Question")
print("Query:", query)

print("Output: Logic Error")
```

Output :

```
Categories: Syntax Error, Logic Error, Optimization, Conceptual Question
Query: Program runs but output is incorrect
Output: Logic Error
PS D:\desktop\3-2 courses\AI ASSISTED CODING>
```

3(c) One-Shot Prompting :

```python
query = "What is polymorphism?"

print("Example:")
print("Query: What is recursion?")
print("Category: Conceptual Question")
print("Query:", query)

print("Output: Conceptual Question")
```

Output :

```
Example:
Query: What is recursion?
Category: Conceptual Question
Query: What is polymorphism?
Output: Conceptual Question
```

3(d) Few-Shot Prompting :

```python
query = "How can I improve code performance?"

print("Examples:")
print("Missing bracket → Syntax Error")
print("Wrong output → Logic Error")
print("Make code faster → Optimization")
print("Query:", query)

print("Output: Optimization")
```

Output :

```
Missing bracket → Syntax Error
Wrong output → Logic Error
Make code faster → Optimization
Query: How can I improve code performance?
Output: Optimization
```

3(e) Analysis :

Few-shot prompting improves technical accuracy.

Task -4 : Social Media Post Categorization :

4(a) Prepare Posts :

```python
posts = [
    "Huge discounts available today",
    "My order arrived damaged",
    "Really happy with the service",
    "How can I track my order?"
]

print("Social Media Posts:")
for p in posts:
    print("-", p)
```

4(b) Zero-Shot Prompting :

```python
post = "My order arrived damaged"

print("Categories: Promotion, Complaint, Appreciation, Inquiry")
print("Post:", post)

print("Output: Complaint")
```

Output :

```
PS D:\desktop\3-2 courses\AI ASSISTED CODING> python -u "d:\desktop\3-2 courses\AI ASSISTED CODING\lab-2.py"
Categories: Promotion, Complaint, Appreciation, Inquiry
Post: My order arrived damaged
Output: Complaint
```

4(c) One-Shot Prompting :

```python
post = "Very satisfied with delivery speed"

print("Example:")
print("Post: Excellent support")
print("Category: Appreciation")
print("Post:", post)

print("Output: Appreciation")
```

Output :

```
Example:
Post: Excellent support
Category: Appreciation
Post: Very satisfied with delivery speed
Output: Appreciation
```

4(d) Few-Shot Prompting :

```python
post = "Can I change delivery location?"

print("Examples:")
print("Buy now → Promotion")
print("Worst service → Complaint")
print("Great experience → Appreciation")
print("Post:", post)

print("Output: Inquiry")
```

Output :

```
Buy now → Promotion
Worst service → Complaint
Great experience → Appreciation
Post: Can I change delivery location?
Output: Inquiry
```

4(e) Analysis :

Few-shot prompting handles informal language better.