

MODULE 1 UNIT 4

Prompt Engineering Practice

Ver. 1.0

Table of contents

Table of contents	2
1. Prompt Engineering Practice	3
1.1 Automated Customer Service System	3
1.1.1 System Components	3
1.1.1.1. Initial Customer Service Chatbot	3
1.1.1.2. Query Analysis and Classification	3
1.1.1.3. Personalized Response Generation	4
1.1.1.4. Conversation Data Persistence	4
1.1.2 Deliverables	5
1.1.3 Sample Data	5
1.1.3.1 Suggested Test Queries:	5
1.1.3.2 Fictional Company Context	6

1. Prompt Engineering Practice

1.1 Automated Customer Service System

Develop a complete automated customer service system that integrates all techniques learned in the Prompt Engineering course, demonstrating competency in iterative prompt design, text analysis, content transformation, and specialized chatbot creation.

1.1.1 System Components

1.1.1.1. Initial Customer Service Chatbot

Objective: Create a chatbot that receives customer inquiries and maintains natural conversations.

Requirements:

- Configure the system role for a professional customer service assistant
- Implement conversational context handling
- Create a conversation flow that includes:
 - Personalized greeting
 - Basic customer information collection
 - Inquiry type identification
 - Appropriate routing based on the case

1.1.1.2. Query Analysis and Classification

Objective: Implement a system that automatically analyzes customer queries.

Requirements:

- Sentiment analysis: Determine if the customer is satisfied, neutral, or dissatisfied
- Emotion identification: Detect specific emotions (frustration, urgency, satisfaction, etc.)
- Category classification: Group queries by type (technical, billing, returns, general information, etc.)
- Urgency detection: Identify cases requiring priority attention
- Entity extraction: Identify products, order numbers, dates, etc.

1.1.1.3. Personalized Response Generation

Objective: Create responses adapted to the context and tone of each query.

Requirements:

- Generate responses that match the customer's tone
- Personalize content according to query category
- Include specific information relevant to the case
- Adapt formality according to context
- Provide clear action steps when necessary

1.1.1.4. Conversation Data Persistence

Objective: Save conversation summaries in JSON files for later analysis.

Requirements:

- Create structured conversation summaries in JSON format
- Save each conversation in an individual file with timestamp
- Implement a function that compiles multiple conversations into a consolidated file
- Required JSON structure:

```
{
  "timestamp": "2024-01-15T10:30:00",
  "customer_id": "auto_generated",
  "conversation_summary": "Concise interaction summary",
  "query_category": "technical/billing/return/information",
  "customer_sentiment": "positive/neutral/negative",
  "urgency_level": "low/medium/high",
  "mentioned_products": ["product1", "product2"],
  "extracted_information": {
    "order_number": "if_applicable",
    "purchase_date": "if_applicable",
    "amount": "if_applicable"
  },
  "resolution_status": "resolved/pending/escalated",
  "actions_taken": ["action1", "action2"],
  "follow_up_required": true/false
}
```

1.1.2 Deliverables

The complete practical work will be developed in a single Jupyter Notebook containing:

- Clearly identified sections with markdown for each component
- Implemented prompts using the OpenAI library
- Usage examples for each developed functionality
- Test cases integrated in the same notebook
- Explanatory comments in each code cell (including used prompting techniques)
- Results analysis using markdown between code cells

1.1.3 Sample Data

1.1.3.1 Suggested Test Queries:

1. Neutral-Informative: "Hello, I'd like to know if you have the new iPhone 15 in stock and how much shipping costs to Chicago"
2. Urgent-Negative: "This is an emergency! My order #TEC-2024-001 never arrived and I need that laptop for work tomorrow!"
3. Satisfied-Positive: "Thank you so much for the excellent service with my previous purchase, I want to buy gaming headphones"
4. Frustrated-Technical: "I can't configure the router I bought last week, I've tried everything and it doesn't work"
5. Formal-Billing: "Good morning, I need the receipt for my purchase from December 15th, order #TEC-2023-089"
6. Warranty-Query: "I bought a tablet 8 months ago and now it won't turn on, how do I use the warranty?"
7. Product-Information: "What laptop do you recommend for an engineering student? Maximum budget \$800"
8. Urgent-Return: "I need to urgently return this phone I bought yesterday, it's not compatible with my plan"
9. Installation-Support: "Can you come install the home theater I bought? I live in downtown"
10. Financing: "Do you have interest-free installments for the MacBook Pro? Do you accept Visa cards?"

1.1.3.2 Fictional Company Context

TechStore Plus - Your Trusted Technology Store

General Information:

- Sector: E-commerce for technology products
- Founded: 2018
- Location: Company based in New York, USA
- Format: Online store with physical showroom
- Business hours: Monday to Friday 9:00-18:00, Saturday 10:00-14:00

Product Catalog:

- Computers: Laptops, desktop PCs, workstations
- Smartphones and Tablets: All major brands
- Accessories: Headphones, mice, keyboards, cables, cases
- Gaming: Consoles, games, gaming accessories
- Smart Home: IoT devices, smart speakers, cameras

Services Offered:

- Sales: Nationwide shipping
- Technical Support: Installation, configuration, diagnosis
- Warranty: 12 months on all products
- Financing: Interest-free installments, payment plans
- Trade-in: Used equipment exchange program

Important Policies:

- Shipping: Free shipping nationwide for purchases over \$500
- Returns: 30 days for exchanges, 7 days for refunds
- Installation: Home technical service available
- Extended Warranty: Optional for 1 additional year

Contact Channels:

- Email: support@techstoreplus.com
- Phone: 1-800-TECH-PLUS
- Chat: Available on website 24/7
- Text: +1 555-123-4567