Prompt Engineering Documentation

Overview

This document details the prompt engineering approach used in the AI-Powered Menu Intelligence Widget to generate consistent, high-quality menu descriptions and upsell suggestions.

Core Prompt Structure

The system uses a carefully crafted prompt that follows best practices for AI interaction:

1. Role Definition

You are an expert restaurant menu copywriter and sales strategist.

Purpose: Establishes expertise and context

Benefit: Ensures AI responds with professional, industry-appropriate language

2. Clear Task Definition

Your task is to create compelling menu descriptions and upsell suggestions.

Purpose: Explicitly states what the AI should do

Benefit: Reduces ambiguity and improves consistency

3. Structured Output Requirements

Description Requirements (30 words max)

```
1. A BRIEF, ATTRACTIVE DESCRIPTION (maximum 30 words):
   - Highlight key ingredients, flavors, and appeal
   - Use appetizing, descriptive language
   - Focus on what makes this dish special
   - Keep it concise and mouth-watering
```

Design Rationale:

Word Limit: 30 words ensures descriptions fit menu constraints

Specific Guidelines: Each bullet point addresses a different aspect

Sensory Focus: Emphasizes taste, texture, and visual appeal

Upsell Requirements

```
2. ONE UPSELL SUGGESTION:
   - Suggest a complementary drink, side, or dessert
```

  - Make it sound irresistible and logical
  - Use persuasive but not pushy language
  - Format as "Pair it with [item]!" or similar

Design Rationale:

Complementary Focus: Ensures logical pairing

Tone Control: "Persuasive but not pushy" prevents aggressive sales language

Format Specification: Consistent structure for easy integration

4. Quality Rules

IMPORTANT RULES:

- Description must be exactly 30 words or less
- Use professional, appetizing language
- Avoid generic phrases like "delicious" or "tasty"
- Be specific about flavors, textures, and ingredients
- Make the upsell suggestion relevant and appealing

Design Rationale:

Concrete Constraints: Specific word limits and banned phrases

Quality Standards: Professional language requirement

Specificity Focus: Encourages detailed, descriptive content

5. Structured Response Format

Respond in this exact JSON format:

```
{
    "description": "Your 30-word description here",
    "upsell_suggestion": "Your upsell suggestion here"
}
```

Design Rationale:

Parseable Output: JSON format enables easy integration

Consistent Structure: Predictable response format

Error Prevention: Reduces parsing errors in the application

Prompt Engineering Principles Applied

1. Clarity and Specificity

Clear Instructions: Each requirement is explicit and unambiguous

Specific Constraints: Word limits, format requirements, and banned phrases

Structured Output: JSON format ensures consistent parsing

2. Context and Role

Expert Role: Positions AI as a professional copywriter

Industry Context: Restaurant-specific language and requirements

Purpose Alignment: Focuses on sales and customer appeal

3. Quality Control

Validation Rules: Built-in checks for length and content

Language Standards: Professional, appetizing, specific language

Relevance Requirements: Logical upsell pairings

4. Error Prevention

Format Specification: JSON structure prevents parsing errors

Length Validation: Word count limits prevent overflow

Sanitization: Input validation and output cleaning

Prompt Optimization Techniques

1. Iterative Refinement

The prompt was developed through multiple iterations:

Version 1: Basic description generation

Version 2: Added upsell suggestions

Version 3: Implemented word limits and quality rules

Version 4: Added JSON formatting and error prevention

2. A/B Testing Approach

Different prompt variations were tested for:

Consistency: Same input produces similar quality output

Creativity: Varied but appropriate descriptions

Relevance: Logical upsell suggestions

Length Compliance: Adherence to word limits

3. Edge Case Handling

The prompt addresses common issues:

Generic Language: Explicit ban on "delicious", "tasty"

Length Violations: Clear word count requirements

Format Errors: Structured JSON response

Irrelevant Suggestions: Focus on complementary items

Model-Specific Considerations

GPT-3.5 Turbo

Faster Response: Good for real-time applications

Cost Effective: Lower API costs

Consistent Quality: Reliable output for menu descriptions

GPT-4

Enhanced Creativity: More varied and creative descriptions

Better Context Understanding: Improved comprehension of food items

Higher Quality: More sophisticated language and suggestions

Integration Considerations

1. API Response Handling

Parse and validate AI response

Validate required fields

Validate description length

Fallback to default response on JSON errors

2. Error Recovery

JSON Parsing Errors: Fallback to default descriptions

Length Violations: Automatic truncation to 30 words

API Failures: Mock responses for demonstration

3. Rate Limiting

Request Limits: 10 requests per minute per IP

Error Handling: Graceful degradation under load

User Feedback: Clear error messages for rate limits

Future Enhancements

1. Dynamic Prompting

Cuisine-Specific Prompts

Seasonal Adjustments

Price Point Consideration

2. Multi-Language Support

Localized Prompts

Cultural Adaptation

Translation Integration

3. Learning and Optimization

User Feedback Integration

A/B Testing Framework

Performance Analytics

Best Practices for Prompt Engineering

1. Start with Clear Objectives

Define goals, target audience, quality standards

2. Iterate and Test

Test variations, gather feedback, measure quality

3. Handle Edge Cases

Plan for failures, implement fallbacks, validate inputs/outputs

4. Monitor and Optimize

Track performance, gather feedback, improve continuously

Conclusion

The prompt engineering approach in this widget demonstrates how careful design can produce consistent, high-quality AI-generated content.