

# Prompt Engineering: Challenges, Considerations and Best Practices





**Creating Effective AI Interactions**

by Aditi Godbole





# What is Prompt Engineering



# Why Does it Matter?

-  Better accuracy and relevance
-  Increased efficiency
-  Cost optimization
-  Risk Reduction

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# Challenges in Prompt Engineering



**Ambiguity**



**Bias**



**Context  
Dependency**



**Token/Character  
Limits**



**Inconsistency**

# Key Considerations

Purpose

Context

Constraints

Format

Safety

# Best Practices for Effective Prompt Engineering

- **Use Clear Instructions** - Direct language yields specific responses.
- **Iterative Refinement** - Experiment with different prompts.
- **Test for Bias and Sensitivity** - Monitor prompts for unintended biases.
- **Provide Context** - Add detail to guide the AI's response.

# Best Practices - Structure

1.Context

2.Task

3.Format

4.Examples

5.Constraints



# Prompting with Best Practices

- **Poor Prompt:**

- "How can I improve customer satisfaction in my online store?"

- **Issues:**

- Lack of Specificity
- No Desired Format or Detail Level
- No Context or Constraints

- **Improved Prompt**

- "Provide 5 actionable strategies to improve customer satisfaction for a small online retail business. Focus on areas such as customer service, website usability, and post-purchase follow-up. Keep recommendations concise and achievable for a small team."

# Effective Prompt

- "Provide 5 actionable strategies to improve customer satisfaction for a small online retail business. Focus on areas such as customer service, website usability, and post-purchase follow-up. Keep recommendations concise and achievable for a small team."
- **Improvements:**
  - **Specificity**
  - **Context Provided**
  - **Format and Detail Level**

## “Write emergency evacuation instructions”

“Create emergency evacuation instructions for a 1000-seat concert venue with these specifications: Scenario requirements: - Multiple emergency types (fire, medical, security) - 3 floor levels with 6 emergency exits - Special instructions for disabled patrons - Staff roles and responsibilities Format: - Must fit on digital displays - Maximum 3 bullet points per section - Use of universal emergency symbols - Multiple language indicators Tone: Authoritative but calm Include: Assembly point locations, do's and don'ts”

Here are clear emergency evacuation instructions:

### EMERGENCY EVACUATION PROCEDURE

#### IF YOU DISCOVER AN EMERGENCY:

1. Activate the nearest fire alarm pull station
2. Call Emergency Services (911)
3. Alert others in your immediate area

#### WHEN YOU HEAR THE EVACUATION ALARM:

##### IMMEDIATELY:

- Stop all activities
- Remain calm and assist others
- Take essential personal belongings only (keys, phone, wallet)
- Close but DO NOT lock doors behind you

##### EXIT PROCEDURES:

- Use nearest emergency exit or stairwell
- DO NOT use elevators
- Follow illuminated exit signs
- Stay low if there's smoke
- Use handrails in stairwells
- Exit in an orderly manner - no running

##### ASSIST OTHERS:

- Help those with disabilities or special needs
- Guide visitors who may be unfamiliar with the building
- If someone cannot evacuate, help them to a designated refuge area

##### ONCE OUTSIDE:

- Move at least 100 feet away from the building
- Go to your designated assembly point
- Stay with your group/department
- Do not block emergency vehicle access
- Wait for further instructions from emergency personnel
- Do not re-enter until authorized

##### REMEMBER:

- Know at least two evacuation routes from your location

← Concert Venue Emergency Evacuation Instructions

## EMERGENCY EVACUATION PLAN

Concert Hall Safety Instructions | Plan de Evacuación | 疏散计划

### FIRE EMERGENCY | INCENDIO | 火灾

- Follow illuminated EXIT signs to nearest emergency exit (6 locations marked in GREEN)
- Proceed immediately to Assembly Point A (North Parking Lot) or B (South Plaza)
- DO NOT use elevators – use marked emergency stairwells only

### MEDICAL EMERGENCY | EMERGENCIA MÉDICA | 医疗急救

- Remain seated unless directly affected or instructed to move
- Clear paths for medical personnel (marked in BLUE)
- Follow staff instructions for section-by-section evacuation if required

### SECURITY THREAT | AMENAZA DE SEGURIDAD | 安全威胁

- Follow staff directions for safe exit routes (may differ from standard exits)
- Keep hands visible when exiting
- Move quickly but DO NOT run

### MOBILITY ASSISTANCE | ASISTENCIA DE MOVILIDAD | 无障碍援助

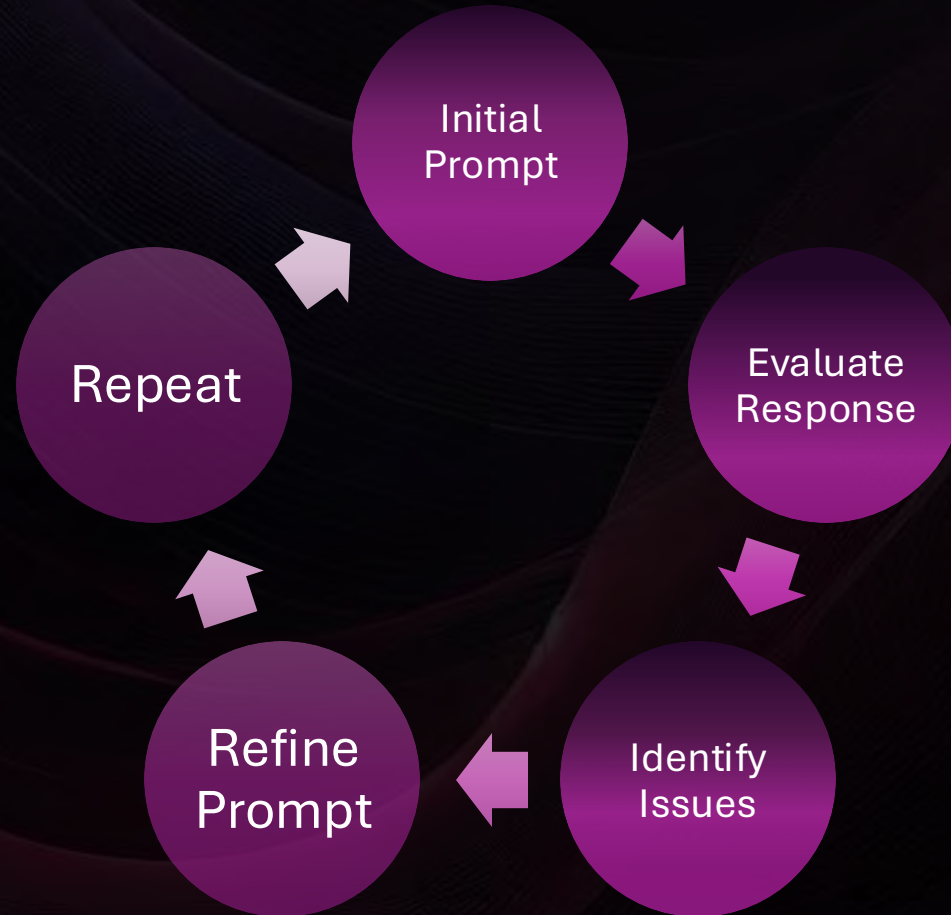
- Proceed to marked refuge areas on each floor (marked in YELLOW)
- Wait for emergency personnel assistance
- Companions may remain at refuge points if safe to do so

### STAFF ROLES | PERSONAL | 工作人员

- Red Vest: Exit Guides - stationed at emergency exits
- Yellow Vest: Floor Wardens - coordinate evacuation by section
- Blue Vest: Medical Response Team - assist those needing medical aid

### IMPORTANT REMINDERS | RECORDATORIOS | 重要提示

# Iterative Refinement



# Advanced Techniques

- Chain of Thought
- Role Assignment
- Few-Shot Learning
- System Instructions
- Conditional Prompts
- Temperature Control





# Common Pitfalls

- Overcomplication
- Assumption of Knowledge
- Lack of Specificity
- Ignored Constraints

# Validating Prompt Quality

- Accuracy Check
- Task completion check
- Relevance
- Bias Evaluation
- Consistency Testing
- User Testing

# Future Considerations

-  Evolving Capabilities
-  Human-AI Collaboration
-  Tools & Frameworks
-  Best Practices Evolution



# Thank you!



**Aditi Godbole**

AI & ML @ SAP | LinkedIn  
Top 1% AI & Data Science ...

