

## Ex.No.4-Scenario-Based Report Development Utilizing Diverse Prompting Techniques

**Aim:** To design an AI-powered chatbot that assists customers in resolving issues related to product troubleshooting, order tracking, and general inquiries. The chatbot should handle various customer queries efficiently while maintaining a conversational and user-friendly tone. In this experiment, we will employ different prompt patterns to guide the development process of the chatbot, ranging from basic task-oriented prompts to more complex, persona-driven prompts. Case study 2 with Comparative Analysis Prompt, Universal Prompt, Structures Prompt Refinements and Prompt Size Limitations

**Output:**

### MED-AI CHATBOT

HI

Hello again! How can I assist you today?



### COMPARATIVE ANALYSIS PROMPT

**Prompt 1 – “Give me an analysis on MRI vs CT scan”:**

**Response-**

Comparative Analysis: MRI vs CT Scan

#### 1. Overview

- **MRI (Magnetic Resonance Imaging):**  
MRI uses powerful magnetic fields and radio waves to produce detailed images of organs and tissues. It is particularly valuable for soft tissue imaging, brain, spinal cord, joints, and certain cancers.
- **CT Scan (Computed Tomography):**  
CT uses X-rays combined with computer processing to create cross-

sectional images of bones, blood vessels, and soft tissues. It is fast and widely used in emergency settings.

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## 2. Clinical Effectiveness

Aspect	MRI	CT Scan
Best for	Soft tissue, brain, spinal cord, ligaments, tumors	Bone injuries, lung and chest imaging, detecting internal bleeding
Efficacy	High detail for soft tissues and nerves	Fast and effective for trauma and internal injuries
Safety	No ionizing radiation; safer for repeated use	Uses ionizing radiation; limited repeat scans recommended

### Prompt 2-“What is op and general”:

Response-

In a medical context:

#### 1. OP (Outpatient)

- Definition:  
OP stands for Outpatient, which refers to a patient who visits a hospital, clinic, or healthcare facility for diagnosis, treatment, or consultation but does not require admission or overnight stay.
  - Examples of OP Services:
    - Doctor consultations (General Physician, Specialist)
    - Diagnostic tests (X-ray, blood tests)
    - Minor procedures (dressing, injections)
    - Physiotherapy sessions
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## 2. General (General Medicine or General OP)

- **Definition:**  
General Medicine (often called General OP) is the department that deals with common illnesses and general health check-ups. It is usually the first point of contact for patients with non-emergency or undiagnosed symptoms.
- **Common conditions treated in General OP:**
  - Fever, cough, cold
  - Infections (viral, bacterial)
  - Hypertension, diabetes management
  - General health counseling
  - Minor injuries and allergic reactions

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Key Difference between OP and General OP:

Term	Meaning	Scope
OP (Outpatient)	Any non-admitted patient service	Includes all specialties (e.g., Cardiology OP, Surgery OP)
General OP	Outpatient service for general health and medicine	Handled by General Physicians for basic conditions

### UNIVERSAL PROMPT

**Prompt Examples:**

- **AI in Radiology vs Traditional Radiology**
- **Robotic Surgery vs Open Surgery**
- **CT Scan vs MRI**
- **Online Learning vs Traditional Learning**

- **Renewable Energy vs Fossil Fuels**

## **Prompt 1 : “ AI in medical field”**

Response –

### **AI in the Medical Field: Detailed Explanation**

#### **1. What is AI in Healthcare?**

Artificial Intelligence (AI) in the medical field refers to the use of advanced algorithms, machine learning (ML), deep learning (DL), and data analytics to assist, automate, and improve healthcare services, including diagnosis, treatment, patient monitoring, drug discovery, and healthcare management.

#### **2. Key Roles of AI in the Medical Field**

- **Diagnosis Assistance:**
  - AI algorithms analyze medical images (X-ray, CT, MRI), pathology slides, and lab reports to assist doctors in diagnosing diseases like cancer, pneumonia, stroke, etc.
  - Example: AI detecting early signs of breast cancer from mammograms.
- **Predictive and Preventive Care:**
  - AI predicts disease risk, outbreaks, and patient deterioration by analyzing historical and real-time data.
  - Example: Predicting heart attacks using ECG patterns.

## **Prompt 2 : “Best hospitals in chennai”**

Response-

### **Top Hospitals in Chennai**

#### **1. Apollo Hospitals, Greams Road**

Established in 1983, Apollo Hospitals is a pioneer in India's private healthcare sector. It's renowned for specialties like cardiology, oncology, neurology, and organ transplants. The hospital has introduced advanced procedures such as coronary angioplasty and stereotactic radiotherapy.

#### **2. MGM Healthcare, Aminjikarai**

A 400-bed multispecialty hospital known for its expertise in heart and pediatric transplants. MGM Healthcare is also India's first USGBC LEED Platinum-certified green hospital, emphasizing eco-conscious healthcare practices.

#### **3. MIOT International, Manapakkam**

Spanning 14 acres, MIOT offers comprehensive care across 63 specialties. It's recognized for its international patient services, treating thousands of patients from abroad annually.

#### **4. Fortis Malar Hospital, Adyar**

A 180-bed facility equipped with advanced operation theatres, a modern dialysis unit, and a digital flat-panel cath lab. Fortis Malar is known for its robust team of over 160 consultants.

## STRUCTURES PROMPT REFINEMENTS

### Basic Comparative Prompt Refinement

#### Prompt 1:

"Compare and contrast MRI and CT scan in terms of their key characteristics, advantages, limitations, and applications."

#### Refined Prompt:

"Perform a detailed comparative analysis of **MRI** and **CT scan**, focusing on:

- Mechanism of action/working principle
  - Clinical effectiveness and safety
  - Cost, accessibility, and scalability
  - Patient-centered outcomes
  - Future developments and innovations
- Provide evidence-based references where applicable."

#### PROMPT 2:

##### Basic Prompt:

"I have a headache."

##### Refined Prompt:

"I have a persistent headache localized on the right side of my head for the past 3 days. It worsens in the morning and after screen exposure. No nausea or fever. What could be the cause?"

#### Prompt 3:

##### Basic Prompt:

"My haemoglobin is low."

##### Refined Prompt:

"My lab results show a hemoglobin level of 9.2 g/dL. I'm a 28-year-old female with no recent bleeding. What are the possible causes and should I be concerned?"

## PROMPT SIZE LIMITATIONS

### Prompt :

“Give me a paragraph containing 2 lakhs words about MedAI chatbot”

### Response:

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A paragraph with 2 lakh (200,000) words is **far beyond** what any AI model, including GPT-4, can handle in a single response.

#### ⚠️ Why?

- GPT-4-turbo has a **maximum context window of 128,000 tokens** (about **96,000 words**).
- 200,000 words  $\approx$  270,000–300,000 tokens, depending on content and language structure.
- That **exceeds** the maximum input/output size—by more than double.