## **Assignment 3**

## **Lab 1: Introduction to ChatGPT**

**Objective:** Understand ChatGPT’s basics, origin, capabilities, and applications.

**Summary:** ChatGPT is an AI language model by OpenAI based on the Transformer architecture. It processes text prompts by breaking them into tokens, analyzing context with attention mechanisms, and predicting the next words to generate human-like responses.

**Capabilities:**

* Answering questions and summarizing text
* Writing stories, poems, and emails
* Translating languages
* Assisting in coding and debugging

**Applications:**

* **Education:** Tutoring, quiz creation
* **Healthcare:** Explaining medical concepts (non-diagnostic)
* **Business:** Drafting emails, summarizing reports
* **Creativity:** Story prompts, brainstorming ideas

**Conclusion:** ChatGPT is a versatile AI tool that enhances learning, productivity, and creativity across multiple fields.

## **Lab 2 – Types of Prompts and Prompt Engineering Basics**

**Objective:** Learn types of prompts (instructional, interrogative, zero-shot, few-shot) and design prompts with increasing complexity.

**Types of Prompts:**

1. **Instructional:** Direct commands.  
    *Example:* “Write a 4-line poem about rain.”
2. **Interrogative:** Framed as questions.  
    *Example:* “What are the benefits of renewable energy?”
3. **Zero-Shot:** No examples given.  
    *Example:* “Translate ‘Good morning’ into French.”
4. **Few-Shot:** Examples provided before task.  
    *Example:* Hello → Hola  
    How are you? → ¿Cómo estás?  
    I am happy → Estoy feliz

**Zero-Shot vs Few-Shot:**

* Zero-Shot: Quick but less precise.
* Few-Shot: More accurate due to examples.

**Conclusion:** Prompt engineering improves AI accuracy by using context, clear instructions, and examples when needed.

## **Lab 3 – Precision Prompting for Information Extraction**

**Objective:** Extract structured data from ChatGPT responses.

**Example:** **Prompt:** Extract the name, phone, and email from:  
 *"My name is Ramesh Patil. You can call me at +91-9876543210 or email me at ramesh.patil@example.com."*

**Output:**

{

"name": "Ramesh Patil",

"phone": "+91-9876543210",

"email": "ramesh.patil@example.com"

}

**Accuracy:** 100% correct extraction.

**Conclusion:** Clear and precise prompts help ChatGPT return data in structured formats like JSON or tables.

## **Lab 4 – Summarization and Text Transformation**

**Objective:** Summarize text and change tone using ChatGPT.

**Example:** **Original:** Climate change is caused by human activities, leading to global warming, rising seas, and extreme weather.  
 **Summary:** Human actions cause global warming and severe weather.  
 **Informal:** People are making Earth hotter, causing wild weather.  
 **Formal:** Human activities contribute to climate change, resulting in global warming and extreme weather.

**Conclusion:** ChatGPT can shorten content and adjust tone for different audiences.

## **Lab 5 – ChatGPT in Code Generation and Debugging**

**Objective:** Generate and debug code using ChatGPT.

**Example:**

* **Code Generation:** Python program to check if a number is prime.
* **Debugging:** Fixed an error where = was used instead of == in a condition.

**Conclusion:** ChatGPT can create working code in multiple languages and identify syntax or logic errors efficiently.

## **Lab 6 – Domain-Specific Applications**

**Objective:** Use ChatGPT for a domain-specific task.

**Example – Educational Quiz Generation:** **Prompt:** Create 3 multiple-choice questions on World War II with answers.

**Output:**

1. Who was the UK Prime Minister during WWII?  
    a) Winston Churchill ✅  
    b) Neville Chamberlain  
    c) Clement Attlee  
    d) Margaret Thatcher
2. In which year did WWII begin?  
    a) 1935  
    b) 1939 ✅  
    c) 1941  
    d) 1945
3. Which countries formed the Axis Powers?  
    a) Germany, Italy, Japan ✅  
    b) UK, USA, USSR  
    c) France, Germany, Japan  
    d) Italy, UK, USA

**Evaluation:** Questions were accurate, clear, and suitable for educational use.

**Conclusion:** ChatGPT can produce reliable domain-specific outputs when guided with precise prompts.