# **Report on ChatGPT Labs**

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

**Objective:  
 To understand the fundamentals of ChatGPT, including its origin, working principles based on transformer architecture, capabilities, and applications across various domains.**

**Activities:**

* **Explored the ChatGPT interface to familiarize with its user interactions.**
* **Studied transformer architecture using visualization tools to understand how ChatGPT processes language.**
* **Identified real-world use-cases in education, healthcare, business, and creative fields.**

**Output:  
 Submitted a one-page summary explaining ChatGPT’s architecture, training on vast text data, and examples such as personalized tutoring in education, symptom-checking in healthcare, customer support automation in business, and creative writing assistance.**

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

**Objective:  
 To learn different prompt types—instructional, interrogative, zero-shot, and few-shot—and basics of prompt engineering for effective AI responses.**

**Activities:**

* **Experimented with zero-shot prompts (no examples given) vs few-shot prompts (provided examples) to observe differences in response quality.**
* **Designed prompts with increasing complexity by adding context, clear instructions, and formatting.**

**Output:  
 Compiled 5 examples each of zero-shot, few-shot, and instructional prompts, compared their results, and documented how few-shot prompting improved response relevance and accuracy.**

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

**Objective:  
 To extract structured data from ChatGPT responses by precise prompt design.**

**Activities:**

* **Asked ChatGPT to format outputs in JSON and tabular formats.**
* **Extracted specific data like contact information, resume sections, and keywords from unstructured paragraphs.**

**Output:  
 Presented prompts alongside ChatGPT’s structured outputs, evaluated accuracy of extracted data, and discussed formatting effectiveness for downstream processing.**

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

**Objective:  
 To apply ChatGPT for summarizing text and transforming writing style or tone.**

**Activities:**

* **Summarized news articles and research abstracts to capture key points.**
* **Rewrote emails in both formal and informal tones as per context.**

**Output:  
 Provided original texts alongside ChatGPT’s summaries and tone-transformed versions, highlighting improvements in clarity and appropriateness.**

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

**Objective:  
 To explore ChatGPT’s capability in generating and debugging programming code.**

**Activities:**

* **Generated code snippets in Python, C++, and Java based on prompts describing the functionality.**
* **Debugged provided faulty code snippets with ChatGPT’s assistance.**

**Output:  
 Compared generated and debugged codes with expected outputs, demonstrating ChatGPT’s usefulness in accelerating coding tasks.**

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

**Objective:  
 To utilize ChatGPT in specialized tasks tailored to particular professional domains.**

**Activities (select one):**

* **Simulated a medical chatbot for patient interaction.**
* **Summarized complex legal documents into concise points.**
* **Generated educational quizzes on specified topics.**

**Output:  
 Documented prompt design strategy and evaluated output quality relevant to the chosen domain, showcasing ChatGPT’s adaptability.**

# **Conclusion**

**These labs collectively provide a comprehensive hands-on understanding of ChatGPT—from its theoretical foundation to practical applications across various fields. Mastery of prompt engineering and precise instruction significantly enhances interaction quality, enabling ChatGPT to serve as a powerful assistant in education, healthcare, business, creative writing, and software development.**