# 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.**

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## 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.**

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# 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.**

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# 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.**

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# 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.**

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# 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.**

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# 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.**