Lab 1: Introduction to ChatGPT
How ChatGPT Works and Real-World Uses

Objective: Understand the basics of ChatGPT, its origin, capabilities, and real-worldApplications.

ChatGPT is a smart computer program made to understand and write human-like text. It was created by a company called OpenAI. The technology behind ChatGPT is called a "transformer," which helps the computer read and learn from lots of text so it can answer questions and have conversations.

ChatGPT works by predicting what words come next in a sentence based on what it has learned. It doesn't think like a person, but it uses patterns from the text it studied to give useful answers.

People use ChatGPT in many ways every day:

- **In Education:** Students ask ChatGPT for help with homework or to explain hard ideas simply. Teachers can use it to make quizzes or find new ways to teach.

- **In Health:** Doctors and nurses use ChatGPT to get quick information about diseases or medicines. It helps them make better decisions faster.

- **In Business:** Companies use ChatGPT to talk to customers online, write emails, or create ideas for new products.

- **In Creativity:** Writers, artists, and musicians use ChatGPT to get ideas, write stories, or even create new songs.

In short, ChatGPT is a helpful tool that uses smart technology to understand and write text. It makes many tasks easier and helps people in different fields by giving quick and clear information.

Lab 2: Types of Prompts and Prompt Engineering Basics

Objective: Learn types of prompts (instructional, interrogative, zero/few-shot).

1. Instructional Prompts→These tell the AI exactly what to do.

Examples:

- Write a story about a cat.

- List three exercise benefits.

- Explain how to make a sandwich.

- Describe today's weather.

- Translate "Hello" to Spanish.

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2. Interrogative Prompts→These ask questions to get information.

Examples:

- What is France's capital?

- How do plants grow?

- Why do we need sleep?

- When was the airplane invented?

- Who wrote "Harry Potter"?

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3. Zero-Shot vs Few-Shot Prompts

- **Zero-Shot:** AI gets a task without examples.

- **Few-Shot:** AI sees examples before the task.

Comparison

Type	Description	Result Quality
Instructional	Clear tasks	Direct, clear responses
Interrogative	Questions for info	Informative answers
Zero-Shot	No examples	Shorter, less precise
Few-Shot	Examples given	More accurate and detailed

Lab 3: Precision Prompting for Information Extraction

Objective: Extract structured data from ChatGPT responses.

Document Prompt (What you tell ChatGPT):

Example prompt:
"Please read this paragraph and give me the contact information of employee(like workname,salary,department,working years) and Format your answer in tabular format."

Output Accuracy and Format (What you check and expect):

● **Accuracy:**
   Did ChatGPT correctly find and list all the contact details (like phone number, email)?
   Did it correctly identify different parts of the resume?
   Did it pick important keywords from the paragraph?

● **Format:**
   Is the answer organized in JSON format, with clear labels for each piece of information?

2. Output (Tabular format)

Example Paragraph:

John Smith works as a software engineer at TechSolutions with a salary of $85,000 per year. He has been part of the development department for 5 years.

ChatGPT Response in Tabular Format:

Workname	Salary	Department	Working Years
John Smith	$85,000	Development	5

Lab 4: Summarization and Text Transformation

Objective: To use ChatGPT for performing two tasks:

1. Summarizing texts such as news articles or research abstracts.
2. Rewriting emails by changing the tone (formal ↔ informal).

Example 1: Summarization

Original News Article Excerpt:

"The city council approved a new green initiative yesterday aimed at reducing carbon emissions by 30% over the next five years. This plan includes planting 10,000 trees, expanding bike lanes, and investing in renewable energy sources. Officials say the project will create jobs and improve air quality."

Summary (using ChatGPT):

The city council approved a plan to reduce carbon emissions by 30% in five years through tree planting, bike lane expansion, and renewable energy investment. The project is expected to create jobs and improve air quality.

Example 2: Tone Transformation (Email rewriting)

Original Email (Informal):

Hey Mike,
 Can you send me the report by tomorrow? I need it for the meeting. Thanks!

Rewritten Email (Formal):

Dear Mike,
 I hope this message finds you well. Could you please send me the report by tomorrow? It is required for an upcoming meeting. Thank you in advance for your assistance.
 Best regards,
 [Your Name]

Lab 5: ChatGPT in Code Generation and Debugging

Objective: Explore how ChatGPT can assist in programming.

1. Code Generation

- ChatGPT writes code based on your request.
- Example:
  Request: "Add two numbers in Python"
  ChatGPT writes:

```python
def add(a, b):
    return a + b

print(add(2, 3))  # Output: 5
```

2. Debugging

- ChatGPT finds and fixes errors in your code.
  Example:
- Broken code and
- Fixed by ChatGPT:

```python
def add(a, b):
    print(a + b)

add(2, 3)  # Output: 5
```

```python
def add(a, b):
print(a + b)

add(2, 3)
```

Lab 6: Domain-Specific Applications

Objective: Use ChatGPT tasks.

Activity Chosen: Educational Quiz Generation

- **What I did:**
  Asked ChatGPT to create a short quiz on a topic (for example, basic math).

- **Prompt used:**
  "Create a 5-question easy quiz on basic addition and subtraction for kids."

- **ChatGPT's output:**

    1. What is 3 + 2?

    2. What is 5 - 1?

    3. What is 7 + 1?

    4. What is 6 - 3?

    5. What is 4 + 4?

Output Evaluation:

- The quiz questions are simple and clear.

- Good for children learning basic math.

- Shows ChatGPT can create helpful educational content.

Summary:

ChatGPT can be used in special areas by giving clear instructions. For example, it can make quizzes for education, summaries for law, or chatbots for medicine.