

ASSIGNMENT - 3

LAB - 1

1. Exploring the ChatGPT Interface

ChatGPT, developed by OpenAI, provides a clean and interactive interface for users to communicate with an advanced AI model. The interface includes a chat box, response area, sidebar for saved chats, and options to upload files or choose different AI models. I experimented with various prompts, such as questions, commands, and code requests. It allows for structured outputs (tables, JSON), context-aware answers, and tone modifications. The simplicity and responsiveness of the interface make it accessible for tasks ranging from casual conversations to technical problem-solving.

2. Studying Transformer Architecture

The core technology behind ChatGPT is the transformer architecture, introduced by Vaswani et al. It utilizes a mechanism called self-attention, which helps the model understand relationships between words in a sentence, regardless of order. I studied this using visual tools such as The Illustrated Transformer and Hugging Face's attention viewer. Concepts like multi-head attention, positional encoding, and encoder-decoder blocks were clearly demonstrated. These visuals helped me understand how ChatGPT processes and generates human-like text with high accuracy and context awareness.

3. Real-World Applications of ChatGPT

ChatGPT has powerful applications across various sectors:

Education: Generating quizzes, summarizing notes, explaining complex concepts in simple terms.

Healthcare: Simulating a medical assistant chatbot, summarizing patient records or articles.

Business: Writing professional emails, generating business reports, drafting marketing content.

Creativity: Writing poetry, stories, social media captions, and brainstorming content ideas.

1. Instructional Prompts

write poem on life

Here's a short, thoughtful poem on life:

Life's Journey

Life is a river, flowing free,
Twisting, turning, endlessly.
Sunshine bright and shadows deep,
Moments we hold, memories we keep.

Steps we take, both small and grand,
Paths unknown, we learn, we stand.
Through joy and sorrow, loss and strife,
We find our purpose, this is life.

2 * 2 solve

Let's solve it **step by step**:

- 1. The multiplication is 2×2 .
- 2. Multiply 2 by 2: $2 + 2 = 4$.

✔ Answer: 4

hello translate into Spanish.

The word "**hello**" in Spanish is:

Hola ✔

My name is john. My friend name is max. Extract all the proper names from this.

From the sentence:

"My name is John. My friend name is Max."

The **proper names** are:

- John
- Max ✔

Write a short email.

Here's a short email example:

Subject: Meeting Reminder

Hi Sarah,

Just a quick reminder about our meeting tomorrow at 10 AM. Please let me know if you need to reschedule.

Thanks,

John

2. Interrogative Prompts

What is the capital of France?


The capital of France is:

Paris 



How do you make a cup of coffee?

Here's a simple way to make a cup of coffee:

1. Boil **1 cup (240ml) of water**.
2. Add **1–2 teaspoons of ground coffee** to a cup or French press.
3. Pour the hot water over the coffee.
4. Stir and let it brew for **3–5 minutes**.
5. Strain (if using French press) and enjoy. 

Optional: Add sugar, milk, or cream as desired.


Why does the sun rise in the east?

The Sun rises in the east because **Earth rotates from west to east**.  

As the Earth spins, the Sun appears to move across the sky from east to west, making it **rise in the east and set in the west**.




When was the first computer invented?

The first programmable digital computer is generally considered to be **the ENIAC**, which was completed in **1945**. 

Earlier mechanical computers, like **Charles Babbage's Analytical Engine**, were designed in the 1830s but never fully built.

Who wrote the play Romeo and Juliet?

The play **Romeo and Juliet** was written by **William Shakespeare** 



3. Zero-shot Prompts

Translate 'Good night' into German



The translation of "**Good night**" into German is:

Gute Nacht ✓



Summarize the following text: 'The cat climbed the tree and got stuck, but the firefighter rescued it.'

Summary:

The cat got stuck in a tree and was rescued by a firefighter. ✓



Detect the language of this sentence: 'Je suis très content aujourd'hui.'

The language of the sentence "**Je suis très content aujourd'hui.**" is:

French ✓



Classify this sentence as positive, negative, or neutral: 'I am not happy with the service.'

The sentence "**I am not happy with the service.**" is:

Negative ✓

Answer this question: 'What is the largest planet in our solar system'

The largest planet in our solar system is:

Jupiter ✓

4. Few-shot Prompts

Translate English to Spanish: Hello → Hola, Thank you → Gracias, Good night →

The translation of "**Good night**" into Spanish is:

Buenas noches ✓



Classify sentiment: I love this! → Positive, This is bad. → Negative, I feel okay. →



The sentiment of "**I feel okay.**" is:

Neutral ✓

Solve math: $2 + 3 = 5$, $7 - 4 = 3$, $6 \times 2 = ?$

The solution to 6×2 is:

12 ✓



Summarize: The dog ran fast. → Dog ran, She cooked a meal. → She cooked, The cat climbed a tree →

The summary of "**The cat climbed a tree**" is:

Cat climbed tree ✓

Detect language: Hola → Spanish, Bonjour → French, Ich liebe Programmieren →

The language of "**Ich liebe Programmieren**" is:

German ✓

LAB - 3

Prompt:
Extract the following details from this paragraph and present them in a table:
"Anjali sharma has 5+ years of experience as a Data Scientist. He worked at Google from 2020 to 2023. He has skills in Python, Machine Learning, and SQL."

Output (Table):

Name	Experience	Role	Company	Years	Skills
Anjali Sharam	5+ years	Data Scientist	Google	2020 – 2023	Python, Machine Learning, SQL

LAB - 4

Activity 1: Summarize News / Research

Original Paragraph (News Example):

"The Indian Space Research Organisation (ISRO) successfully launched the Aditya-L1 mission on September 2, 2023. This is India's first solar mission aimed at studying the Sun's atmosphere, solar winds, and magnetic fields. The mission will help scientists better understand space weather and its impact on satellite communications and power grids on Earth."

Summarized Output:

- ISRO launched Aditya-L1, India's first solar mission, on Sept 2, 2023.
- Purpose: Study the Sun's atmosphere, solar winds, magnetic fields.
- Importance: Helps in understanding space weather and protecting Earth's satellites & power systems.

Activity 2: Rewrite Emails in Different Tones

Original Email (Informal):

"Hey, I just wanted to remind you about the project deadline tomorrow. Please send me your part by tonight so I can compile everything. Thanks!"

Formal Tone:

*"Dear Team Member,
This is a kind reminder regarding our project submission deadline scheduled for tomorrow. I kindly request you to share your portion of the work by tonight, so I can compile the final document. Thank you for your cooperation."*

Informal Tone (more casual):

"Hi, just a quick reminder — the project deadline is tomorrow. Please send your part tonight so I can put it all together. Thanks a lot!"

LAB - 5

Prompt:

Write a Python program to check if a number is prime.

```
def is_prime(num):
    if num <= 1:
        return False
    for i in range(2, int(num**0.5) + 1):
        if num % i == 0:
            return False
    return True

n = int(input("Enter a number: "))
if is_prime(n):
    print(f"{n} is a prime number.")
else:
    print(f"{n} is not a prime number.")
```

Expected Output :

```
Enter a number: 7
7 is a prime number.
```


LAB - 6

Prompt :

Generate a 5-question multiple-choice quiz on general knowledge students. Each question should have 4 options and the correct answer clearly indicated.ChatGPT Output (Quiz):

Question 1:

What is the largest planet in our solar system?

- A) Earth
- B) Mars
- C) Jupiter ✓
- D) Saturn

Question 2:

Which element has the chemical symbol **O**?

- A) Gold
- B) Oxygen ✓
- C) Silver
- D) Iron

Question 3:

Who wrote the play **Romeo and Juliet**?

- A) Charles Dickens
- B) William Shakespeare ✓
- C) Mark Twain
- D) Jane Austen

Question 4:

What is the capital city of Japan?

- A) Beijing
- B) Seoul
- C) Tokyo ✓
- D) Bangkok

Question 5:

Which of the following is a mammal?

- A) Shark
- B) Dolphin ✓
- C) Crocodile
- D) Eagle