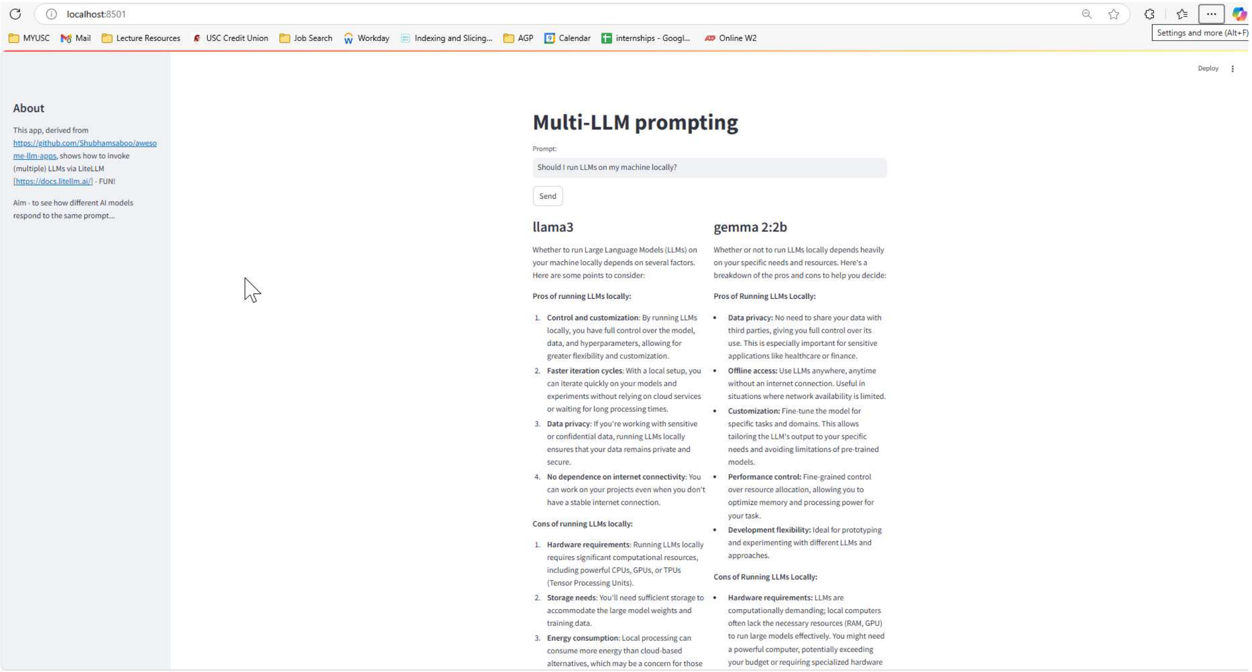
Shubham Darekar
USC ID: 1641138809

Question 1:

Prompt 1: Should I run LLMs on my machine locally?



About

This app, derived from https://github.com/Shubhamsaboo/awesome-llm-apps, shows how to invoke (multiple) LLMs via LiteLLM [https://docs.litellm.ai/] - FUN!

Aim - to see how different AI models respond to the same prompt...

Multi-LLM prompting

Prompt:

Should I run LLMs on my machine locally?

Send

llama3

Whether to run Large Language Models (LLMs) on your machine locally depends on several factors. Here are some points to consider:

Pros of running LLMs locally:

1. **Control and customization**: By running LLMs locally, you have full control over the model, data, and hyperparameters, allowing for greater flexibility and customization.
2. **Faster iteration cycles**: With a local setup, you can iterate quickly on your models and experiments without relying on cloud services or waiting for long processing times.
3. **Data privacy**: If you're working with sensitive or confidential data, running LLMs locally ensures that your data remains private and secure.
4. **No dependence on internet connectivity**: You can work on your projects even when you don't have a stable internet connection.

Cons of running LLMs locally:

1. **Hardware requirements**: Running LLMs locally requires significant computational resources, including powerful CPUs, GPUs, or TPUs (Tensor Processing Units).
2. **Storage needs**: You'll need sufficient storage to accommodate the large model weights and training data.
3. **Energy consumption**: Local processing can consume more energy than cloud-based alternatives, which may be a concern for those

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Whether or not to run LLMs locally depends heavily on your specific needs and resources. Here's a breakdown of the pros and cons to help you decide:

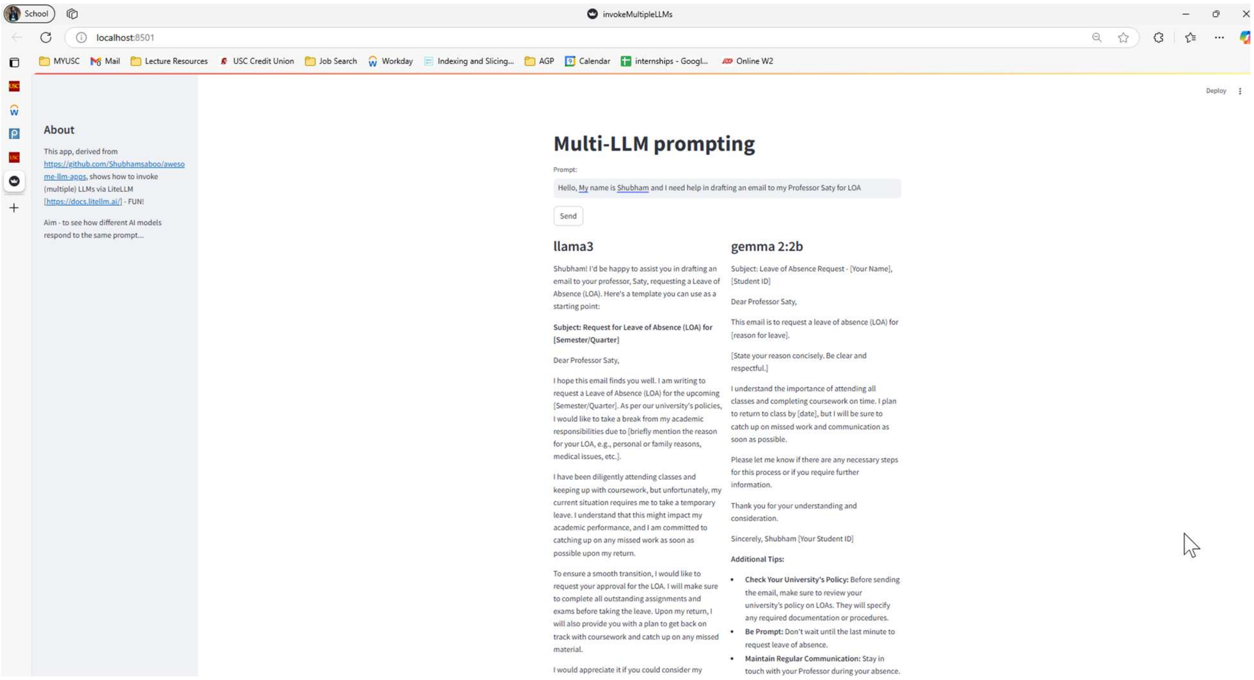
Pros of Running LLMs Locally:

- **Data privacy:** No need to share your data with third parties, giving you full control over its use. This is especially important for sensitive applications like healthcare or finance.
- **Offline access:** Use LLMs anywhere, anytime without an internet connection. Useful in situations where network availability is limited.
- **Customization:** Fine-tune the model for specific tasks and domains. This allows tailoring the LLM's output to your specific needs and avoiding limitations of pre-trained models.
- **Performance control:** Fine-grained control over resource allocation, allowing you to optimize memory and processing power for your task.
- **Development flexibility:** Ideal for prototyping and experimenting with different LLMs and approaches.

Cons of Running LLMs Locally:

- **Hardware requirements:** LLMs are computationally demanding; local computers often lack the necessary resources (RAM, GPU) to run large models effectively. You might need a powerful computer, potentially exceeding your budget or requiring specialized hardware

Prompt 2: Hello, My name is Shubham and I need help in drafting an email to my Professor Saty for LOA



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Prompt:

Hello, My name is Shubham and I need help in drafting an email to my Professor Saty for LOA

Send

llama3

Shubham! I'd be happy to assist you in drafting an email to your professor, Saty, requesting a Leave of Absence (LOA). Here's a template you can use as a starting point:

Subject: Request for Leave of Absence (LOA) for [Semester/Quarter]

Dear Professor Saty,

I hope this email finds you well. I am writing to request a Leave of Absence (LOA) for the upcoming [Semester/Quarter]. As per our university's policies, I would like to take a break from my academic responsibilities due to [briefly mention the reason for your LOA, e.g., personal or family reasons, medical issues, etc.].

I have been diligently attending classes and keeping up with coursework, but unfortunately, my current situation requires me to take a temporary leave. I understand that this might impact my academic performance, and I am committed to catching up on any missed work as soon as possible upon my return.

To ensure a smooth transition, I would like to request your approval for the LOA. I will make sure to complete all outstanding assignments and exams before taking the leave. Upon my return, I will also provide you with a plan to get back on track with coursework and catch up on any missed material.

I would appreciate it if you could consider my

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Subject: Leave of Absence Request - [Your Name], [Student ID]

Dear Professor Saty,

This email is to request a leave of absence (LOA) for [reason for leave].

[State your reason concisely. Be clear and respectful.]

I understand the importance of attending all classes and completing coursework on time. I plan to return to class by [date], but I will be sure to catch up on missed work and communication as soon as possible.

Please let me know if there are any necessary steps for this process or if you require further information.

Thank you for your understanding and consideration.

Sincerely, Shubham [Your Student ID]

Additional Tips:

- **Check Your University's Policy:** Before sending the email, make sure to review your university's policy on LOAs. They will specify any required documentation or procedures.
- **Be Prompt:** Don't wait until the last minute to request leave of absence.
- **Maintain Regular Communication:** Stay in touch with your Professor during your absence.

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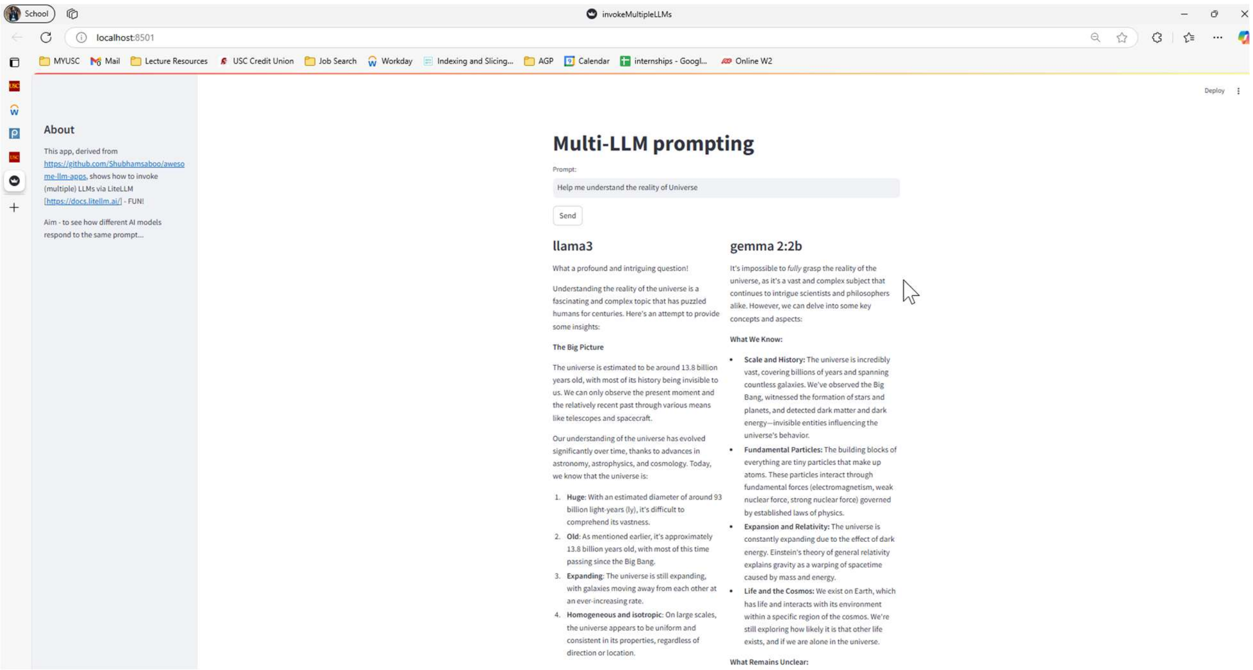
Prompt 3: Help me understand the reality of Universe



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Multi-LLM prompting

Prompt:

Help me understand the reality of Universe

llama3

What a profound and intriguing question!

Understanding the reality of the universe is a fascinating and complex topic that has puzzled humans for centuries. Here's an attempt to provide some insights:

The Big Picture

The universe is estimated to be around 13.8 billion years old, with most of its history being invisible to us. We can only observe the present moment and the relatively recent past through various means like telescopes and spacecraft.

Our understanding of the universe has evolved significantly over time, thanks to advances in astronomy, astrophysics, and cosmology. Today, we know that the universe is:

1. **Huge**: With an estimated diameter of around 93 billion light-years (ly), it's difficult to comprehend its vastness.
2. **Old**: As mentioned earlier, it's approximately 13.8 billion years old, with most of this time passing since the Big Bang.
3. **Expanding**: The universe is still expanding, with galaxies moving away from each other at an ever-increasing rate.
4. **Homogeneous and isotropic**: On large scales, the universe appears to be uniform and consistent in its properties, regardless of direction or location.

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It's impossible to *fully* grasp the reality of the universe, as it's a vast and complex subject that continues to intrigue scientists and philosophers alike. However, we can delve into some key concepts and aspects:

What We Know:

- **Scale and History:** The universe is incredibly vast, covering billions of years and spanning countless galaxies. We've observed the Big Bang, witnessed the formation of stars and planets, and detected dark matter and dark energy—invisible entities influencing the universe's behavior.
- **Fundamental Particles:** The building blocks of everything are tiny particles that make up atoms. These particles interact through fundamental forces (electromagnetism, weak nuclear force, strong nuclear force) governed by established laws of physics.
- **Expansion and Relativity:** The universe is constantly expanding due to the effect of dark energy. Einstein's theory of general relativity explains gravity as a warping of spacetime caused by mass and energy.
- **Life and the Cosmos:** We exist on Earth, which has life and interacts with its environment within a specific region of the cosmos. We're still exploring how likely it is that other life exists, and if we are alone in the universe.

What Remains Unclear:

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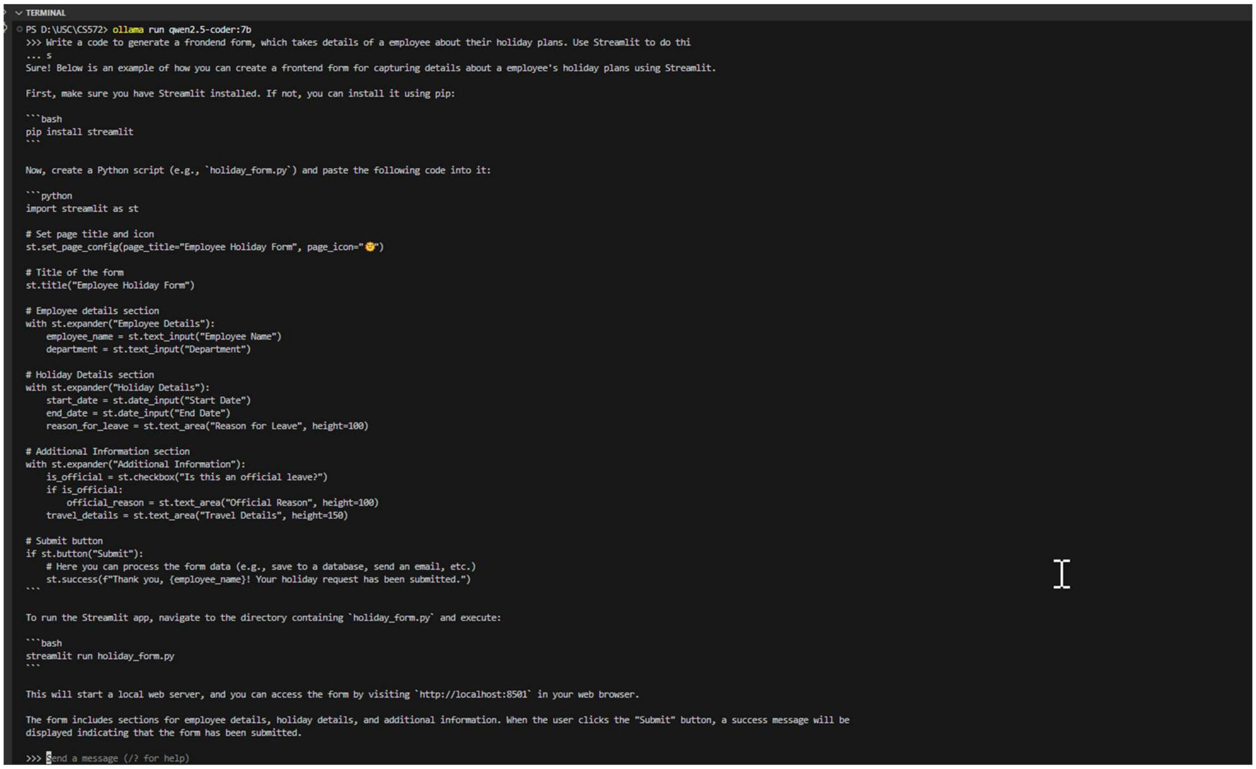
Question 2:

Prompt for frontend code: Write a code to generate a frondend form, which takes details of a employee about their holiday plans. Use Streamlit to do this



~~~
PS D:\USC\CS572> ollama run qwen2.5-coder:7b
>>> Write a code to generate a frondend form, which takes details of a employee about their holiday plans. Use Streamlit to do thi
... s
Sure! Below is an example of how you can create a frontend form for capturing details about a employee's holiday plans using Streamlit.

First, make sure you have Streamlit installed. If not, you can install it using pip:

```bash
pip install streamlit
```

Now, create a Python script (e.g., `holiday_form.py`) and paste the following code into it:

```python
import streamlit as st

# Set page title and icon
st.set_page_config(page_title="Employee Holiday Form", page_icon="🌞")

# Title of the form
st.title("Employee Holiday Form")

# Employee details section
with st.expander("Employee Details"):
    employee_name = st.text_input("Employee Name")
    department = st.text_input("Department")

# Holiday Details section
with st.expander("Holiday Details"):
    start_date = st.date_input("Start Date")
    end_date = st.date_input("End Date")
    reason_for_leave = st.text_area("Reason for Leave", height=100)

# Additional Information section
with st.expander("Additional Information"):
    is_official = st.checkbox("Is this an official leave?")
    if is_official:
        official_reason = st.text_area("Official Reason", height=100)
    travel_details = st.text_area("Travel Details", height=150)

# Submit button
if st.button("Submit"):
    # Here you can process the form data (e.g., save to a database, send an email, etc.)
    st.success(f"Thank you, {employee_name}! Your holiday request has been submitted.")
```

To run the Streamlit app, navigate to the directory containing `holiday_form.py` and execute:

```bash
streamlit run holiday_form.py
```

This will start a local web server, and you can access the form by visiting `http://localhost:8501` in your web browser.

The form includes sections for employee details, holiday details, and additional information. When the user clicks the "Submit" button, a success message will be
displayed indicating that the form has been submitted.

>>> Send a message (/? for help)
~~~

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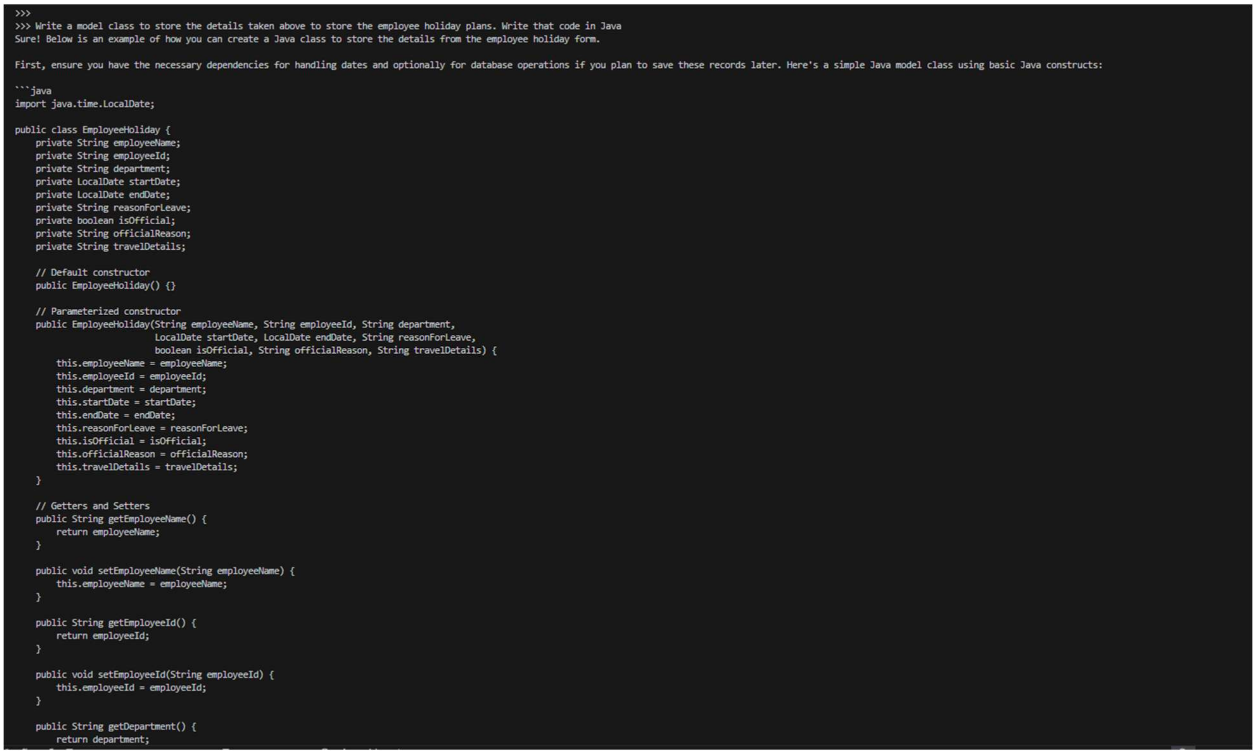
Prompt for class code: Write a model class to store the details taken above to store the employee holiday plans. Write that code in Java:



~~~
>>>
>>> Write a model class to store the details taken above to store the employee holiday plans. Write that code in Java
Sure! Below is an example of how you can create a Java class to store the details from the employee holiday form.

First, ensure you have the necessary dependencies for handling dates and optionally for database operations if you plan to save these records later. Here's a simple Java model class using basic Java constructs:

```java
import java.time.LocalDate;

public class EmployeeHoliday {
    private String employeeName;
    private String employeeId;
    private String department;
    private LocalDate startDate;
    private LocalDate endDate;
    private String reasonForLeave;
    private boolean isOfficial;
    private String officialReason;
    private String travelDetails;

    // Default constructor
    public EmployeeHoliday() {}

    // Parameterized constructor
    public EmployeeHoliday(String employeeName, String employeeId, String department,
                           LocalDate startDate, LocalDate endDate, String reasonForLeave,
                           boolean isOfficial, String officialReason, String travelDetails) {
        this.employeeName = employeeName;
        this.employeeId = employeeId;
        this.department = department;
        this.startDate = startDate;
        this.endDate = endDate;
        this.reasonForLeave = reasonForLeave;
        this.isOfficial = isOfficial;
        this.officialReason = officialReason;
        this.travelDetails = travelDetails;
    }

    // Getters and Setters
    public String getEmployeeName() {
        return employeeName;
    }

    public void setEmployeeName(String employeeName) {
        this.employeeName = employeeName;
    }

    public String getEmployeeId() {
        return employeeId;
    }

    public void setEmployeeId(String employeeId) {
        this.employeeId = employeeId;
    }

    public String getDepartment() {
        return department;
    }
~~~