



Module 3: Assignment 3

Leveraging LLMs Through APIs

Due Date: Thursday February 20th

Assigned – February 13th



Part A: Understanding LLM APIs (Short Answer Questions)

Exercise:

Q1: What are the advantages of using LLM APIs instead of training your own model?

Q2: Explain the differences between NLU, NLP, and NLG. How do these capabilities enhance an LLM-powered application?

Q3: Describe three key security best practices when integrating an LLM API into an application.

Q4: What is rate limiting, and why is it important when working with LLM APIs?

Q5: How can caching help optimize API usage and reduce costs when using an LLM API?



Part B: Practical Implementation

In this section, you will write Python code to integrate an LLM API and process user queries.

Task: Build a Simple LLM-Powered Summarization Tool

1. **Authenticate with an LLM API** (e.g., OpenAI, Google Gemini, DeepSeek, or another provider).
2. **Make an API request** to summarize a given text input.
3. **Implement basic error handling**, including rate limiting and invalid API key handling.
4. **Optimize token usage** by restricting the length of input text.

Code Requirements:

- Use Python and the requests or openai library to interact with the API.
- Load API keys securely (e.g., using environment variables).
- Log API responses and errors for debugging.
- Limit input text to optimize cost and performance (e.g., truncate text over 200 words).
- Display the summarized output in a user-friendly format.

Part C: Reflection

Write a short reflection (150–200 words) addressing the following:

1. What challenges did you face when integrating the API?
2. How did you ensure security in your implementation?
3. What optimizations could be made to improve the API request efficiency?

Submission Guidelines:

- A Python script (**summarization_api.py**) implementing the API integration.
- A document (**assignment_responses.pdf**) containing:
 - Short answers to Part 1
 - A summary of your implementation (Part 2)
 - Your reflection (Part 3)



How to Submit Assignment

To submit your assignment within the LMS:

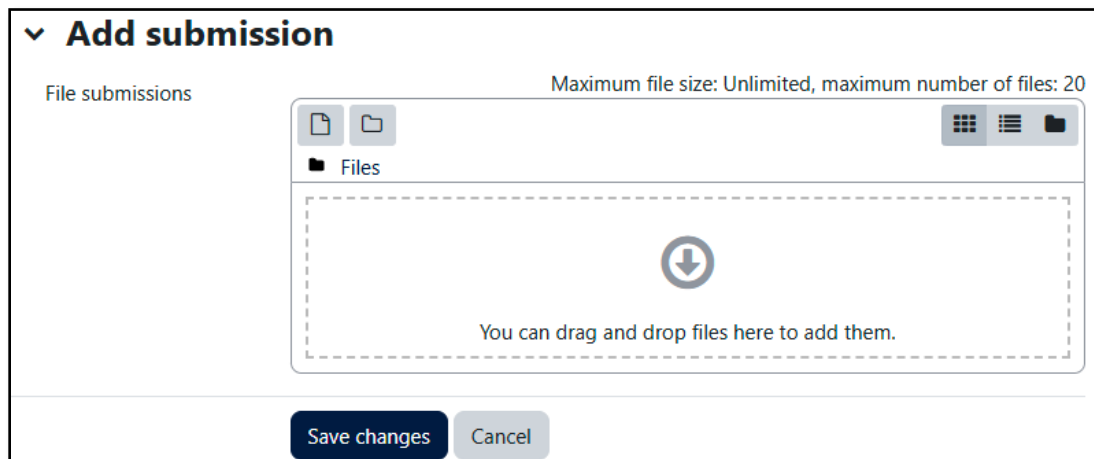
1. Click on the Assignment 3 within Module 3.



2. Click Add Submission

Add submission

3. Drag and drop your file (PDF or DOCX; .ipynb or .py) into the submission area or use the upload buttons to attach your file. **Multiple files can be uploaded at once.**



4. Choose Save Changes – this submits your assignment.
5. You are done.

Note: If you **do not** choose Submit Assignment, your submission will be saved as a draft.