

# Configuration Manual

MSc Research Project  
MSCAI1

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# Configuration Manual

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## 1 System Requirements

This project has made use of the following hardware and recommends to use the same. The recommended operating system used is Windows 10 (64-bit) but project can run with any other OS such as Linux and MacOS. Furthermore, the RAM used is 16GB but it is recommended to have minimum of 8GB RAM. The processor used for this project is intel i7 but it can work with intel i5 or any other equivalent.

## 2 Necessary Installs

The following things needs to be installed for running the project:

- Python 3.12 - The project has used Python 3.12 for the implementation. It is publicly available and can be downloaded from the Internet (Python; 2025).
- OULAD Dataset - The project uses OULAD dataset developed by Open University in the UK. It is also openly available and can be downloaded from the Internet (Kuzilek et al.; 2015).

## 3 Together.ai API Key Creation

The project has used the `Together.ai` platform for interaction with the LLMs. There is a need for API key to use the free APIs provided by the platform. Following steps needs to be followed to generate this API key:

1. Visit and signin on the platform: Together (Together AI; 2025) using google id, linkedin id or github id
2. Go to settings on your profile and click on option "API Keys". Once the tab is opened, click on "Add Key" option to create a new API Key.

## 4 Environmental Setup

1. First step is to create a python environment through our terminal using this command: `python -m venv env`
2. Next step will be to activate the python environment which we just created:  
`env\Scripts\activate`

3. Now the following libraries need to be installed using the pip command:  

```
pip install pandas numpy scikit-learn together python-dotenv matplotlib seaborn openpyxl
```
4. Create a .env file in the root folder and put the Together.ai API key using this:  

```
TOGETHER_API_KEY=<your_actual_api_key>
```

## 5 Running the project

This section discusses how to run the project successfully:

1. Create a new folder in the root directory of the project with the name of `data`. Within this folder, copy and paste all the OULAD dataset tables.
2. To create the final dataset, run the `notebooks\create_final_dataset.ipynb` file directory. It will automatically create a new excel file with name `Student_Information` and save it in the `data` folder. It will also create `prompting.csv` file which contains 5000 records out of `Student_Information.xlsx` file.
3. All LLMs have to be run independently. For running a LLM, let's say "DeepSeek LLaMA", navigate into the respective LLM folder `notebooks\DeepSeek`. Within each folder there are four files: `few_shot_prompting_list_based.ipynb`, `few_shot_prompting_text_based.ipynb`, `zero_shot_prompting_list_based.ipynb`, `zero_shot_prompting_text_based.ipynb`. Each file represents zero and few shot prompting technique applied to an LLM in two different ways of text based style and list-based style.
4. Run each file independently to receive the final accuracy score for each method. These files will run and store the results (prediction and reasoning) within the `results\DeepSeek \few_shot_prompting_list_based.csv`. This will happen for each model.
5. These resultant .csv files can be further analyzed to understand reasoning and predictions and to compare accuracy scores for these LLMs.
6. There is a file in notebooks directory: `per_class_and_binary_accuracy.ipynb`. This file can be run to calculate accuracies for binary classification and per-class classification

## References

- Kuzilek, J., Hlosta, M. and Zdrahal, Z. (2015). Open university learning analytics dataset.  
**URL:** <https://archive.ics.uci.edu/dataset/349/open+university+learning+analytics+dataset>
- Python (2025). Python 3.12.10 release.  
**URL:** <https://www.python.org/downloads/release/python-31210/>
- Together AI (2025). Together ai api.  
**URL:** <https://api.together.ai>