Valtteri Airaksinen

Project Requirements

TTV20SAI

Customer Project 1

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KAMK • University of Applied Sciences

1 Project requirements

For the project to be successful, one of the most critical requirements is the creation of well-written documentation on how to access the Finnish Meteorological Institute (FMI) interface and fetch various types of weather data. This includes clear, practical instructions for querying the API for key parameters such as temperature, precipitation, wind speed, and snow depth. Additionally, the documentation must provide guidance on transforming the retrieved data into a format that is compatible with the neural network pipeline used in the broader thesis project. This will ensure accurate integration into machine learning workflows and support the reusability and scalability of the solution for future applications.

From a technical perspective, the project requires a Python programming environment, and development will be carried out using Visual Studio Code—a lightweight yet powerful editor with strong support for Python and Git. Version control will be managed through a public GitHub repository titled *fmi-data-toolkit*, which will host all project code and documentation.

Given the academic context, the project also requires the creation of multiple formal documents, including a project plan, project requirements, use case diagram, sequence diagrams, a final report, and a lessons learned document. All documentation must be written in English to meet the course requirements and ensure accessibility to a broader audience.

2 Required timetable

Given the tight timeline and its direct connection to the completion of the final thesis, this project follows an accelerated schedule. Work officially began during the week of April 14th, 2025, with an immediate focus on setting up and testing the weather data collection process from the FMI interface. By the end of April 2025, the project must have a fully functioning data pipeline that successfully feeds weather data into the neural network model. This milestone is critical, as the results of the data integration directly support the thesis work.

Following this, the focus will shift to finalizing all project documentation. Essential documents—including the project plan, implementation instructions, and technical reports—must be completed by early May to allow time for review and incorporation into the thesis. The entire project must be concluded and submitted before mid-May, ensuring adequate time to wrap up the thesis. All coursework, including this project, must be marked as completed in the student registry by May 31, 2025, at the latest.

3 Required amount of work

The total workload required for the successful completion of this project is **200 hours**, in accordance with the course requirements. These hours will be thoroughly documented and categorized based on the specific tasks involved in the project.

The workload will be distributed across the following core activities:

3.1 Familiarization with the FMI Interface and documentation

A significant portion of the time will be allocated to studying the Finnish Meteorological Institute's open data API and its technical documentation. Understanding the structure, parameters, and data formats is essential for building reliable and flexible solutions.

3.2 Development of Data Fetching Solutions

Time will be spent designing, testing, and refining Python scripts that automatically retrieve different types of weather data (such as temperature, wind speed, precipitation, and snow depth) from the FMI interface.

3.3 Integration with the Neural Network Pipeline

Additional hours will be used to preprocess the data and ensure it is compatible with the neural network model developed as part of the student's final thesis. This includes verifying data quality, formatting, and implementing reliable feeding mechanisms.

3.4 Documentation and Reporting

A substantial amount of work is dedicated to writing clear and accessible documentation. This includes the creation of the course required documents and additional documentation which is created to make use of the FMI api easier. All documentation will be completed in English and maintained in a public GitHub repository for transparency and reusability.