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Project requirements

TTV20SAI

Customer Project 1

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**KAMK • University
of Applied Sciences**

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1 Project requirements

For the project to be successful the main goal is to have well documented and flexible functions to fetch various types of weather data from the Finnish Meteorological Institute (FMI) -interface. This data is then to be uploaded to an azure blob storage for later use in training the prediction model and other possible use cases. Additionally, some features need to be calculated, and a flexible temp sum calculations depending on the date of the sample and required data.

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 on the prediction models test phase in the summer of 2025, the calculation of effective temperature sum must be ready for use by the end of April. Other parts of this project such as collecting historical observations can be completed later, since FMI stores most of their data for 9 months before deleting it. Therefore, the deadline for the whole project is set at the end of August.

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 my final thesis. This includes calculating missing features and features that may be in the observations but not in the forecasts.

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.