Mini-Project Instructions

Python for Data Analytics and Statistics Metropolia University of Applied Sciences

2025

Project Overview

Each student must complete a mini-project in Python for Data Analytics & Statistics. You can choose to work individually or in a group of up to 3 students. If you work in a group, make sure all members agree on the project details and submit the form with identical information.

Complete the form to confirm your project details: Project Registration Form

Deadline: 9.4.2025 at 12:00 PM

Project Components

Components Breakdown

• Load the Dataset and Explore Basic Information

- Open and inspect the dataset.
- View the first few rows to understand its structure.
- Check for missing data and data types.

• Perform a Descriptive Summary

- Calculate basic metrics (mean, median, standard deviation).
- Identify trends (e.g., average values).
- Detect any unusual values or outliers.

• Perform a Time-Based Analysis

- Group data by time (e.g., hourly, daily, weekly).
- Identify trends, peaks, or seasonal patterns.

• Visualize Data

Create meaningful graphs and charts to present insights.

• (Optional) Predictive Analysis

- If you missed more than 2 hands-on exercises, you can compensate by doing a predictive analysis.
- Split the dataset into training and testing sets.
- Use variables to predict outcomes (e.g., regression-based predictions).

Sessions Covered

Relevant Sessions

To successfully complete the mini-project, refer to the previous sessions:

- Session 1 (5.3.2025) Python Basics, Data Types, File Handling.
- Session 2 (13.3.2025) NumPy & Pandas, Data Cleaning, Time-Series Analysis.
- Session 3 (19.3.2025) Descriptive Statistics, IQR, Outliers.
- Session 4 (26.3.2025) Probability Distributions, Hypothesis Testing.
- Session 5 (2.4.2025) Correlation, Regression Analysis.
- Session 6 (9.4.2025) Matplotlib & Seaborn for Visualization.
- Session 7 (16.4.2025) Mini-Project Walkthrough.

Submission Guidelines

Submission Instructions

- Upload your Python script (.py) or Jupyter Notebook (.ipynb) to GitHub.
- Submit your GitHub link via the project form.
- Submit your project at: Metropolia Submission Link.
- **Deadline:** 22.4.2025 at 12:00 PM.

Final Presentation (23.4.2025)

Presentation Details

- Time Limit: 5-10 minutes.
- Present your code or prepare a short slide deck (5-7 slides).

GitHub Requirement

GitHub Instructions

- If you don't have a GitHub account, create one immediately.
- \bullet Watch this tutorial on how to set up GitHub: How to Create a GitHub Repository.

Contact Instructor

Instructor Contact

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Instructor – Python for Data Analytics & Statistics

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