



# Week 12

## Introduction to Programming and Numerical Analysis

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## Overview

- Pandas and problem set 3
- Some words about the data project
- Work on problem set 3 or inaugural project

# Pandas

- **Data Structures:**

- Series: 1D labeled array
- DataFrame: 2D labeled data structure with columns of potentially different types

- **Key Operations:**

- Data manipulation: slicing, indexing, merging, reshaping
- Missing data handling: fillna, dropna
- Grouping: groupby, agg, transform
- Time series analysis: resampling, rolling windows, shifting
- Input/Output: read/write data from/to various formats
- Custom functions: apply, applymap, map for custom data transformations

## Problem set 3

- Change `plt.style.use('seaborn-whitegrid')` to `plt.style.use('seaborn-v0_8-whitegrid')`
- Change `values()` to values in task 10

## Data project

- Your data-work-skills will be required during the data project
- Download data from an online source and do some empirical analysis (key figures and graphs)
- If you want to do some regressions you can use `statsmodels` (a nice figure is just as good)