Week 1 – Practical Example

For the first week, the programming part focuses on understanding how to design a network with Python, how to visualize it, and how to measure network properties like node degrees.

This will be done with NetworkX, a library for Python.

For this week it is enough to install NetworkX and try to run and understand the provided notebook.

What is NetworkX?

NetworkX is a Python library for the creation, manipulation, and analysis of complex networks and graphs. It provides tools to study structural properties of networks, compute centrality measures, visualize graphs, and model real-world systems using graph theory.

Features of NetworkX

- Supports directed, undirected, and multigraphs.
- Offers a variety of algorithms for graph analysis (shortest paths, clustering, connectivity, etc.).
- Provides built-in methods for visualizing networks.
- Can handle weighted and unweighted edges.
- Works well with other scientific computing libraries like NumPy and SciPy.

How to Install NetworkX

NetworkX can be installed using pip or conda. Since installation steps can vary depending on the operating system, it is best to follow the official installation guide.

However, for quick installation, you can use one of the following commands:

Using pip (Recommended)

```
pip install networkx
```

Using conda (if using Anaconda)

```
conda install -c conda-forge networkx
```