General Instructions

Objective: In this lab, you'll practice some concepts of set theory using Python in Jupyter.

1 Python Setup

1.1 Setup Jupyter Notebook for Python

- Set up your system to create your first Jupyter notebook.
- Suggested path: Create a free Anaconda Cloud account and launch a sample Jupyter notebook.

1.2 Download and Upload Notebook

- Download the Jupyter notebook from Canvas.
- Upload the downloaded notebook to your Anaconda environment.
- Modify it as necessary.

2 Lab Tasks

1. Execute the code cells in the "Introduction to Sets in Python" section.
2. Follow the comments to practice adding elements, testing membership, and checking subset/superset relationships.
3. Execute the code cells in the "Set Operations (Union, Intersection, Difference)" section.
4. Follow the comments to create your own sets and perform these operations.
5. Execute the code cells in the "Ordered Pairs and Cartesian Products" section.
6. Follow the comments to define different sets and compute their Cartesian product.
7. Plot the Cartesian product on a Cartesian plane as instructed.
8. Execute the code cells in the "Relations" section.
9. Follow the comments to define and print different relations.
10. Execute the code cells in the "Functions (Mathematical Definition)" section.
11. Follow the comments to define other functions and check their properties.