

Knowledge Graphs

Exercise Sheet 0: Introduction to Python

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Exercise 1

Make sure that `git`¹ and `git-lfs`² are installed in your computer.

Exercise 2

Find a Python 3 interpreter and a suitable code editor for your platform and make sure they are installed on your computer.

Exercise 3

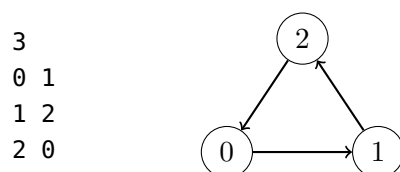
Write a (Python) program that takes as input a directed graph in the format given below, and prints out all vertices that have maximal out-degree. The input should be read from a file given as a command-line argument.

The file format is as follows:

$$\begin{array}{ll} n & \\ s_1 & t_1 \\ s_2 & t_2 \\ s_3 & t_3 \\ \vdots & \vdots \\ s_m & t_m \end{array}$$

The first line consists of a single integer n , the number of vertices of the graph. Each of the following lines consists of two integers s_i and t_i , specifying an edge from vertex s_i to vertex t_i , separated by a space. Vertices are numbered $0, 1, \dots, n-1$.

As an example, the following input encodes a directed triangle:



Data files are available on Github³.

¹<https://git-scm.com/>

²<https://git-lfs.github.com/>

³<https://github.com/knowsyst/Course-Knowledge-Graphs/tree/main/data/simple-graphs>

Exercise 4

Modify your program to compute the vertices of minimal in-degree instead.