

Exercise Sheet 0: Introduction to Python

Maximilian Marx, Markus Krötzsch
Knowledge Graphs, 2021-10-19, Winter Term 2021/2022

Exercise 0.1. Make sure that `git`¹ and `git-lfs`² are installed in your computer.

Exercise 0.2. Find a Python 3 interpreter and a suitable code editor for your platform and make sure they are installed on your computer.

Exercise 0.3. 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.

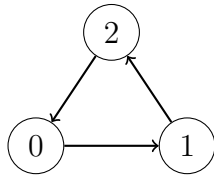
The file format is as follows:

```
n
s1 t1
s2 t2
s3 t3
⋮ ⋮
sm tm
```

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:

```
3
0 1
1 2
2 0
```



Data files are available on Github³.

Exercise 0.4. Modify your program to compute the vertices of minimal in-degree instead.

¹<https://git-scm.com/>

²<https://git-lfs.github.com/>

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