K-Plex Enumeration README

Usage:

*To run specific experiments see **experiments** sections.*

This folder contain both the k-plex lib which is used to enumerate the k-plexes, and kplex.py which includes running examples of how to use the kplex_lib.

Note that these files **are not compiled** (to avoid incompatibility issues) hence you can see a longer running time, if you want to get better running time you should compile the python files to a version that **matches** you platform.

kplex.py also provides you a command line tool to run basic kplex enumeration.
You can also run the example program by calling kplex.py directly from python
Make sure that **snap.py** and all other **.py** files in this folder are in the same folder as **kplex.py**.

Usage:
Use python kplex.py args to run the program:
For example to run the algorithm on a graph with 1000 nodes and 10000 edges use:
python kplex.py --n=1000 --m=10000 --k=5 --type="all" --num_of_kplex=1000 --output=”output_file”

To find k-plexes in a specified graph use:
python kplex.py —file=“my_graph_file.graph” --k=5 --type="all" --num_of_kplex=1000

The expected graph format:
Nodes are represented by a unique id (integer)
Each line in the file represents an edge by 2 nodes with a tab between them: v1 v2
You can see examples of the graph format under the folder graphs.

The kplex.py file contains many examples of how to use the kplex libraries.

Experiments

To run the experiments you need to specify the specific experiment you want.
The output will be found in a csv file and in a txt with the name of the experiment (in the folder of the py files)

- **Comparison with state of art**
  python kplex.py --type="all" --experiment="comparison"

- **Varying Node Size**
  python kplex.py --type="all" --experiment="nodes"

- **Varying Edge Density**
  python kplex.py --type="all" --experiment="edges"

- **Varying k**
  python kplex.py --type="all" --experiment="k"

- **Varying Number of Results**
  python kplex.py --type="all" --experiment="results"

- **Connected versus Unconnected k-plexes**
  python kplex.py --type="all" --experiment="connected"

- **Non-synthetic Datasets**
  python kplex.py --type="all" --experiment="non-synthetic "