Data Science HW # 6

K-core decomposition

Submission Deadline:

2019/1/21 23:59

Goal

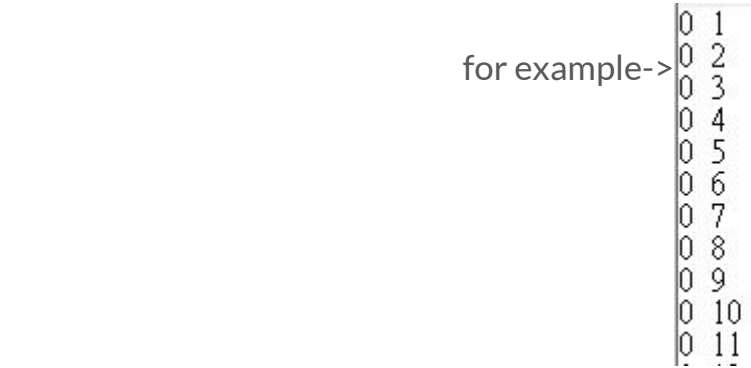
- given a undirected graph
- find the largest core of the graph within 30sec
    - largest core mean a core which has the largest number of nodes

Requirements

- Implement with python3.6
- Strictly follow input/output formats
- the build in function in library is not allowed, k-core decomposition should be build from scratch
- plagiarism is not allowed
    - You can refer to the codes on GitHub or anywhere else
    - But you need to write your own code

Input File Format

- one edge each line
- each number represent a node id and a spacebar represent there is a edge connected.

for example-> 

0-1,0-2

Output File Format

- output the nodes of the largest core you can find and output to a txt file
- remeber the program need to be terminated automatically before time limit
- each line represent a node
- output should be in ascending order

Sample output:

```
0
1
2
3
4
5
6
7
8
9
10
```

testing enviourment

- OS: Window 10
- CPU: i7-7700
- RAM:16GB

testing

- Python code
  - 執行 : python [py檔] [inputFile(測資)] [outputFile]

    please remember end your program when reach time limit: 30 sec.

作業繳交格式與命名

上傳
壓縮檔命名 : “學號_HW6.zip”

- 資料夾內含
  - python主程式，請統一命名為 “main.py”
  - 其餘你所需要的 py檔
  - readme
- 列出使用的library
- 其中若有非常用的 library，請在此詳述使用原因

評分方式

- 執行時間若超出30秒會強制結束程式，若沒有output會直接0分
- 依找到的core size為評分標準
  - size>1200:100
  - size>1000:85
  - size>800:70

dataset

Node:82168

edge:2907369