IEMP - Stage2

Information Exposure Maximization (IEM) is an important algorithmic problem that is proposed to solve the echo chamber effect on social media. In this project, you need to design two search algorithms, one heuristic algorithm and one evolutionary algorithm (or simulated annealing algorithm), to solve the IEM problem.

Stage1:Objective evaluation (2.0 points) Submit: Evaluator.py

Stage2:Heuristic algorithm (6.5 points) Submit: IEMP_Heur.py

Stage3:Evolutionary algorithm or simulated annealing algorithm (6.5 points) Submit: IEMP_Evol.py

Test Environment

1. Operation System: Debian 10
2. Server CPU： 2.2GHz*2, **8-core total**
3. Python version: 3.9.7

Allowed libraries

- numpy
- pandas
- networkx

For **stage 2**, there are **5 test cases** in total:

Case No.	Nodes	Edges	Baseline TL	Higher TL
case 0	475	13289	60s	20s
case 1	36742	49248	540s	360s
case 2	36742	49248	540s	360s
case 3	7115	103689	420s	300s
case 4	3454	32140	360s	270s

case0~case2 have been released to you.

Detail requirement for case 0 ~ case 2:

Case No.	Baseline	Higher requirement	Baseline TL	Higher TL
case 0	430	450	60s	20s
case 1	35900	36035	540s	360s
case 2	36000	36210	540s	360s

TL: short for Time Limits

Grading:

take **case 0** for example,

point = 0

1. First check if satisfy the input and the output requirements,

- yes add 0.1 to point
- no return 0

2. Evaluate your output(the balanced seed sets) and get the objective value:

- If the objective value >= 430(Baseline) AND the running time <= 60(Baseline TL), add 0.9 to point.
- If the objective value >= 450(Higher requirement) OR the running time <= 20(Higher TL), add 0.3 to point.