Written by Wooram Heo(

[modesty83@kaist.ac.kr](mailto:modesty83@kaist.ac.kr)

[modesty83@gmail.com](mailto:modesty83@gmail.com)

\* Some of the algorithms implemented in this package are under US patent application. Please use it only for academic purposes.

\* This document was written based on USAGE file which has been written by Chi Wang ([chiwang1@illinois.edu](mailto:chiwang1@illinois.edu)).

README – usage of max\_influence.exe

**Command:**

max\_influence.exe [-b|-g|-p|-m] < inputfile

* -b : baseline(random, degree, degreediscountIC, weighteddegree, pagerank) for general ic model
* -g : greedy, SPM and SP1M for general ic model
* -p bound1 bound2 : PMIA with 1/theta from bound1 to bound 2
* -m bound1 bound2 : MIA with 1/theta from bound1 to bound 2
* -ir alpha1 alpha2 : IR with alpha from alpha1 to alpha2 increasing alpha by 0.1
* -irie alpha1 alpha2 : IRIE with alpha from alpha1 to alpha2 increasing alpha by 0.1

Example:

max\_influence.exe -p 20 1000 < dm.inf

Example input:

15233 58891 ---------> #nodes #edges(undirected)

1 2 2.380952e-002 2.500000e-001

58891\*2 lines

u v

v u

2 1 2.500000e-001 2.380952e-002

3 4 7.692308e-002 5.000000e-001

4 3 5.000000e-001 7.692308e-002

…

15232 15233 3.127006e-001 3.127006e-001

15233 15232 3.127006e-001 3.127006e-001

sample script file : max\_influence\_IRIE-5\_t-1/Release/run.bat

**Output:**

* For –b
  + Random.txt, pagerank.txt, degree.txt, degreediscount\_ic.txt, weighteddegree.txt  seed ids by each algorithm

Example:

8336

14699

34455

7728

49

1686

12076

6130

* GC\_Random.txt, GC\_Degree.txt, gc\_DiscountIC.txt, GC\_pagerank.txt, GC\_WeightedDegree.txt

–> influence results for each algorithm.

Example:

01 64.2865  -> k influence by k seeds

02 96.0239

03 234.117

04 271.649

05 292.513

06 333.405

07 368.795

08 390.621

* + Time\_{method}.txt

–> running time measured by seconds

Example:

0.304945

* For –g
  + greedy.txt, spm.txt, sp1m.txt
  + GC\_greedy.txt, GC\_spm.txt, GC\_sp1m.txt
  + time\_greedy.txt, time\_spm.txt, time\_sp1m.txt
* For –p
  + PMIA\_bound1.txt, …, PMIA\_bound2.txt

–> seed ids by PMIA with Θ = 1/bound1, … 1/bound2

Example:

PMIA\_20.txt, PMIA\_40.txt, PMIA\_80.txt, PMIA\_160.txt, PMIA\_320.txt, PMIA\_640.txt

* + GC\_PMIA\_bound1.txt, … GC\_PMIA\_bound2.txt
  + time\_PMIA\_bound1.txt, … time\_PMIA\_bound2.txt
  + PMIA\_control.txt

Summary of PMIA. Example:

1.20692 4796.59 10  -> time influence 1/ Θ

3.5751 4806.64 20

2.94705 4834.97 40

5.37978 4843.11 80

11.3156 4857.26 160

27.1809 4856.55 320

52.2689 4855.47 640

94.1349 4854.9 1280

* For –m
  + MIA\_bound1.txt, …, MIA\_bound2.txt
  + GC\_MIA\_bound1.txt, … GC\_MIA\_bound2.txt
  + time\_MIA\_bound1.txt, … time\_MIA\_bound2.txt
  + MIA\_control.txt
* For –ir
  + IR\_alpha1\_filename.txt, …, IR\_alpha2\_filename.txt

–> seed ids by IR with alpha = alpha1, …, alpha2

Example:

IR\_0.1\_wc\_Ca-GrQc.txt, IR\_0.2\_wc\_Ca-GrQc.txt, … , IR\_0.9\_wc\_Ca-GrQc.txt

* For –irie
  + IRIE\_alpha1\_iterationbound\_filename.txt, …, IRIE\_alpha2\_iterationbound\_filename.txt

–> seed ids by IRIE with alpha = alpha1, …, alpha2

Example:

IRIE\_0.1\_i3\_wc\_Ca-GrQc.txt, IRIE\_0.2\_i3\_wc\_Ca-GrQc.txt, … , IRIE\_0.9\_i3\_wc\_Ca-GrQc.txt

* + sim\_IRIE\_alpha\_iterationbound\_filename.txt

–> influence results for each algorithm.

Example:

01 64.2865  -> k influence by k seeds

02 96.0239

03 234.117

04 271.649

05 292.513

06 333.405

07 368.795

08 390.621

* + time\_IRIE\_iterationbound\_filename.txt

–> running time measured by seconds

Example:

0.204215 alpha1

0.256462 alpha1+0.1

…

0.312221 alpha2