TIME COMPLEXITY COMPARISON OF FIVE COMMUNITY DETECTION ALGORITHM

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| --- | --- | --- | --- | --- | --- |
| Community Deetection Algorithm | Girvan-Newman | Fast-Greedy | ScaleFreeCDA | Louvian | Infomap |
| Time Complexity(Worst Case) | *O(m2n)* | *O((m+n)n)* | *O(mlogn)* | O*(nlogn)* | *O(m)* |

**Notation:**

**m** denotes the number of edges in graph.

**n** denotes the number of vertices in graph.

SUMMARY OF NETWORK DATASETS AND THE NUMBER OF

COMMUNITIES DETECTED BY ***GIRVAN-NEWMAN, FAST GREEDY, SCALEFREE, LOUVAIN ALGORITHM AND INFOMAP***

|  |  |  |
| --- | --- | --- |
| Real Networks | Number of Nodes/Edges/Real Communities | Number of communities detected by the five algorithms |
| Football network | 115/613/12 | 10/6/12/10/12 |
| Blog network | 1490/1671/2 | 205/10/2/9/207 |
| Zachary’s network | 34/78/2 | 5/3/2/4/3 |
| Dolphin’s network | 62/159/2 | 5/4/4/5/6 |