Raport Tema 3

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Cele 2 aborgari pentru Graph Coloring Problem au fost Particle Swarm Optimization (PSO) si Genetic Algorithm (GA). Abordarile au fost inspirate dupa articolele:

* PSO:<http://repository.vnu.edu.vn/bitstream/VNU_123/32103/1/9.pdf>
* GA:<https://www.researchgate.net/publication/220089079_Genetic_Algorithm_for_Graph_Coloring_Exploration_of_Galinier_and_Hao's_Algorithm>

Comparand abordarile, avand maxim 5 minute per rulare, avem urmatoarele rezultate:

|  |  |  |  |
| --- | --- | --- | --- |
| Graf | Nr. Culori PSO | Nr. Culori GA | Nr Culori Optime |
| myciel7 | 8 | 8 | 8 |
| fpsol2.i.1 | 65 | ? | 65 |
| fpsol2.i.2 | 30 | ? | 30 |
| fpsol2.i.3 | 30 | ? | 30 |
| miles1000 | 43 | 42 | 42 |
| miles1500 | 73 | 73 | 73 |
| inithx.i.1 | 54 | ? | 54 |
| inithx.i.2 | 31 | ? | 31 |
| inithx.i.3 | 31 | ? | 31 |
| queen7\_7 | 10 | 7 | 7 |
| queen9\_9 | 12 | 10 | 10 |
| queen11\_11 | 15 | 13 | 11 |

Din observatiile noastre, GA obtine rezultate mai bune decat PSO pe grafuri cu numar mai mic de noduri, dar mai dense. PSO obtine rezultate mai bune decat GA pe grafuri de dimensiuni mai mari (nr noduri).