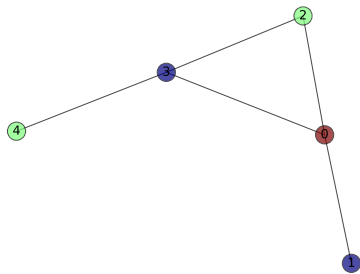


A few examples of the performance and the effectiveness of the implemented *Ant Colony System* on graph colouring problems, in comparison to *Genetic Algorithm*:

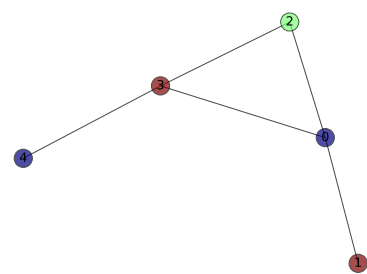
- ACO parameters: num_ants=10, iter=10, alpha=1, beta=3, decay=0.5
- GA parameters: population=50, generations=1000

Solutions:

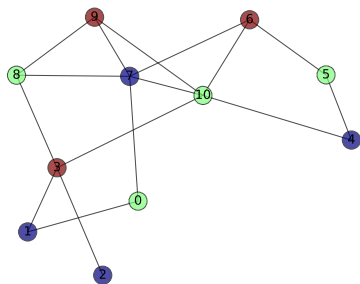
ACO solution - 3 colours - 4.48 ms



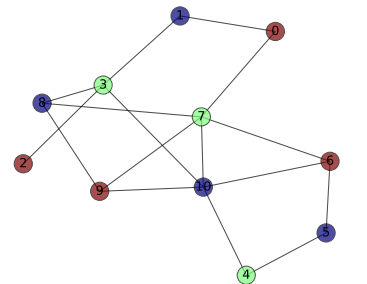
GA solution - 3 colours - 181.86 ms



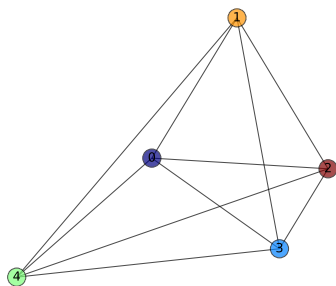
ACO solution - 3 colours - 26.27 ms



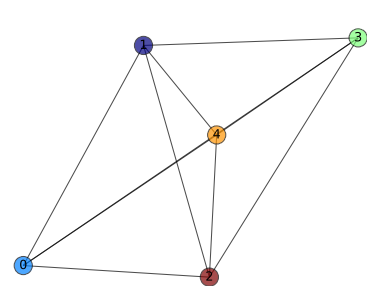
GA solution - 3 colours - 359.29 ms



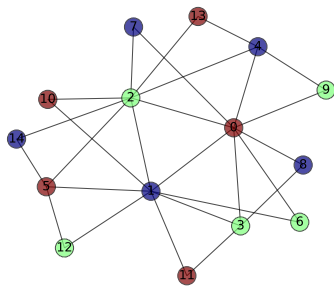
ACO solution - 5 colours - 4.61 ms



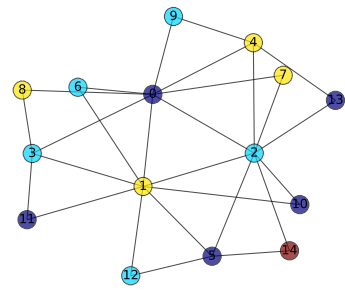
GA solution - 5 colours - 369.71 ms



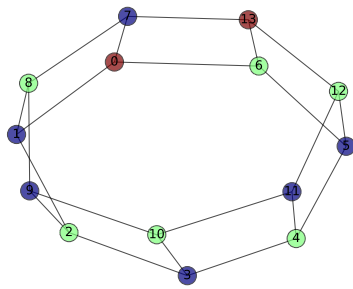
ACO solution - 3 colours - 54.29 ms



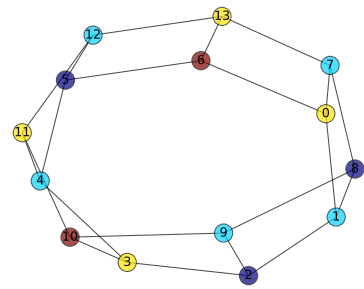
GA solution - 4 colours - 1367.98 ms



ACO solution - 3 colours - 45.13 ms



GA solution - 4 colours - 689.78 ms



Effectiveness of the colouring and the runtimes on 30 random *Dorogovtsev-Goltsev-Mendes* graphs of complexity 3:

