How to Use This Code

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1. Language

This program is made from **Matlab 2016a**. Because graph function, which is introduced in Matlab 2016a, is used in `generateGraph.m` file, you should run the program with Matlab 2016a or later edition, otherwise you have to do a few changes on `generateGraph` function.

2. For What Problem?

This program is using discrete artificial bee colony algorithm to solve graph 3-coloring problem. Discrete ABC is proposed in my conference paper and the method generating a random graph has been introduced in section 2 of genetic algorithm project document. Please check that document for details and keep in mind that the only difference of the method generating a random graph is the programming language.

3. Run it!

Before running this program, you should put the all 4 files (`generateGraph.m`, `objfunc.m`, `sabc.h` and `test.m`) in a same directory.

File name	Description
`generateGraph.m`	Generating a random graph
`objfunc.m`	Calculate the fitness of a solution for a given graph
`sabc.h`	Implementation of discrete ABC
`test.m`	Running script, just like `main` function in C

Then, type "`test`" in Matlab Command Window and Enter, you can get results which are similar with the results in my paper.

Note: if you have not Matlab, you can also open `XX.m` file as a text.

4. Reference

The algorithm in the project is identical to that in my paper: "Kui Chen and Hitoshi Kanoh, *A Discrete Artificial Bee Colony Algorithm Based on Similarity for Graph Coloring Problems*, TPNC 2016". Please check it for more details.

Any Question and Advice Are Welcome! Thank You!