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5/2/13

MapColorer Write-Up

 **Map coloring from args**

* Make a Java program, *MapColorer*, that outputs a four-coloring for any given planar map **or** a message indicating that it is impossible (i.e., that the given input does not constitute a planar map).
* Your program will get all of its input from the args. *args[0]* will specify the number of countries, presumed to be indexed from zero. The remaining args will be pairs of ints identifying pairs of adjacent countries.

 **Map coloring from standard input**

* Make a second Java program, *MapColorer2*, that works exactly as above **except** that it gets all of its input from the *standard input device*. This will enable us to provide input via the keyboard; better yet, we can prepare input files and direct them to the program from the command line. There are several ways to accomplish this; one method is described in Doing Standard I/O in Java.
* The first line of the input file will specify the number of countries (a single int). Each remaining line will consist of a pair of ints which specify a pair of adjacent countries. As before, countries are indexed from zero.

**Major Implementation Issues**:

NewMapColorer, which uses standard input, was more difficult for me. This is primarily due to the fact that I had to execute the backtracking manually rather than let the hardware do it as is done in MapColorer. One issue I have with NewMapColorer was having to create a colorIndex method. I was trying to avoid having to change the colors from strings to ints but was unable to find an efficient way to solve the problem without doing so.

In both cases, I initially forgot to reset the countries that were being backtracked back to null, which caused some test cases to come out as impossible maps when an answer should have been provided. Other than that, I did not have many major issues.

**Known bugs**:

Other than the problems that occur if a user attempts faulty input, I was unable to find any bugs in either my recursive or iterative program.

P.S. Thanks for a great year ☺