Technische Universität München Fakultät für Informatik Lehrstuhl für Effiziente Algorithmen Prof. Dr. Ernst W. Mayr Chintan Shah, Chris Pinkau, Jeremias Weihmann, Johannes Krugel Sommersemester 2012 Aufgabenblatt 7 04.06.2012

## Praktikum Diskrete Optimierung

Due Date: Monday, 11th June 2012, 12:00

## Aufgabe 1 (Planar graph coloring coloring)

Consider a strongly connected graph G = (V, E). Implement and animate the third greedy algorithm from the tutorial, in a way that a "good" coloring is achieved in time  $O(|V|\log|V|+|E|)$ . The nodes should be displayed in their respective color and should be labelled with their respective position in the ordering  $\sigma$ . After termination of the algorithm, the number of colors used is displayed.

## Hints

As input for your algorithm, use the undirected graphs color1.gw to color6.gw. Graphs color1.gw to color4.gw are planar, the other two are general graphs.