Design and Analysis of Algorithms WS 2017/18
11th Assignment

Surname: ________________  Firstname: ________________  Matr.No.: ________________

Remark: Please note that it is mandatory to write the exercise on this assignment sheet, legibly, and in logical order. Please observe also the remarks in the course as well as on the homepage. The deadline for this exercise is Tuesday, 16.01.2018, 13:00.


1. Design an efficient algorithm to decide whether a given triangulation with $n$ points is 3-colorable.

The triangulation is given by a sorted edge list, where every edge is given by the indices of its two end points. Further, for every edge there are given the indices of the points with which the edge forms a triangle in the triangulation (two indices for interior edges and one index for edges on the boundary of the convex hull). See Figure 1 for an example.

![Figure 1: Example of a triangulation an its edge / triangle point list.](image)

Explain your algorithm in detail, analyze its runtime and memory requirements, and give reasons for the correctness of your solution.