

# Analysis of Algorithms: Assignment 8

Due date: April 9 (Wednesday)

## Problem 1 (5 points)

Write efficient algorithms for converting (a) an adjacency-list representation of a graph into an adjacency matrix and (b) an adjacency matrix into adjacency lists. Give the time complexity of your algorithms.

## Problem 2 (5 points)

*This problem is from Exam 2; give a solution even if you solved it during the exam.*

Suppose that  $G$  is a weighted undirected graph, where all weights are integers between 1 and 5, and let  $u$  and  $v$  be two vertices of  $G$ . Give an efficient algorithm  $\text{SHORTEST-PATH}(G, u, v)$  that finds a minimal-weight path from  $u$  to  $v$ .