Algorithms (COT 6405): Assignment 10

Due date: November 20 (Thursday)

Problem 1 (4 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 (6 points)
Suppose that G is an *undirected* graph, and you need to check whether G has cycles. Design an algorithm $\textsc{Acyclic}(G)$ that returns TRUE if G is acyclic, and FALSE if G has cycles. Its running time should be $O(V)$ regardless of the number of edges.