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Exercise 3 Report

EXERCISE 3 REPORT

Time Complexity Analysis:

1. Adjacency Matrix to Adjacency Lists:

Time complexity is $O(n^2)$ where n is the number of vertices")

2. Adjacency Lists to Incidence Matrix:

There are for loops so most likely this is the upper bound.

for adjList in adjLists: 1 for every vertex: n time

for i in range(1, len(adjList)): for every entry in the adjList: 1 every edge: m time

final time complexity is $O(n*m)$

3. Incidence Matrix to Adjacency Lists:

There are for loops so most likely this is the upper bound.

for i in range(numCols): go thru every edge, m times

for j in range(numRows): go thru every vertex, n times

final time complexity is $O(n*m)$