United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

CSE 2218: Data Structure and Algorithms II Lab

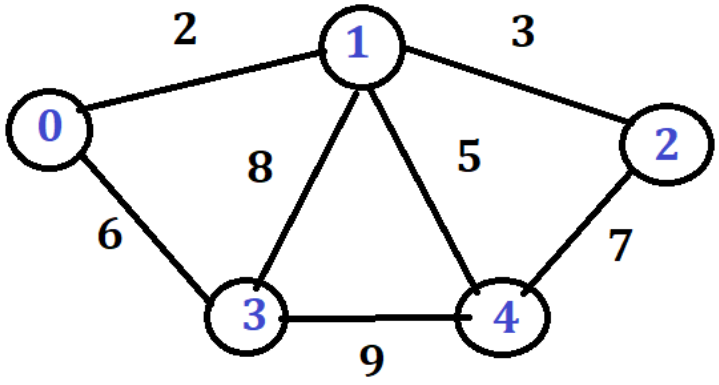
Assignment 3

Section: J **Marks:** 10

Given a connected, weighted, and undirected graph, you need to find a spanning tree with a weight product less than or equal to the weight product of every other spanning tree. The weight product of a spanning tree is the product of weights corresponding to each edge of the spanning tree. All weights of the given graph will be positive for simplicity.

Remember that, a spanning tree of a graph is a subgraph that is a tree and connects all the vertices together.

For example, the minimum weight product is 180 for the below graph, by choosing 0-1, 1-2, 0-3, and 1-4.



Input: The first line contains two integers ***n*** and ***m*** **($1 \leq n,m \leq 10^5$)** — the number of vertices and the number of edges in a graph. Each line of the next ***m*** lines contains three integers ***u***,***v***, and ***w*** — the end vertices of an edge and the weight of the edge.

Output: Print the edges of that special spanning tree and the minimum product of the weights.

Sample Input	Sample Output
5 7 0 1 2 0 3 6 1 2 3 1 3 8 1 4 5 2 4 7 3 4 9	Edges: 0—1 1—2 0—3 1—4 Minimum product: 180

Instructions

- Keep your code file(s) in a folder named **<YourID>**
- **Zip** the folder and submit it.
- If you are found guilty of copying from **ChatGPT** or your **friend(s)**, then you will get a **-100%** mark as a penalty.

Deadline*:* 12th December(), 11:55 pm.