

CS69011: Computing Lab Assignment 3: Graphs (Part - A)

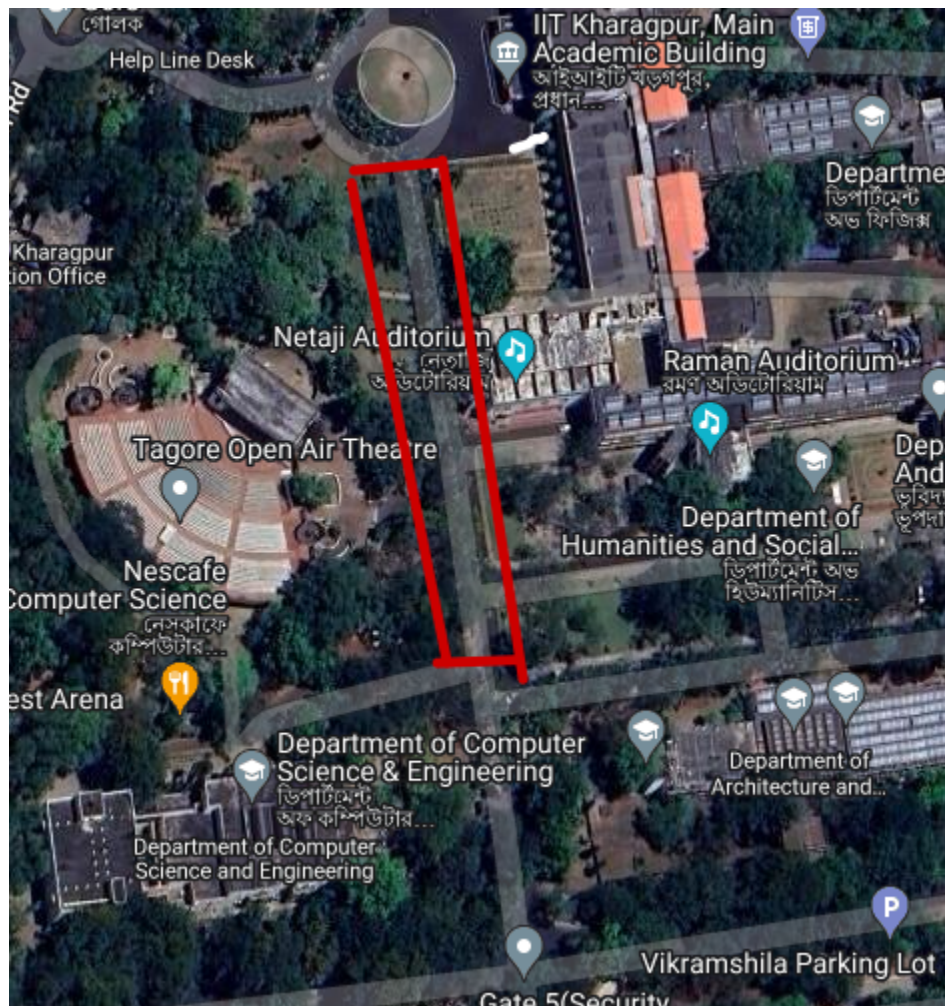
August 23, 2023

=====Instructions=====

1. In the case of an input file , assume only valid values will be passed as input.
2. Regarding submission: Create separate C file : **<RollNo>_Q4.c**
3. Create a zip file of the C file in the name: **<RollNo>_A3_Part_A.zip** and submit it to Moodle.
4. The input to the program will be available in a .txt file given as **command line arguments**

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1. One-way Road Problem:-



Source:- Google Maps

This is a familiar image of IIT Kgp. So there are two entrances to the CSE department building (Gate No. 2 and Bidhan Chowk). The shortest path from the Chowk involved the road marked in red. So, someone coming from that side would naturally take this road. On the contrary, the road is a one way road (from Gate No 2 going towards the main building). So, you need to violate the rules for taking the road. There are many guards present in the roads to make you go the other way round (use another path to the department).

For simplicity assume the road is a grid of dimensions ($m \times n$) as shown in the figure below. (Also K guards are positioned in the road, each guards having a visibility range of r radius)

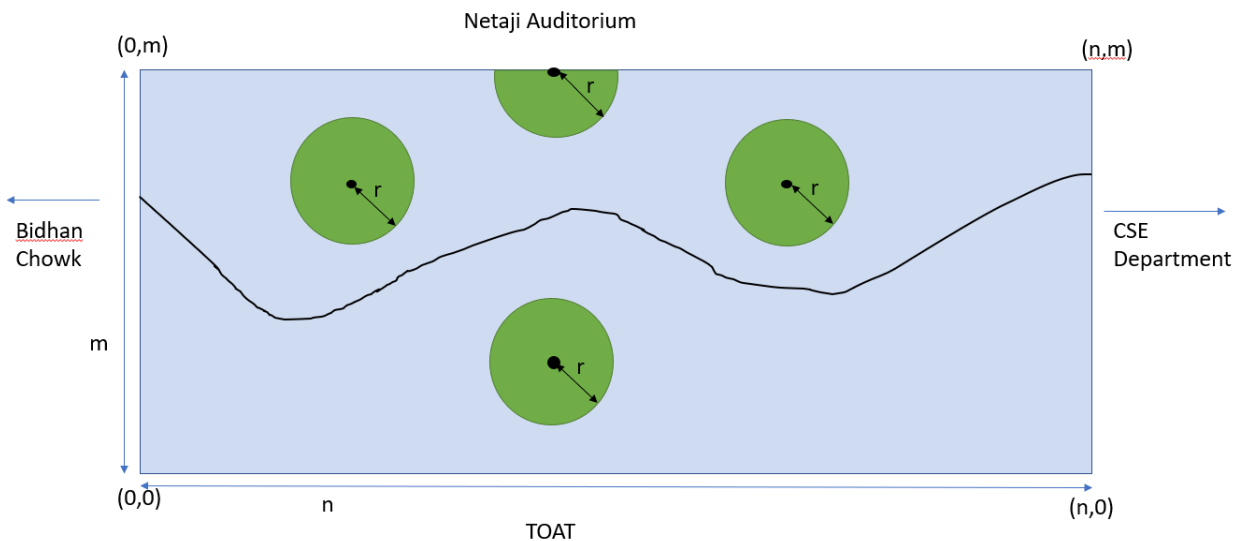


Fig. 1

You can start from any point along $x = 0$ line in the road and reach the destination once you reach the $x = n$ line in the road. You need to find if such a path exists or not.

Note:-

1. For your clarification, your starting point is $(0, a)$, where $0 \leq a \leq m$ and you reach the destination once when you reach a point (n, b) , where $0 \leq b \leq m$.
2. A possible path is shown in Fig. 1 by the black curved line.

Input Format:-

1. First line contains 2 space separated integers m , n and K
2. Then K lines follow, each line having information of guards $\langle x, y, r \rangle$

Sample Input:-

50 50 2
20 10 20
25 25 30

Sample Output:-

No