

CENG 567 - Second Program

Design and Analysis of Algorithms

Spring 2019-2020

Take Home Exam 4 (THE-4)

Due date: 12 June 2020 - 23:55

1 Longest Path

Given undirected weighted graph, determine the weight of the LP (longest path) between two given nodes such that no vertex is repeated in the path.

1.1 Input

Undirected weighted graph with n ($n < 100$) nodes. the input will be as follows:

n - number of nodes- (vertices are numbered with consecutive numbers from 1 to n , inclusive) followed by two vertex numbers x, y ($1 \leq x, y \leq n$) in the first line

then, the adjacency matrix (weight of and edge between vertices i and j , w_{ij} : $0 < w_{ij} < 100$ for weights; diagonals: $w_{ii} = 0$; if there is no edge between i and j $w_{ij} = INF$ (*#define INF 100.000*)).

2 Input/Output Specifications

Input:

$n \ x \ y$
 $w_{11} \ w_{12} \ \dots \ w_{1n}$
 $w_{21} \ \dots$
 \dots
 $w_{n1} \ w_{n2} \ \dots \ w_{nn}$

Output:

w_{ij} — weight of the longest path between i and j if exists (otherwise it is INF) (Note that here i is provided by x in the input and j is provided by y).

3 Deliverables

- You can use C++,Java or Python. You will only upload one file named as the1.cpp (you can change the part .cpp to any extension you want according to language you use). Do not submit any other files.
- Submit the file through the ODTUClass system before the given deadline. **12 June 2020 - 23:55**

4 Regulations

- **Cheating:** This homework should be done individually. Copying another one's solution as it is, copying another one's solution and modifying it, or giving your own solution to someone else will be respected as cheating. Taking code directly from internet is also regarded as cheating. Grader of this homework has the right to request defense from those he suspects to be cheaters. Those whose defenses are not accepted will be subject to disciplinary actions according to the university regulations. Please note that defenses will only be taken in written way.
- **Odtuclass Discussions:** You should follow the odtuclass for discussions and possible updates on a daily basis.
- **Late Submission:** Not allowed.