Homework 09: Dijkstra Shortest Path

Due Jun. 06, 2019

Instruction

Submit your answer to this question via PC^2 under your account by the posted due time. No late submissions will be accepted. Note that homework is opened-book, but no outside assistance is permitted.

Problem

Dijkstra's algorithm is an algorithm for finding the shortest paths between nodes in a graph, which may represent, for example, road networks. It was conceived by computer scientist Edsger W. Dijkstra in 1956 and published three years later.

Write a program that returns the shortest distance from node X to node Y on a given directed acyclic graph (DAG), e.g.,
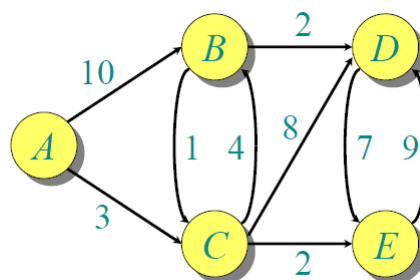
Note that the last two bits of input represent the starter node X and destination node Y. Also, the size of the given DAG could be varying in this problem.

Sample input

A,B,10,A,C,3,B,C,1,B,D,2,C,B,4,C,D,8,C,E,2,D,E,7,E,D,9,A,E
A,B,10,A,C,3,B,C,1,B,D,2,C,B,4,C,D,8,C,E,2,D,E,7,E,D,9,A,C

Sample output

The shortest distance from A to E is 5
The shortest distance from A to C is 3