

Example Questions: Dynamic Programming

Due No due date

Points 18

Questions 3

Time Limit None

Allowed Attempts Unlimited

Instructions

Attention! If an answer consists of a sequence of items, the items must be separated with commas, with no blank. No sign is to be put at the ends of the sequence.

For example: 1,3,4,6

Another example: APPLE,ORANGE,BANANA

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Attempt History

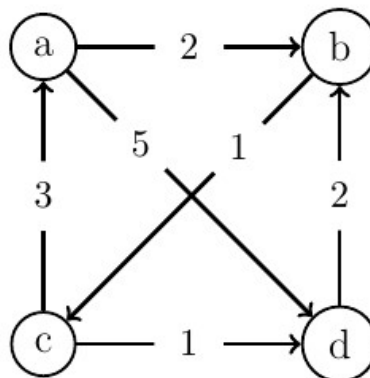
	Attempt	Time	Score
LATEST	Attempt 1	less than 1 minute	0 out of 18

Submitted Dec 16 at 12:23pm

Question 1

0 / 6 pts

Illustrate the Floyd-Warshall algorithm on the graph below, and answer the following questions.



Consider the result of the algorithm, especially the longest path among the shortest paths calculated?

This path goes from vertex X to Y: Give X,Y (separated by comma):

The length of this path:

The shortest path found from vertex "a" to vertex "d":

The path (its nodes separated by comma):

The length of the path:

Consider row "b" of matrix $D^{(3)}$. Enumerate the values in this row (separated by comma):

Which vertex occurs most times in matrix $P_i^{(4)}$?

Answer 1:

You Answered

(You left this blank)

Correct Answer

d,a

Answer 2:

You Answered

(You left this blank)

Correct Answer

6

Answer 3:

You Answered

(You left this blank)

Correct Answer

a,b,c,d

Answer 4:

You Answered

(You left this blank)

Correct Answer

4

Answer 5:

You Answered

(You left this blank)

Correct Answer

4,0,1,2

Answer 6:**You Answered**

(You left this blank)

Correct Answer

c

Unanswered**Question 2****0 / 6 pts**

Which statements of the following ones are true?

*FW = Floyd-Warshall

☐

The transitive closure of an undirected graph of n vertices is a complete graph of n vertices in each case.

☐

Given a weighted graph, the Floyd-Warshall algorithm computes the shortest paths between each pair of vertices.

☐

The Floyd-Warshall algorithm identifies one of the negative cycles of a graph.

☐

On a sparse graph of n vertices, n runs of the Dijkstra algorithm is more efficient than a single run of Floyd-Warshall, provided that there is no negative edge in the graph.

☐

In the case of the Warshall algorithm, the main diagonal of matrix T contains zeros.

☐

During the k th iteration of the main loop of the Floyd-Warshall algorithm, the first k vertices are allowed on a suboptimal path between two vertices, excluding the two ends of the path.

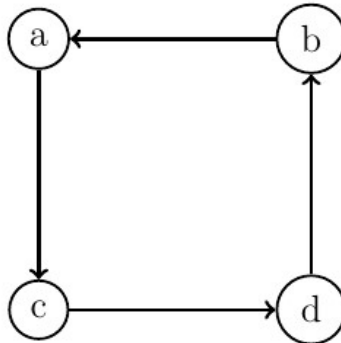
☐

Given a weighted graph of n vertices, the Floyd-Warshall algorithm needs $n+1$ pairs of matrices in order to calculate its result.

Correct Answer**Correct Answer****Correct Answer**

Question 3**0 / 6 pts**

Illustrate the Transitive Closure algorithm on the graph below, and answer the following questions.



How many "0" values are there in matrix $T^{(4)}$?

In which $T^{(i)}$ matrix appears value "1" in the cell of row "b" and column "d" of the matrix? i =

Consider row "c" of matrix $T^{(2)}$. Enumerate the values in this row (separated by comma):

Answer 1:**You Answered**

(You left this blank)

Correct Answer

0

Answer 2:**You Answered**

(You left this blank)

Correct Answer

3

Answer 3:**You Answered**

(You left this blank)

Correct Answer

0,0,1,1