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Expt. Title Write a program to find shortest path using

Class MCA-II Batch B2 Performed on

Roll No. 37 Expt. No. Submitted on

Remarks Returned on

Write a algorithm to find shortest path using single source shortest path.

Procedure SHORTEST_PATH (V, COST, DIST, n)

Description - DIST(j), j is $1 \le j \le n$..., is set to the length of the shortest path from vertex v to vertex in a diagraph G with n vertices.
DIST(v) is set to zero, G is represented by its cost adjacency matrix cost(n,n).

Declaration - boolean S(1:n)
real cost(1:n, i:n),
DIST(1:n)
integer n, u, w, v, num, i

// Initialize set s to empty and DIST using currenet edges.

For i ← 1 to n, do
    S(i) ← 0; DIST(i) ← COST(V, i)
repeat
S(V) ← 1; DIST(V) ← 0 // add v in s.
for num ← 2 to n-1, do
    choose 'u' from array those vertices not in s such that
    DIST(u) = min {DIST(w) and S(w)=0
    S(u) ← 1 // put 'u' is set s
    for all w with S(w) = 0, do

Incomplete for :
1) Algorithm
2) Flow Chart
3) Programme Listing
4) Results
5) Comments

DIST (w) ← min (DIST (w), DIST (u) + COST (u,w))

Repeat

END_SHORTEST PATH

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All pair shortest Path :-

Procedure ALL_PATHS (COST, A, n)

Description :-

COST (n,n) is the cost adjacency matrix of a graph with n ~~ret~~vertices;

A (i,j) is the cost of a shortest path from v_i to v_j.

COST (i,j) = 0, $1 \leq i \leq n$

Declaration :-

integer i, j, k, n

real COST (n,n), A (n,n)

Algorithm

For i ← 1 to n do

For j ← 1 to n do

A(i,j) ← COST (i,j)

repeat

repeat

For k ← 1 to n do

For i ← 1 to n do

For j ← 1 to n do

A(i,j) ← min {A (i,j),

A (i,k) + A (k,j)}

repeat

repeat

repeat

END ALL_PATHS.

Incomplete for :

1) Algorithm
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