Date: 29-9-2025

Experiment No: 09

I. Aim: Implement Floyd Warshall algorithm.

II. Theory:

Floyd Warshall algorithm:

It is used to find shortest path between every pair of vertices of a graph. This algorithm works for both directed and undirected graph.

Write algorithm for Floyd Warshall algorithm:

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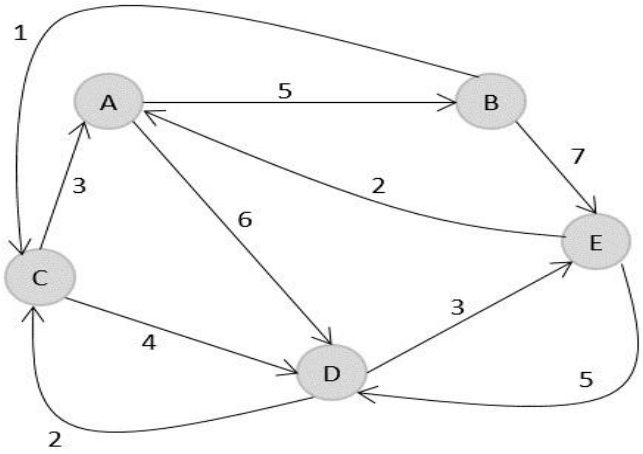
Show stepwise procedure to find shortest path between all the vertices in the graph:



Procedure:

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III. Program:

```
#include<stdio.h>
int i, j, k,n,dist[10][10];

void floydWarshell ()
{
 for (k = 0; k < n; k++)
  for (i = 0; i < n; i++)
   for (j = 0; j < n; j++)
    if (dist[i][k] + dist[k][j] < dist[i][j])
     dist[i][j] = dist[i][k] + dist[k][j];
}

void main()
{
  int i,j;
  printf("enter no of vertices :");
  scanf("%d",&n);
  printf("\n");
  for(i=0;i<n;i++)
  for(j=0;j<n;j++)
   {
    printf("dist[%d][%d]:",i,j);
    scanf("%d",&dist[i][j]);
   }
 floydWarshell();
 printf (" \n\n shortest distances between every pair of vertices \n");
 for (i = 0; i < n; i++)
 {
  for (j = 0; j < n; j++)
   printf ("%d\t", dist[i][j]);
  printf("\n");
 }
 getch();
}
```

IV. Output:

Input Adjacency Matrix for graph

V. Conclusion: Successfully implemented Floyd Warshall algorithm to find shortest path between all pair of vertices from the graph.