NAME: RAMYA RAMESH

USN: 1BM19CS227

**PROGRAM 11: Implementation of All Pair Shortest paths problem using Floyd’s algorithm.**

CODE:

#include<stdio.h>

#include<math.h>

int min(int,int);

void floyds(int p[10][10],int n) {

int i,j,k;

for (k=1;k<=n;k++)

for (i=1;i<=n;i++)

for (j=1;j<=n;j++)

if(i==j)

p[i][j]=0; else

p[i][j]=min(p[i][j],p[i][k]+p[k][j]);

}

int min(int a,int b) {

if(a<b)

return(a); else

return(b);

}

void main() {

int p[10][10],w,n,e,u,v,i,j;

printf("\n Enter the number of vertices:");

scanf("%d",&n);

printf("\n Enter the number of edges:\n");

scanf("%d",&e);

for (i=1;i<=n;i++) {

for (j=1;j<=n;j++)

p[i][j]=99999;

}

for (i=1;i<=e;i++) {

printf("\n Enter the end vertices of edge %d with its weight \n",i);

scanf("%d%d%d",&u,&v,&w);

p[u][v]=w;

}

printf("\n Matrix:\n");

for (i=1;i<=n;i++) {

for (j=1;j<=n;j++)

printf("%d \t",p[i][j]);

printf("\n");

}

floyds(p,n);

printf("\n The shortest paths are:\n");

for (i=1;i<=n;i++)

for (j=1;j<=n;j++) {

if(i!=j)

printf("\n <%d,%d> = %d",i,j,p[i][j]);

}

}

OUTPUT:





