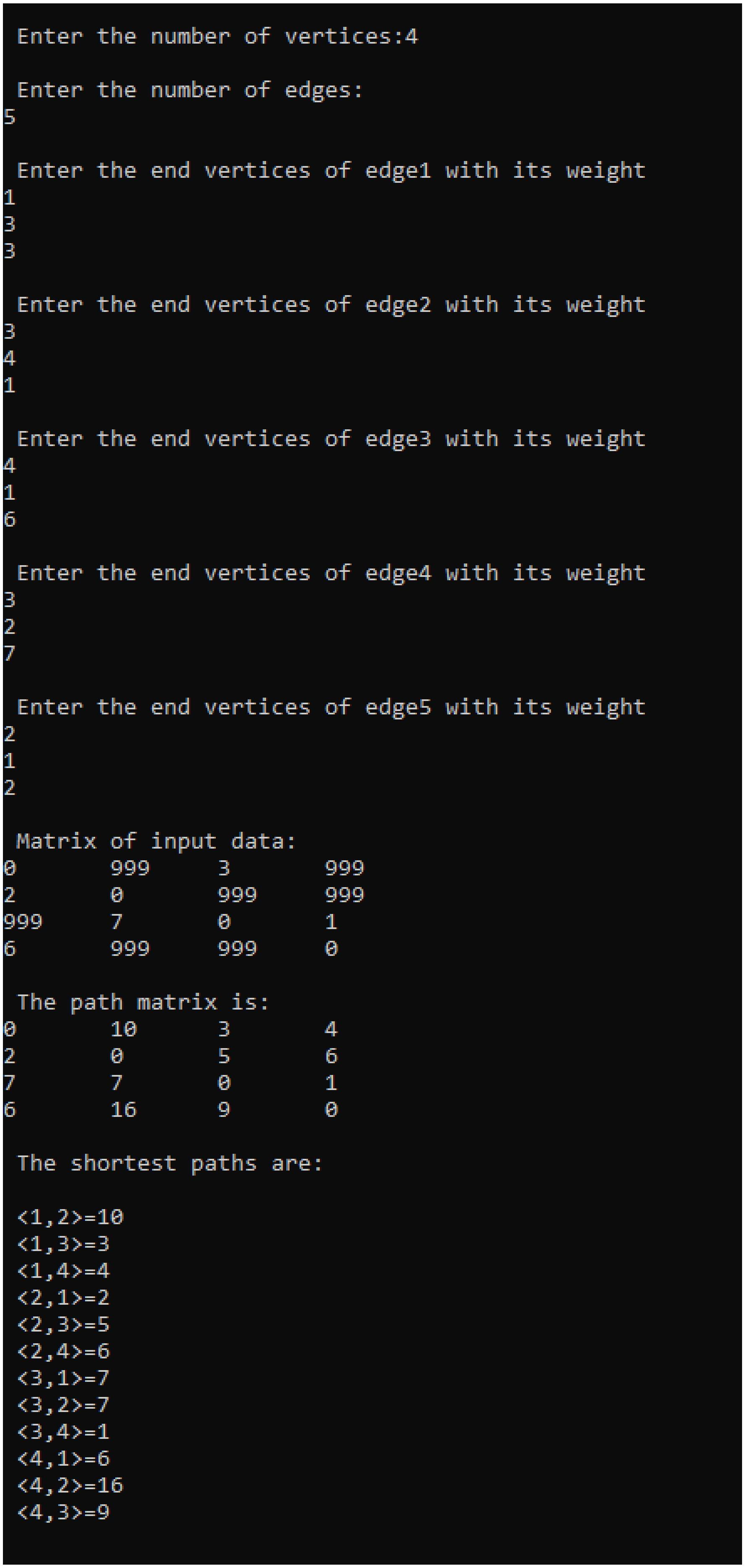
Floyd’s Algorithm C program

```
#include<stdio.h>
#include<conio.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++)
        if(i ==j)
        p[i][j] = 0;
     else
                  p[i][j]=999;
        }
        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 of input data:\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 pathl matrix is:\n");
        for (i=1;i<=n;i++) {
                for (j=1;j<=n;j++)
                  printf("%d \t",p[i][j]);
                printf("\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]);
        }
        getch();
}
```



```
 Enter the number of vertices:4

 Enter the number of edges:
5

 Enter the end vertices of edge1 with its weight
1
3
3

 Enter the end vertices of edge2 with its weight
3
4
1

 Enter the end vertices of edge3 with its weight
4
1
6

 Enter the end vertices of edge4 with its weight
3
2
7

 Enter the end vertices of edge5 with its weight
2
1
2

 Matrix of input data:
0       999     3       999
2       0       999     999
999     7       0       1
6       999     999     0

 The path matrix is:
0       10      3       4
2       0       5       6
7       7       0       1
6       16      9       0

 The shortest paths are:

 <1,2>=10
 <1,3>=3
 <1,4>=4
 <2,1>=2
 <2,3>=5
 <2,4>=6
 <3,1>=7
 <3,2>=7
 <3,4>=1
 <4,1>=6
 <4,2>=16
 <4,3>=9
```