8. Write a Program to implement Floyd's algorithm and find the lengths of the shortest paths from every pairs of vertices in a given weighted graph

```
#include<stdio.h>
int c[5][5],n,i,j,k;
void floyd()
{
        for(k=1;k<=n;k++)
                for(i=1;i<=n;i++)
                        for(j=1;j<=n;j++)
                                if(c[i][k]+c[k][j]<c[i][j])
                                        c[i][j]=c[i][k]+c[k][j];
}

void main()
{
        printf("Enter the number of vertices: \n");
        scanf("%d",&n);
        printf("\nEnter the adjacency vertex:\n");
        for(i=1;i<=n;i++)
                for(j=1;j<=n;j++)
                {
                        scanf("%d",&c[i][j]);
                        if(c[i][j]==0)
                                c[i][j]=999;
                }
        floyd();
        for(i=1;i<=n;i++)
                c[i][i]=0;
        printf("\n The all pair shortest path: \n");
        for(i=1;i<=n;i++)
        {
                for(j=1;j<=n;j++)
                        printf("%6d",c[i][j]);
                printf("\n");
        }
        getch();
}
```

Output

```
Enter the number of vertices:
4

Enter the adjacency vertex:
0 10 0 40
0 0 0 20
50 0 0 0
0 0 60 0

 The all pair shortest path:
     0    10    90    30
   130     0    80    20
    50    60     0    80
   110   120    60     0
_
```