LAB-5

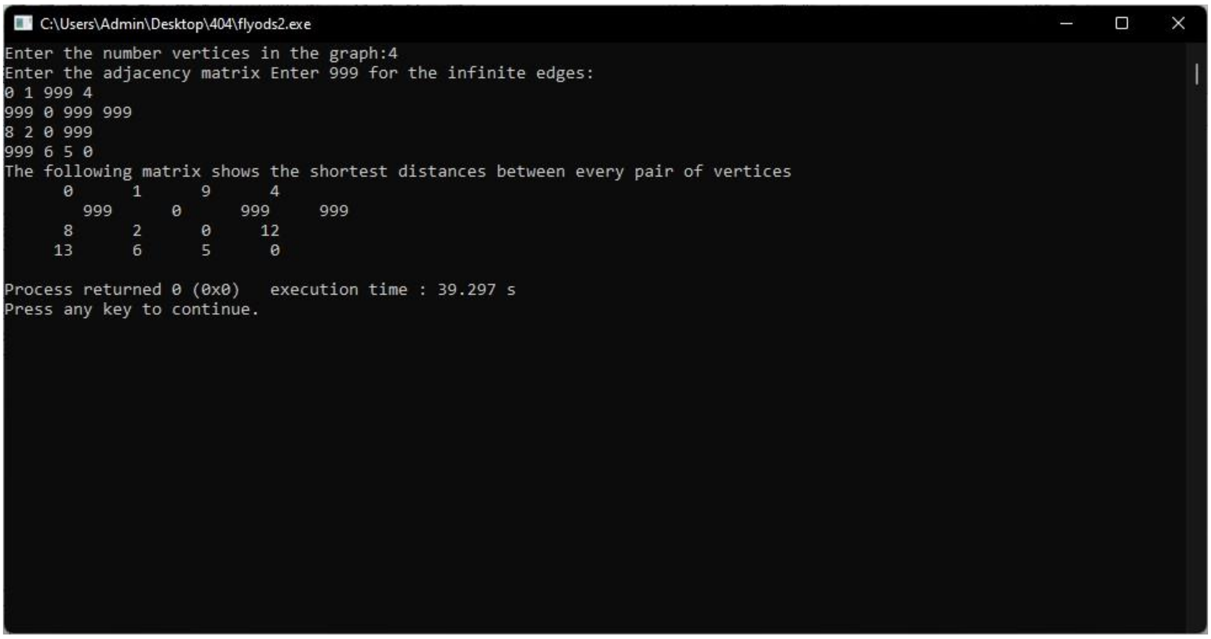
Q) Implement All Pair Shortest paths problem using Floyd’s algorithm.

```
#include<stdio.h>
#include<conio.h>
int a[10][10],n;
void floyd();
int min(int,int);
void main()
{
   int i,j;
   printf("Enter the number of vertices\n");
   scanf("%d",&n);
   printf("Enter the adjacency matrix:\n");
   for(i=1;i<=n;i++)
   {
      for(j=1;j<=n;j++)
      {
         scanf("%d",&a[i][j]);
      }
   }
   floyd();
}
void floyd()
{
   int i,j,k;
   for(k=1;k<=n;k++)
   {
      for(i=1;i<=n;i++)
      {
         for(j=1;j<=n;j++)
```

```
            {
                a[i][j]=min(a[i][j],a[i][k]+a[k][j]);
            }
        }

    }
    printf("All pair of shortest path matrix is:\n");
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=n;j++)
        {
            printf("%d\t",a[i][j]);
        }
        printf("\n\n");
    }
}
int min(int x,int y)
{
    if(x<y)
        return x;
    else
        return y;
}
```

OUTPUT:



```
Enter the number vertices in the graph:4
Enter the adjacency matrix Enter 999 for the infinite edges:
0 1 999 4
999 0 999 999
8 2 0 999
999 6 5 0
The following matrix shows the shortest distances between every pair of vertices
      0      1      9      4
        999      0      999     999
      8      2      0     12
     13      6      5      0

Process returned 0 (0x0)   execution time : 39.297 s
Press any key to continue.
```