/*C Program to implement Depth First Search

Input : 1. No. of vertices in the graph

2. Graph data in matrix form

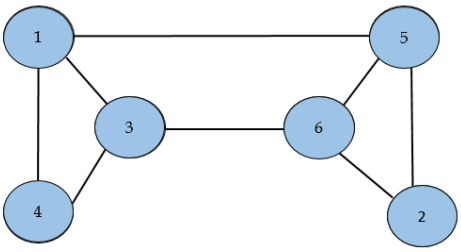
Output : Vertices in the order they are traversed

***/**

```
#include<stdio.h>
#include<conio.h>
int a[20][20],reach[20],n;
void dfs(int v) {
        int i;
        reach[v]=1;
        for (i=1;i<=n;i++)
          if(a[v][i] && !reach[i]) {
                printf("\n %d->%d",v,i);
                dfs(i);
          }
        }
        int main()
        {
                int i,j,count=0;
                printf("\n Enter number of vertices:");
                scanf("%d",&n);
                for (i=1;i<=n;i++) {
                        reach[i]=0;
                        for (j=1;j<=n;j++)
                           a[i][j]=0;
                }
                printf("\nEnter the adjacency matrix:\n");
                for (i=1;i<=n;i++)
                  for (j=1;j<=n;j++)
                   scanf("%d",&a[i][j]);
```

```
    printf("\n");
    printf("Vertices in the order they are traversed:\n");
  dfs(1);
  for (i=1;i<=n;i++) {
        if(reach[i])
          count++;
  }
  printf("\n");
  if(count==n)
    printf("\n Graph is connected");
  else
    printf("\n Graph is not connected");
    printf("\n");
getch();
}
```

Sample Input and Output:




```
 Enter number of vertices:6

Enter the adjacency matrix:
0 0 1 1 1 0
0 0 0 0 1 1
1 0 0 1 0 1
1 0 1 0 0 0
1 1 0 0 0 1
0 1 1 0 1 0

Edges traversed:

 1->3
 3->4
 3->6
 6->2
 2->5

 Graph is connected
Press any key to continue...
```