Batch: B1 Experiment Number: 3

Roll Number:16010420133 Name: Soumen samanta

Aim of the Experiment: Implementation of Uninformed search algorithm – DFS

Program/ Steps:

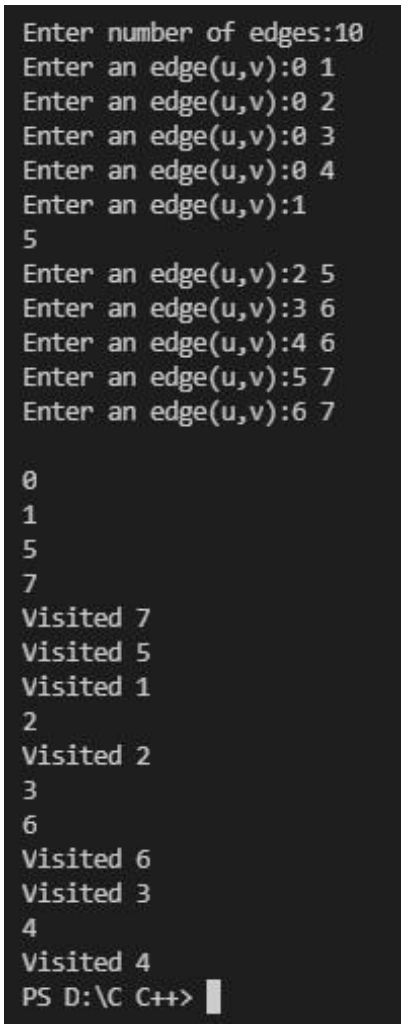
```
#include<stdio.h>
#include<stdlib.h>

typedef struct node
{
   struct node *next;
int vertex;
}node; node
*G[20];  int
visited[20]; int n;
void read_graph();
void insert(int,int);
void DFS(int);
void main()
{
   int i;
   read_graph();
for(i=0;i<n;i++)
       visited[i]=0;
```

```
   DFS(0); }
void DFS(int i)
{
   node *p;

printf("\n%d",i);
p=G[i];
visited[i]=1;
while(p!=NULL)
   {       i=p->vertex;      if(!visited[i]){
DFS(i);              printf("\nVisited %d",p-
>vertex);
         }
        p=p->next;
}
   }

void read_graph()
{
   int i,vi,vj,no_of_edges;
printf("Enter number of vertices:");

scanf("%d",&n);

for(i=0;i<n;i++)
```

```
   {
      G[i]=NULL;

printf("Enter number of edges:");
scanf("%d",&no_of_edges);
for(i=0;i<no_of_edges;i++)
      {
       printf("Enter an edge(u,v):");
scanf("%d%d",&vi,&vj);
insert(vi,vj);
      }
   }
}
void insert(int vi,int vj)
{
   node *p,*q;

q=(node*)malloc(sizeof(node));    q-
>vertex=vj;    q->next=NULL;

   if(G[vi]==NULL)
      G[vi]=q;
else    {
p=G[vi];
```

```
while(p->next!=NULL)
        p=p->next;        p-
>next=q;
   }
}
```

Output/Result:



Outcomes:

CO2 Analyze and formalize the problem (as a state space, graph, etc.) and select the appropriate search method and write the algorithm.

Conclusion (based on the Results and outcomes achieved):

Thus, I printed the path of DFS and visited nodes.

References:

- Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, Second Edition, Pearson Publication
- Luger, George F. Artificial Intelligence : Structures and strategies for complex problem solving , 2009 ,6th Edition, Pearson Educatio