Name: Siddhesh Vinay Rane
Class: SY-IT
Batch: S3
Roll no: 47

EXPERIMENT 07

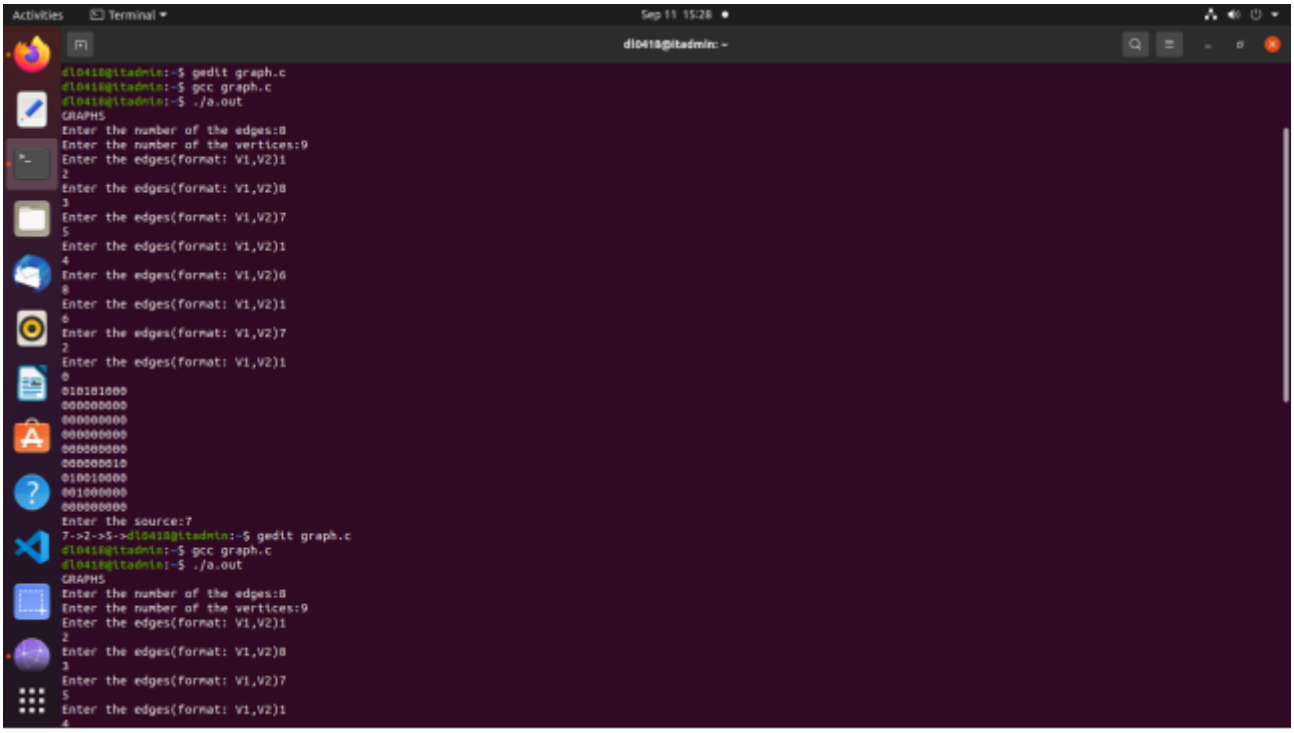
Program-1:

```
#include <stdio.h>
#include <stdlib.h>
int source,V,E,time,visited[20],G[20][20];
void DFS(int i)
{ int j;
  visited[i]=1;
  printf("%d->",i+1);
  for(j=0;j<V;j++)
  { if(G[i][j]==1&&visited[j]==0)
      DFS(j);
  }
}
int main()
{ int i,j,v1,v2;
  printf("GRAPHS\n");
  printf("Enter the number of the edges:");
  scanf("%d",&E);
  prints("Enter the number of the vertices:");
  scanf("%d",&V);
  for(i=0;i<V;i++)
  { for(j=0;j<V;j++)
    G[i][j]=0;
  }
  for(i=0;i<E;i++)
 { printf("Enter the edges(format: V1,V2)");
    scanf("%d%d",&v1,&v2);
    G[v1-1][v2-1]=1;
}
for(i=0;i<V;i++)
{ for(j=0;j<V;j++)
    printf("%d",G[i][j]);
     printf("\n");
  }
  printf("Enter the source:");
  scanf("%d",&source);
  DFS(source-1);
  return 0;
}
```

Output:

Program-2:

```
#include<stdio.h>
int a[20][20],q[20],visited[20],n,f = -1,r= -1;
void bfs(int v)
{ int i;
  for (i=0;i<n;i++)
  { if(a[v][i] !=0 && visited[1]==0)
     { r=r+1;
       q[r]=i;
```




```
visited[i]=1;
       printf("%d",i);
     }
  }
  f=f+1;
  if(f<=r)
   bfs(q[f]);
}
int main()
{ int v,i,j;
  printf("\n Enter number of vertices:");
  scanf("%d",&n);
  for(i=0;i<n;i++)
  { visited[i]=0;}
    printf("\nEnter graph data in matrix form\n");
    for(i=0;i<n;i++)
       for(j=0;j<n;j++)
          scanf("%d",&a[i][j]);
  printf("\n Enter the starting vertex");
  scanf("%d",&v);
  f=r=0;
  q[r]=v;
  visited[v]=1;
  printf("%d",v);
  bfs(v);
  if(r!=n-1)
  printf("\nBFS not possible"); printf("\n");
  return 0;
}
```

Output:

```
 Enter number of vertices:5

Enter graph data in matrix form
0
1
0
0
1
1
0
1
1
1
0
1
0
1
0
0
1
1
0
1
1
1
0
1
0

 Enter the starting vertex3
31
BFS not possible
```