Experiment No. 7 (BFS)

Program:

```c
#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 [i] == 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 the number of vertices: ");
        scanf("%d",&n);
        for (i=0;i<n;i++) {
                visited[i]=0;
        }
        printf("Enter the graph data in matric form: ");
        for (i=0;i<n;i++)
                 for(j=0;j<n;j++)
                        scanf("%d",&a[i][j]);
                        printf("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:

```
dl07@itadmin:~$ gedit exp9.2.c
dl07@itadmin:~$ gcc exp9.2.c
dl07@itadmin:~$ ./a.out

 Enter the number of vertices: 5
Enter the graph data in matric 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 vertex: 3
31240
```