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/*C Program to implement Breadth First Search
Input  : 1. No. of vertices in the graph
         2. Graph data in matrix form
         3. The starting vertex
Output : Vertices in the order they are traversed
*/

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

int main() {
        int v;
        printf("\n Enter the number of vertices present in the graph:");
        scanf("%d",&n);
        for (i=1;i<=n;i++) {
                q[i]=0;
                visited[i]=0;
        }
        printf("\n Enter graph data in matrix form:\n");
        for (i=1;i<=n;i++)
          for (j=1;j<=n;j++)
           scanf("%d",&a[i][j]);
```

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        printf("\n Enter the starting vertex:");
        scanf("%d",&v);
        bfs(v);
        printf("\n The vertices which are reachable are:\n\n");
        for (i=1;i<=n;i++)
          if(visited[i])
                printf("%d\t",i);

   printf("\n\n") ;
}
```
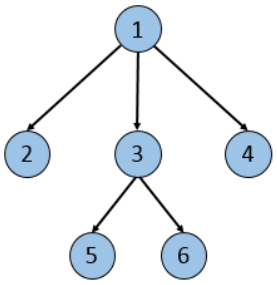

Sample Input and Output:




```
 Enter the number of vertices present in the graph:6

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

 Enter the starting vertex:3

 The vertices which are reachable are:

3       5       6

Press any key to continue...
```