21.Write a C program to Graph traversal using Breadth First Search.

#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:");

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]);

}

}

printf("\n Enter the starting vertex:");

scanf("%d", &v);

bfs(v);

printf("\n The node which are reachable are:\n");

for(i=1; i <= n; i++) {

if(visited[i])

printf("%d\t", i);

else {

printf("\n Bfs is not possible. Not all nodes are reachable");

break;

}

}

}

