

Question:

Write a program to traverse a graph using BFS method.

Input:

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

```
int n;
int graph[10][10];
int visited[10];
int queue[10], front = -1, rear = -1;
```

```
void enqueue(int v) {
    queue[++rear] = v;
}
```

```
int dequeue() {
    return queue[++front];
}
```

```
int isEmpty() {
    return front == rear;
}
```

```
void bfs(int start) {
    int i;
    enqueue(start);
    visited[start] = 1;

    while (!isEmpty()) {
        int v = dequeue();
        printf("%d ", v);

        for (i = 0; i < n; i++) {
            if (graph[v][i] == 1 && visited[i] == 0) {
                enqueue(i);
                visited[i] = 1;
            }
        }
    }
}

int main() {
```

```

int i, j, start;

printf("Enter number of vertices: ");
scanf("%d", &n);

printf("Enter adjacency matrix:\n");
for (i = 0; i < n; i++)
    for (j = 0; j < n; j++)
        scanf("%d", &graph[i][j]);

for (i = 0; i < n; i++)
    visited[i] = 0;

printf("Enter starting vertex: ");
scanf("%d", &start);

printf("BFS Traversal: ");
bfs(start);

return 0;
}

```

Output:

```

Enter number of vertices: 5
Enter adjacency matrix:
0 1 1 0 0
1 0 0 1 0
1 0 0 1 1
0 1 1 0 1
0 0 1 1 0
Enter starting vertex (0 to 4): 0
BFS Traversal: 0 1 2 3 4
Process returned 0 (0x0)   execution time : 59.150 s
Press any key to continue.

```