

1. BFS

```
#include <stdio.h>
#include <stdlib.h>
#define MAX_VERTICES 100
void bfs(int graph[MAX_VERTICES][MAX_VERTICES], int vertices, int start) {
    int queue[MAX_VERTICES];
    int visited[MAX_VERTICES] = {0};
    int front = -1, rear = -1;
    queue[++rear] = start;
    visited[start] = 1;
    while (front != rear) {
        int currentVertex = queue[++front];
        printf("%d ", currentVertex);
        for (int i = 0; i < vertices; ++i) {
            if (graph[currentVertex][i] == 1 && !visited[i]) {
                queue[++rear] = i;
                visited[i] = 1;
            }
        }
    }
}

int main() {
    int vertices = 5, edges = 4;
    int graph[MAX_VERTICES][MAX_VERTICES] = {{0, 1, 1, 0, 0},{1, 0, 1, 1, 0},{1, 1, 0, 0, 1},{0, 1, 0, 0, 1},{0, 0, 1, 1, 0}};
    int startVertex = 0;
    printf("BFS traversal starting from vertex %d: ", startVertex);
    bfs(graph, vertices, startVertex);
    return 0;
}
```

2. DFS

```
#include <stdio.h>
#include <stdlib.h>
#define MAX_VERTICES 100
void dfs(int graph[MAX_VERTICES][MAX_VERTICES], int vertices, int currentVertex, int visited[]) {
    printf("%d ", currentVertex);
    visited[currentVertex] = 1;
    for (int i = 0; i < vertices; ++i)
        if (graph[currentVertex][i] == 1 && !visited[i])
            dfs(graph, vertices, i, visited);
}

int main() {
    int vertices = 5, edges = 4;
    int graph[MAX_VERTICES][MAX_VERTICES] = {{0, 1, 1, 0, 0},{1, 0, 1, 1, 0},{1, 1, 0, 0, 1},{0, 1, 0, 0, 1},{0, 0, 1, 1, 0}};
    int startVertex = 0;
    int visited[MAX_VERTICES] = {0};
    printf("DFS traversal starting from vertex %d: ", startVertex);
    dfs(graph, vertices, startVertex, visited);
    return 0;
}
```

Output -

- PS C:\Users\hello\Documents\SEM3\DSA PCC-CS-391\Lab11> gcc .\38-bfs.c
- PS C:\Users\hello\Documents\SEM3\DSA PCC-CS-391\Lab11> .\a.exe
BFS traversal starting from vertex 0: 0 1 2 3 4
- PS C:\Users\hello\Documents\SEM3\DSA PCC-CS-391\Lab11> gcc .\39-dfs.c
- PS C:\Users\hello\Documents\SEM3\DSA PCC-CS-391\Lab11> .\a.exe
DFS traversal starting from vertex 0: 0 1 2 4 3
- PS C:\Users\hello\Documents\SEM3\DSA PCC-CS-391\Lab11> █

```
Before Sorting:
5      8      1      10     6      3      9      2      4      7
Sorted List (Using Bubble Sort):
1      2      3      4      5      6      7      8      9      10
Sorted List (Using Intertion Sort):
1      2      3      4      5      6      7      8      9      10
Sorted List (Using Selection Sort):
1      2      3      4      5      6      7      8      9      10
Sorted List (Using Quick Sort):
1      2      3      4      5      6      7      8      9      10
Sorted List (Using Merge Sort):
1      2      3      4      5      6      7      8      9      10
○ PS C:\Users\hello\Documents\SEM3\DSA PCC-CS-391\Lab10> █
```