

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

#define MAX_NODES 100

struct Node {
    int vertex;
    struct Node* next;
};

struct Graph {
    struct Node* adjList[MAX_NODES];
    int visited[MAX_NODES];
};

void DFS(struct Graph* graph, int vertex) {
    struct Node* temp = graph->adjList[vertex];
    graph->visited[vertex] = 1;
    printf("%d -> ", vertex);

    while (temp != NULL) {
        int connectedVertex = temp->vertex;
        if (graph->visited[connectedVertex] == 0) {
            DFS(graph, connectedVertex);
        }
        temp = temp->next;
    }
}

void addEdge(struct Graph* graph, int src, int dest) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->vertex = dest;
    newNode->next = graph->adjList[src];
    graph->adjList[src] = newNode;
}

int main() {
    struct Graph* graph = (struct Graph*)malloc(sizeof(struct Graph));
```

```
int i;  
for (i = 0; i < MAX_NODES; i++) {  
    graph->adjList[i] = NULL;  
    graph->visited[i] = 0;  
}
```

```
addEdge(graph, 0, 1);  
addEdge(graph, 0, 2);  
addEdge(graph, 1, 2);  
addEdge(graph, 2, 0);  
addEdge(graph, 2, 3);  
addEdge(graph, 3, 3);
```

```
printf("Depth First Traversal starting from vertex 2: ");  
DFS(graph, 2);
```

```
return 0;  
}
```