

23. Write a C program to Graph traversal using Depth First Search

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#include <stdio.h>

#define MAX 20

int adj[MAX][MAX];
int visited[MAX];
int n;

void dfs(int vertex) {
    int i;
    visited[vertex] = 1;
    printf("%d ", vertex);
    for (i = 0; i < n; i++) {
        if (adj[vertex][i] == 1 && visited[i] == 0) {
            dfs(i);
        }
    }
}

int main() {
    int i, j, start;
    printf("Enter the number of vertices: ");
    scanf("%d", &n);
    printf("Enter the adjacency matrix:\n");
    for (i = 0; i < n; i++) {
        for (j = 0; j < n; j++) {
            scanf("%d", &adj[i][j]);
        }
    }
    for (i = 0; i < n; i++)
        visited[i] = 0;
    printf("Enter the starting vertex (0 to %d): ", n - 1);
    scanf("%d", &start);
```

```

printf("DFS Traversal: ");

dfs(start);

printf("\n");

return 0;

}

```

main.c	Run	Output
<pre> 1 #include <stdio.h> 2 #define MAX 20 3 int adj[MAX][MAX]; 4 int visited[MAX]; 5 int n; 6 void dfs(int vertex) { 7 int i; 8 visited[vertex] = 1; 9 printf("%d ", vertex); 10 11 for (i = 0; i < n; i++) { 12 if (adj[vertex][i] == 1 && visited[i] == 0) { 13 dfs(i); 14 } 15 } 16 } 17 18 int main() { 19 int i, j, start; 20 21 printf("Enter the number of vertices: "); 22 scanf("%d", &n); 23 24 printf("Enter the adjacency matrix:\n"); 25 for (i = 0; i < n; i++) { 26 for (j = 0; j < n; j++) { 27 scanf("%d", &adj[i][j]); 28 } </pre>	<div>Run</div>	<pre> Enter the number of vertices: 5 Enter the adjacency matrix: 1 2 3 4 5 5 6 9 8 7 5 4 6 7 8 9 8 5 6 4 4 2 3 6 5 Enter the starting vertex (0 to 4): 0 DFS Traversal: 0 === Code Execution Successful === </pre>