Program 9b

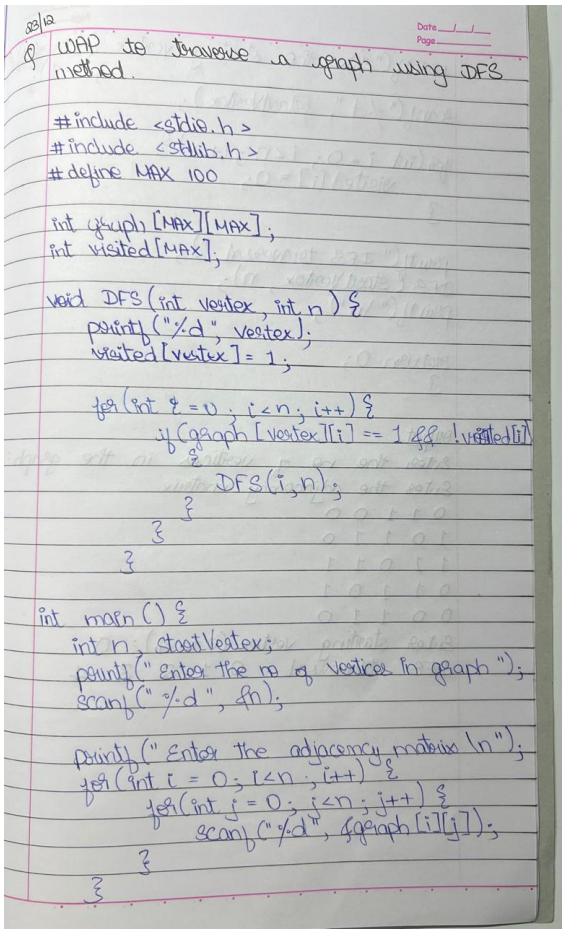
Write a program to traverse through a graph using DFS method.

Code:

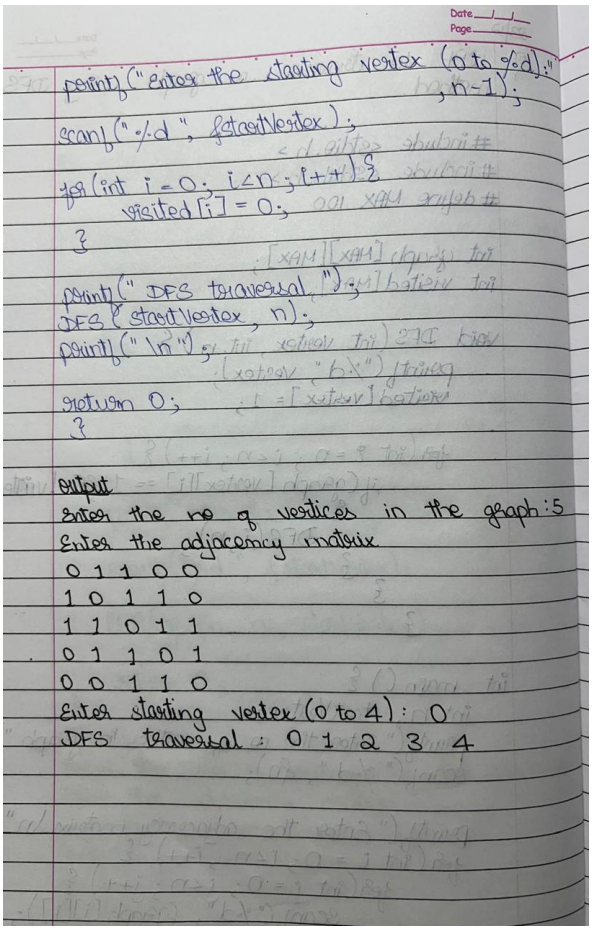
```
#include <stdio.h>
#include <stdlib.h>

#define MAX 100

int graph[MAX][MAX];
int visited[MAX];

void DFS(int vertex, int n) {
   printf("%d ", vertex);
   visited[vertex] = 1;

   for (int i = 0; i < n; i++) {
      if (graph[vertex][i] == 1 && !visited[i]) {
         DFS(i, n);
      }
   }
}

int main() {
   int n, startVertex;

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

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

   printf("Enter the starting vertex (0 to %d): ", n - 1);
   scanf("%d", &startVertex);

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

   printf("DFS Traversal: ");
   DFS(startVertex, n);
   printf("\n");

   return 0;
```

}

```
Enter the number of vertices in the graph: 5
Enter the adjacency matrix of the graph:
0 1 1 0 0
1 0 1 1 0
1 1 0 1 1
0 1 1 0 1
0 0 1 1 0
Enter the starting vertex (0 to 4): 0
DFS Traversal: 0 1 2 3 4
```



```
WAP to traverse a graph using DFS method

#include <stdio.h>
#include <stdlib.h>
#define MAX 100

int graph[MAX][MAX];
int visited[MAX];

void DFS(int vertex, int n){
    printf("%d", vertex);
    visited[vertex] = 1;

    for(int i=0; i<n; i++){
        if(graph[vertex][i] == 1 && !visited[i]
            DFS(i,n);
        }
    }
}

int main(){
    int n, startVertex;
    printf("Enter the no of vertices in graph");
    scanf("%d", &n);

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



```
    printf("Enter the starting vertex (0 to %d):", n-1);
    scanf("%d", &startVertex);

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

    printf("DFS traversal ");
    DFS(startVertex, n);
    printf("\n");

    return 0;
}
```

output

```
Enter the no of vertices in the graph: 5
Enter the adjacency matrix
0 1 1 0 0
1 0 1 1 0
1 1 0 1 1
0 1 1 0 1
0 0 1 1 0
Enter starting vertex (0 to 4): 0
DFS traversal: 0 1 2 3 4
```