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COURSE NAME: DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS

COURSE CODE: CSA0302

Experiment 33: Depth First Search

Code:

```
#include <stdio.h>

int visited[20], n;

int adj[20][20];

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

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

```
printf("\nDFS Traversal starting from vertex %d: ", start);
DFS(start);
printf("\n");
return 0;
}
```

Output:

```
Enter number of vertices: 4
Enter adjacency matrix (4 x 4):
0 1 1 0
1 0 0 1
1 0 0 0
0 1 0 0
Enter starting vertex (0 to 3): 0

DFS Traversal starting from vertex 0: 0 1 3 2

==> Code Execution Successful ==>
```