

**Homework Project 2**

Given 03/22/2017, Due 04/05/2017

Implement the DFS algorithm to visit all accessible vertices in a subgraph of a grid graph. The underlying graph's vertices are numbered from 0 to 999999; from each vertex you might have at most four neighbors, given by the functions

```
int left(int i);      int right(int i);  
int up(int i);       int down(int i);
```

The functions give either the number of the neighboring vertex, or return -1 if no neighbor in that direction exists. For each vertex that you visit for the first time, you call the function

```
void visit(int i);
```

Your DFS function should be called

```
int DFS(int start);
```

here **start** is the start vertex, and the function returns the total number of vertices that were visited.

Submit your source code by e-mail to [phjmbrass@gmail.com](mailto:phjmbrass@gmail.com); include the course (220) and homework number in the subject line, and your name as a comment in the homework file.