

04/10/18 04:56:25 D:\git-repos\data-structure-homework\06\e16.cpp

```

1  #include <stdio>
2  #include <cstring>
3  #include <iostream>
4  #define MXN 1007
5  using namespace std;
6  int seq[MXN];
7  struct node {
8      int dep, id;
9      node *fa[11];
10     node *c[2];
11     node() { dep = id = 0; }
12 } nds[MXN];
13 int mxdep = 0;
14 void dfs(node *root, node *f) {
15     if (!root || !(root - nds)) return;
16     root->dep = f->dep + 1;
17     mxdep = max(mxdep, root->dep);
18     root->fa[0] = f;
19     dfs(root->c[0], root);
20     dfs(root->c[1], root);
21 }
22 bool ddfs(node *root) {
23     if (mxdep == root->dep) {
24         seq[root->dep] = root->id;
25         return true;
26     }
27     if (ddfs(root->c[0])) {
28         seq[root->dep] = root->id;
29         return true;
30     } else if (ddfs(root->c[1])) {
31         seq[root->dep] = root->id;
32         return true;
33     }
34     return false;
35 }
36 int n;
37 int main() {
38     scanf("%d", &n);
39     for (int i = 1; i <= n; ++i) {
40         int a, b;
41         nds[i].id = i;
42         scanf("%d %d", &a, &b);
43         nds[i].c[0] = nds + a;
44         nds[i].c[1] = nds + b;
45     }
46     nds[0].fa[0] = nds;
47     dfs(nds + 1, nds);
48     ddfs(nds + 1);
49     printf("The height of this tree is %d, following is a sequence of nodes\n", mxdep);
50     for (int i = 1; i <= mxdep; ++i)
51         printf("%d ", seq[i]);
52     putchar('\n');
53 }
54 /**
55 d:\git-repos\data-structure-homework\06>g++ e16.cpp
56
57 d:\git-repos\data-structure-homework\06>a
58 7 2 3 4 5 6 7 0 0 0 0 0 0 0
59 The height of this tree is 3, following is a sequence of nodes
60 1 2 4
61
62 d:\git-repos\data-structure-homework\06>
63 */

```