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1  /** This class MazeWalk, solve a maze using recursive calls
2   * It asks the user for a starting location in the maze and solves it
3   * from that location and prints the file.
4   *
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6   *
7   * @version 1.0 (Mar. 2014)
8
9  import java.io.FileNotFoundException;
10 import java.io.PrintWriter;
11 import java.io.UnsupportedEncodingException;
12
13 import BasicIO.*;
14
15 public class MazeWalk {
16
17     int row = 0; //Row size of the Maze
18     int column = 0; //Column size of the Maze
19
20     ASCIIDataFile in=new ASCIIDataFile("mz1.txt");//reading in the maze text file
21     char[][] mazeArray;//size of the array
22     boolean exit = false;
23
24     boolean[][] visited; //tracking location if it's been visited
25
26     public MazeWalk(){
27
28         //fields for input when getting values
29         int field1 = 0;
30         int field2 =0;
31
32         //creating a basic form
33         BasicForm form = new BasicForm();
34
35         //Creating the Maze.txt file to write too
36         PrintWriter writer = null;
37         try {
38             writer = new PrintWriter("Maze.txt", "UTF-8");
39         } catch (FileNotFoundException e) {
40             // TODO Auto-generated catch block
41             e.printStackTrace();
42         } catch (UnsupportedEncodingException e) {
43             // TODO Auto-generated catch block
44             e.printStackTrace();
45         }
46
47         //Fields of the forms
48         form.addTextField("field1", "X");
49         form.addTextField("field2", "Y");
50         form.writeString("field1", "1");
51         form.writeString("field2", "1");
52         form.accept();
53
54         field1 = form.readInt("field1"); //reading from field1
55         field2 = form.readInt("field2"); //reading from field2
56
57         form.hide();//hiding the form
58         ReadFile();//calling the reading file method
59
60         findPath(field1, field2);//
61
62         //printing out the Maze after it's been solve
63         for (int i = 0; i < mazeArray.length; i++) { //row
64             for (int j = 0; j < mazeArray[i].length; j++) { //column
65                 if(mazeArray[i][j] == ' '){ //if there's a white space
66                     //outPut.writeChar(' '); //writing out the output to file
67                     writer.print(" ");
68                     System.out.print(" "); //print line
69                 }
70             } else{ //print the value

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71         //writing out the output to file
72         writer.print(mazeArray[i][j]);
73         System.out.print( mazeArray[i][j]);
74     }
75 }
76 //writing a new line to the file
77 writer.println();
78 System.out.println();
79 } //end for loop
80
81 //closing the file
82 writer.close();
83 //closing the form
84 form.close();
85 }
86
87 /*recursive method that calls itself until it finds 'E'/exit*/
88
89 public void findPath(int x, int y){
90     //System.out.println("OutSide Value of x " + x + "Value of y " + y);
91     //System.out.println("x = " + x + " y = " + y);
92     if(mazeArray[x][y] == 'E') {
93         System.out.println("Found");
94         exit = true; return;
95         if(mazeArray[x][y] == '#' || visited[x][y] == true ){
96             return;
97         } //else{
98
99         visited[x][y] = true; //been here
100         //mazeArray[x][y] = '.';
101
102
103 while(mazeArray[x][y] != 'E'){
104
105     /*Going Forward*/
106     if(exit == false) {
107         mazeArray[x][y] = '>';
108         findPath(x,y+1);
109     }
110     /*Going backward*/
111     if(exit == false) {
112         mazeArray[x][y] = '<';
113         findPath(x,y-1);
114     }
115     /*going up*/
116     if(exit == false) {
117         mazeArray[x][y] = '^';
118         findPath(x-1,y);
119     }
120     /*going down*/
121     if(exit == false) {
122         mazeArray[x][y] = 'v';
123         findPath(x+1,y);
124     }
125     /*If checked all the position*/
126     if(mazeArray[x][y] == 'V') {
127         mazeArray[x][y] = '.';
128     }
129     return;
130 }
131
132 } //end of findPath method
133
134 private void ReadFile() {
135
136     row = in.readInt(); //getting the row size of the Maze
137     column = in.readInt(); //getting the column size of the Maze
138     mazeArray = new char [row][column]; //creating the Maze base on the values when
139     reading in

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140     visited = new boolean [row][column]; //creating the Maze base on the values
      when reading in, for the visted part
141
142     //reading a line and creating a charArray base on each character
143     for (int i = 0; i < mazeArray.length; i++) {
144         mazeArray[i] = in.readLine().toCharArray();
145     }
146     //System.out.println(mazeArray[3][10]);
147     in.close(); //close the file
148 }
149 public static void main(String[] args) {
150     new MazeWalk();
151 }
152 }
153 }
154 }

```