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1 // Name: Leon Singleton
2 // User Name:acal6ls
3
4 import sheffield.*;
5 public class Assignment2 {
6     public static void main(String[] args) {
7
8         //The constant values used throughout the program are stored
9         final int POND_ROWS = 90;
10        final int POND_COLUMNS = 360;
11        final int DUCK_ROWS = 52;
12        final int DUCK_COLUMNS = 130;
13        final int POND_SCALE = 3;
14        final int DUCK_SCALE = 2;
15
16        //creates an instance of the graphics window
17        EasyGraphics g = new EasyGraphics(POND_COLUMNS*POND_SCALE, POND_ROWS*POND_SCALE);
18        //creates an instance so that the duck file can be read
19        EasyReader fileInput = new EasyReader("duck.txt");
20        //two separate character arrays store the contents of the pond and duck images
21        char[][] duckArray = new char[DUCK_ROWS][DUCK_COLUMNS];
22        char[][] pondArray = new char[POND_ROWS][POND_COLUMNS];
23
24
25        //loops through the first 6760 characters of the file
26        //each character is stored in the duck array with 52 rows and 130 columns
27        for (int j=0 ; j < DUCK_ROWS; j++) {
28            for (int i=0 ; i< DUCK_COLUMNS; i++) {
29                char letter= fileInput.readChar();
30                duckArray[j][i] = letter;
31            }
32        }
33
34        //loops through the next 32400 characters of the file
35        //each character is stored in the pond array with 90 rows and 360 columns
36        for (int j=0 ; j < POND_ROWS; j++) {

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37     for (int i=0 ; i< POND_COLUMNS; i++) {
38         char letter= fileInput.readChar();
39         pondArray[j][i] = letter;
40     }
41 }
42
43 //loops through the rows and columns of the pond array
44 //Each character in the pond array is checked to see what colour it represents
45 //depending on which character is verified a colour is set
46 //then using that colour a rectangle of width 3 by height 3 is created
47 //the x and y coordinates are scaled by a multiple of 3
48 //the y coordinate is set by counting down from the highest row position
49     for (int j=0 ; j < POND_ROWS; j++) {
50         for (int i=0 ; i< POND_COLUMNS; i++) {
51             if (pondArray[j][i]=='s') {
52                 g.setColor (135,206,235);
53             }
54             else if (pondArray[j][i]=='w') {
55                 g.setColor (0,102,102);
56             }
57             else if (pondArray[j][i]=='g') {
58                 g.setColor (153,255,51);
59             }
60             else if (pondArray[j][i]=='b') {
61                 g.setColor (102,51,0);
62             }
63             g.fillRect((i)*POND_SCALE, (POND_ROWS-j-1)*POND_SCALE, POND_SCALE, POND_SCALE);
64         }
65     }
66
67 //loops through the first 26 rows and columns of the duck array
68 //only the first 26 rows are checked so that a half duck is created
69 //Each character in the duck array is checked to see what colour it represents
70 //when an x is detected a 2x2 yellow rectangle is drawn
71     for (int j = 0; j < DUCK_ROWS/2; j++) {
72         for (int i =0; i < DUCK_COLUMNS; i++) {

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73     if (duckArray[j][i]=='x') {
74         g.setColor (255,255,0);
75         g.fillRect((i)*DUCK_SCALE,(DUCK_ROWS-j)*DUCK_SCALE,DUCK_SCALE,DUCK_SCALE);
76     }
77 }
78 }
79
80 //loops through the rows and columns of the duck array 3 times to create 3 ducks
81 //a counter is created that increments after each duck is drawn, so that there
82 //is equal spacing between each duck
83 int increaseX =0;
84 for (int p = 0; p < 3; p++) {
85     increaseX = increaseX +125;
86     for (int j = 0; j < DUCK_ROWS/2; j++) {
87         for (int i =0; i < DUCK_COLUMNS; i++) {
88             if (duckArray[j][i]=='x') {
89                 g.setColor (255,255,0);
90                 g.plot((i+increaseX+100),(80-j));
91             }
92         }
93     }
94 }
95
96 }
97 }
```