CMSC 117: Introduction to Computing: Interactive Systems

Assignment: Game I

Due by Class March 8th, 2016

The next assignment asks you to modify a simple bouncing-ball *game*. Your modifications should improve the game in some sense. After your changes, the game might be more fun to play, or you might do something with the game (e.g. provoke empathy or play a prank).

You should make four changes to the provided sketch:

1. reorganize the sketch using functions (e.g. `drawPaddle`, `moveBall`);
2. make a change in terms of the static appearance of the game;
3. the paddle should not leave the screen;
4. a point tally should be displayed (you decide how points are awarded or deducted).

Learning Objectives

- Modify an existing program.
- Reflect on a minimalistic game.
- Practice with user interaction in processing.

Deliverable

Submitting your assignment:

1. Put a comment at the top of your programs with your name, assignment description, collaboration statement & date.
2. Bring a hardcopy of your program (i.e., the source code) to class. You can print the program using the Processing application.
3. Upload a link to your sketch on the Moodle forum.

   http://jsbin.com/yasefo

```
1  /*
2   * Skeleton of a ball bouncing /game/.
3   * Keith O'Hara <kohara@bard.edu>
4   */
5
6  var paddle_x;
7  var paddle_step;
8  var paddle_h = 16;
9  var paddle_w = 5 * paddle_h;
10
11 var ball_x, ball_y;
12 var ball_x_step, ball_y_step;
13 var ball_r = 13;
14
15 function setup() {
16   createCanvas(600, 300);
17   paddle_x = width/2;
18   paddle_step = 0;
19   reset();
20 }
21
22 function reset() {
23   ball_x = random(ball_r, width - ball_r);
24   ball_y = random(ball_r, height/2 );
25   ball_x_step = random(-3, 3);
26   ball_y_step = random(1, 3);
27 }
28
29 function keyPressed() {
30   if (keyCode == LEFT_ARROW) {
31     paddle_step = -3;
32   }  else if (keyCode == RIGHT_ARROW) {
33     paddle_step = 3;
34   }  else if (key == ' ') {
35     reset();
36   }
37 }
38
39 function keyReleased() {
40   paddle_step = 0;
41 }
42
43
44
45
46
47
48
49
50
51
```

```
52 function draw() {
53   background(196);
54
55   // move paddle
56   //paddle_x += (mouseX - paddle_x) * .1;
57   paddle_x = paddle_x + paddle_step;
58
59   // is the ball hitting the right or left wall?
60   if (ball_x - ball_r < 0 || ball_x + ball_r > width) {
61     ball_x_step = -ball_x_step;
62   }
63
64   // hitting the top?
65   if (ball_y - ball_r < 0) {
66     ball_y_step = -ball_y_step;
67   }
68
69   // hitting the paddle?
70   if (ball_y + ball_r > height - paddle_h) {
71     if (ball_x >= paddle_x && ball_x <= paddle_x + paddle_w ) {
72       ball_y_step = -ball_y_step;
73     }
74   }
75
76   // move ball by ball_x_step and ball_y_step
77   ball_x = ball_x + ball_x_step;
78   ball_y = ball_y + ball_y_step;
79
80   //draw ball
81   noStroke();
82   fill(196, 0, 0);
83   ellipse(ball_x, ball_y, ball_r*2, ball_r*2);
84
85   // draw paddle
86   stroke(24);
87   fill(64);
88   rect(paddle_x, height-paddle_h, paddle_w, paddle_h);
89 }
```