# CS106 W2021 - Lab 01

This lab is mainly an introduction to the Open Processing editing environment.

---

A video showing how to do questions 1, 2 and 3 is at:
https://vault.cs.uwaterloo.ca/s/HJF99KAKqTmGBdX

1) In CS106 this semester we are using an editor called "Open Processing". It is a web-based editor for JavaScript P5. This editor will replace the Processing IDE editor we used in CS105. As a CS106 student, you are covered by the University of Waterloo's Open Processing license. You need to sign up to get your student account which is called an Open Processing "Plus+" membership. To sign up for your account you have to go to the following url and enter the code: 60EB5E

https://www.openprocessing.org/class/66897

After signing up, create a sketch. The sketch that Open Processing creates by default is as follows:

```
function setup() {
      createCanvas(windowWidth, windowHeight);
      background(100);
}

function draw() {
      ellipse(mouseX, mouseY, 20, 20);
}
```

Run it. When you run the default program, the canvas should look something like the

following.

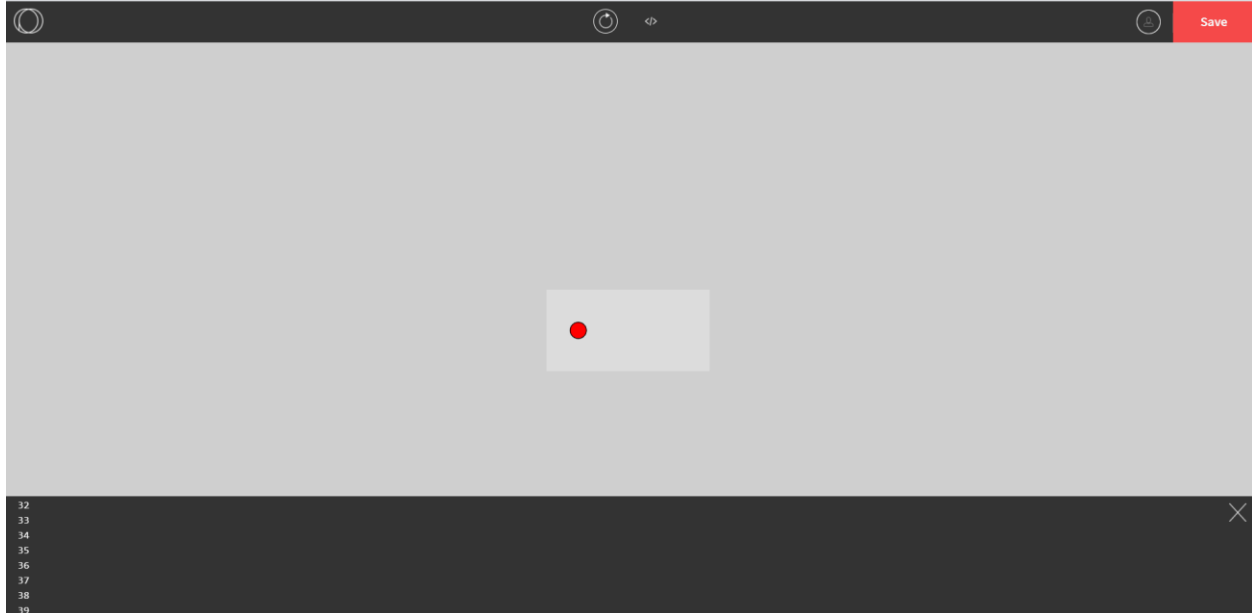When you edit it, it should look something like the following:



Save this sketch as L01_Q1.  Do not modify the code, except add a comment line or two at the beginning (i.e. use //) with your name and student ID number.

2) Create another new sketch. Save this sketch as L01_Q2.  Delete the default code and replace it by typing the following code into the Open Processing editor, and run it. You should see a red ball animating across the screen.  When the mouse is pressed, the ball starts again from the left-hand side of the canvas.  Do not modify the code, except add a comment line at the beginning (i.e. use //) with your name and student ID number.

It prints out the value of "ballX" in the console at the bottom of the screen.  You can use this console and your browser's debugger to help debug your code.  Remember from CS105, to use your browser's debugger, use the keyboard shortcut Ctrl Shift J (on Windows) or Ctrl Option J (on Mac). Alternatively, you can use the Chrome menu in the browser window, select the option "More Tools," and then select "Developer Tools."

```
let ballX = 0;
let s = 20;

function setup() {
  createCanvas(200, 100);
}

function draw() {
  background(220);
  fill(255, 0, 0);
  ellipse(ballX, height / 2, s, s);
  ballX = ballX + 1.0;
  print(ballX);
}

function mousePressed() {
  ballX = 0;
}
```
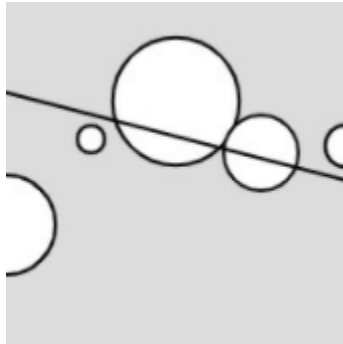
When you run the above program, you should see something like the following.



If you open your browser's debugger it will look something like the following:
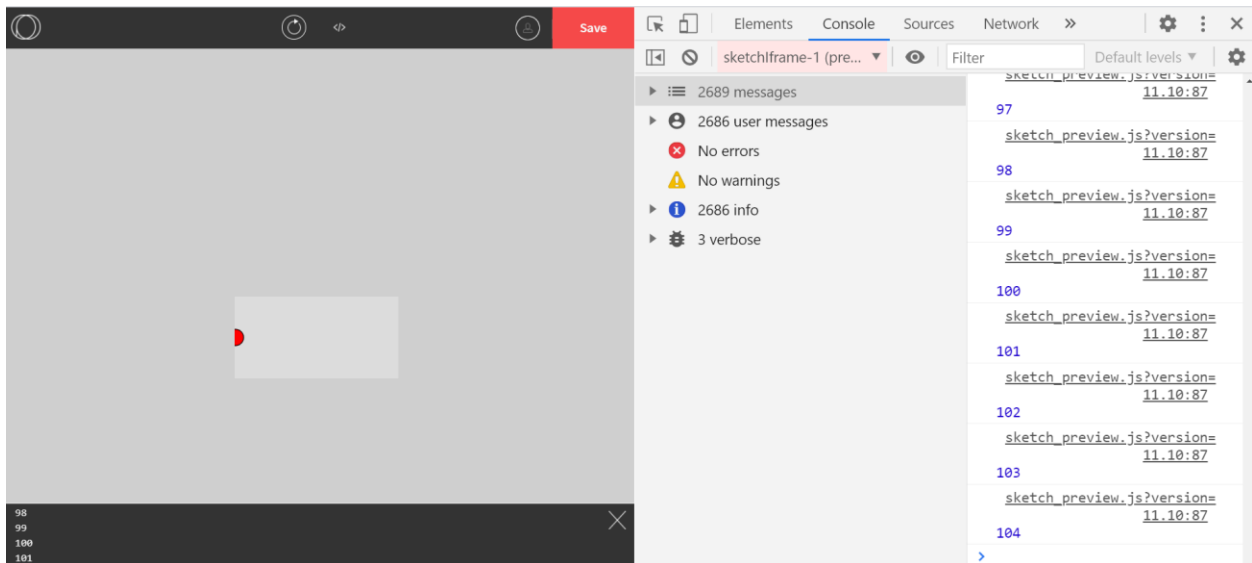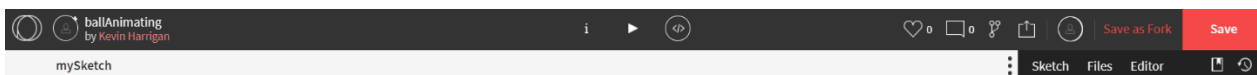
3) There is a sketch provided in the Lab 01 "collection" called "ballsBigAndSmall".



Load it. Run it.  Do not modify the code, except add a comment line at the beginning (i.e. use //) with your name and student ID number.

Fork it. To fork it you select "Save as Fork".  "Save as Fork" will appear after you have made modifications to the file. Save as L01_Q3.



A video showing how to do questions 4, 5 and 6 is at:

https://vault.cs.uwaterloo.ca/s/THgLF5YQRHPCKDj

4) There is a sketch provided in the Lab 01 "collection" called "colorTheImage".



Load it. Run it.  Do not modify the code, except add a comment line at the beginning (i.e. use //) with your name and student ID number.

Fork it. To fork it you select "Save as Fork".  "Save as Fork" will appear after you have made modifications to the file. Save as L01_Q4.

5) There is a sketch provided in the Lab 01 "collection" called "PersonWalking".
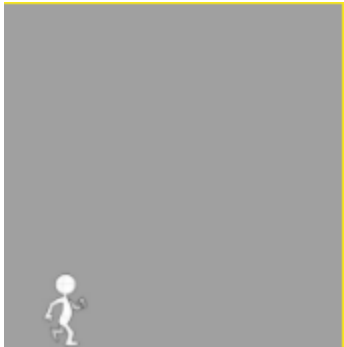


Load it. Run it. Do not modify the code, except add a comment line at the beginning (i.e. use //) with your name and student ID number.

Fork it. To fork it you select "Save as Fork". "Save as Fork" will appear after you have made modifications to the file. Save as L01_Q5.

6) In CS105 you programmed many hit tests. Using Open Processing, create a JavaScript p5 sketch that contains a hit test as follows (there is no Starter Code):

   a. The canvas is 200 x 200.

   b. The sketch has a red rectangle (40x40) in the middle of the canvas.

   c. A white ellipse is centred at the mouse position mouseX and mouseY. The ellipse is a circle with diameter of 20 pixels.

   d. When the centre of the ellipse hits the rectangle, the rectangle turns green.

   Sample screen shots are shown below.
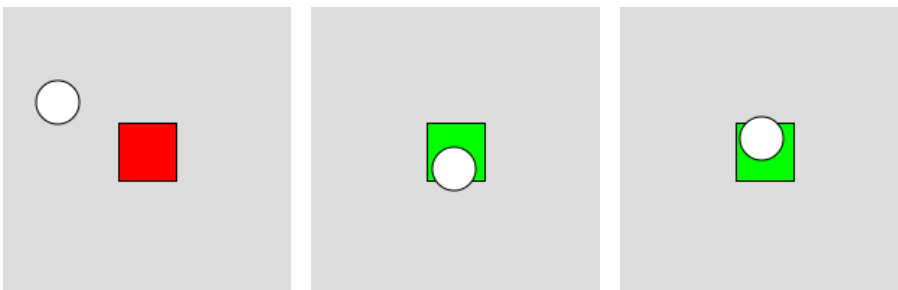


   Save your sketch as "L01_Q6".

# Submitting

Use the template file in Word "CS106 Lab Template" in LEARN to create your Lab 01 submission.

Then convert your Word file to pdf.

Submit that pdf file to the Lab 01 dropbox on LEARN.

An example of how to do submit a Lab is shown in the following video:
https://vault.cs.uwaterloo.ca/s/9Xx7AGsewaea773

It is your responsibility to submit to the correct dropbox with the correct files before the deadline. Otherwise you may receive a mark of 0.