Interaction and Events

CMPT 140

Exercise 1

With regard to the following interactive Processing program, who or what is:

- **The user**:
- **The system**:
- **A user action**:
- **A system feedback**:

```
1  # circle_fun.pyde
2
3  def setup():
4      size(300,300)
5      background(255,255,255)
6
7  def draw():
8      ellipse(mouseX,mouseY,100,100)
```

Demo 1

Below is a simple run-to-completion program.

How could we write the exact same program in interactive mode (i.e. using setup() and draw())?

```
1 background(0,0,0)
2 fill(255,255,255)
3 rect(20,25,20,50)
4 fill(255,255,255)
5 rect(60,25,20,50)
```

Exercise 2

Write Processing code which draws a SINGLE circle that follows the mouse.

- The circle **color** should be blue
- The circle **size** should be 50x50
- The **background** should be black

Exercise 3

What does the following Processing code do?

```
1  def setup():
2      size(300,300)
3
4  def draw():
5      return
6
7  def mouseClicked():
8      fill(255,255,0)
9      ellipse(mouseX,mouseY,50,50)
10
11 def keyPressed():
12     fill(0,0,0)
13     ellipse(mouseX,mouseY,50,50)
```

Exercise 4

Create a Processing program with a 255x255 canvas.

- **When the user clicks the mouse:** A 50x50 circle appears at the mouse location. The circle's RGB colour depends on its **location**: green equal to its x-coodinate, blue equal to its y-coordinate and no red at all.

- **When the user presses a key:** The canvas should be cleared, and the background should be set to a shade of gray equal to the mouse's current x-coordinate.

Exercise 5

For the following exercise, you only have access to these statements:

```
ellipse(mouseX,mouseY,50,50)   # draw ellipse at mouse coords
background(0)                  # colour background black
return                         # function is done
```

You can add any number of them anywhere to this template:

```
1  def setup():
2      size(300, 300)
3      # code here is called once at program start
4
5  def draw():
6      # code here is called continuously until program end
7
8  def mouseClicked():
9      # code here is called on a mouse click
```

Exercise 5 (ctn'd)

How can the following effects be achieved?

(a) A stream of circles follows the mouse. All the circles disappear when the mouse is clicked.

(b) A single circle follows the mouse. Nothing happens when the mouse is clicked.

(c) A circle appears wherever the mouse is clicked. If the mouse is clicked somewhere else, the circle **moves** to that spot.