Event Handling

Mouse Events

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What is an event?

"An action such as a key being pressed,
the mouse moving, or
a new piece of data becoming available to read.
An event interrupts the normal
flow of a program to
run the code within an event block"
(Reas & Fry, 2014)

Mouse Events

Mouse Variables	Description
mousePressed	***true*** if any mouse button is pressed, ***false*** otherwise. Note: this variable reverts to ***false*** as soon as the button is released.
mouseButton	Can have the value **LEFT**, **RIGHT** and **CENTER**, depending on the mouse button most recently pressed. Note: this variable retains its value until a different mouse button is pressed.

Mouse Events

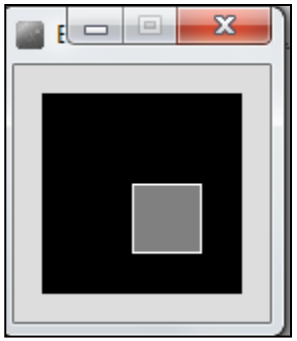
- Mouse and keyboard events only work when a program has draw().

- Without draw(), the code is only run once and then stops listening for events.

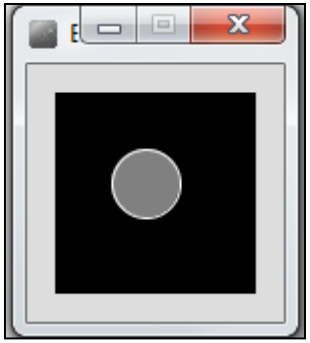
Source: https://processing.org/reference/

Processing Example 5.1

- Functionality:
  - If the mouse is pressed, draw a gray square with a white outline.



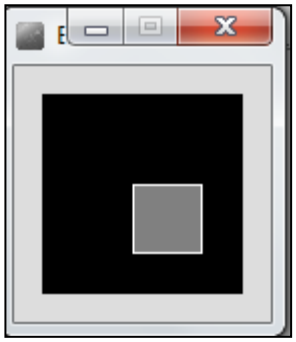
  - Otherwise draw a gray circle with a white outline.

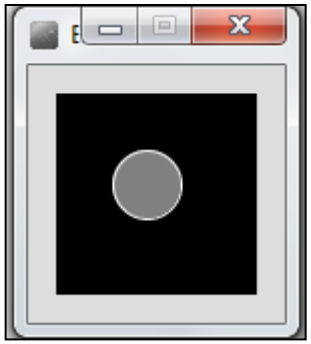


Processing Example 5.1 - Code

```
void setup() {
  size(100,100);
}
```

```
void draw() {
   background(0);
   stroke(255);
   fill(128);
   if (mousePressed){
       rect(45,45,34,34);
   }
   else{
       ellipse(45,45,34,34);
   }
}
```

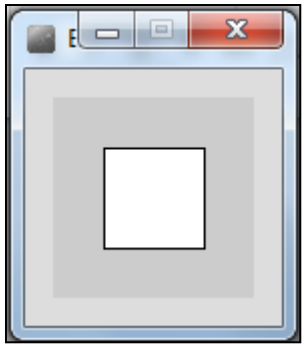


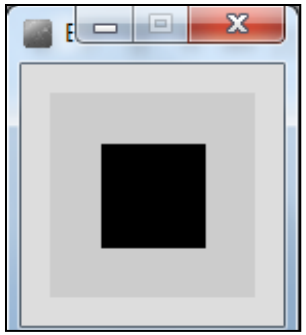


Source: Reas & Fry (2014)

Processing Example 5.2

- Functionality:
  - If the mouse is pressed, set the fill to white and draw a square.
  - Otherwise set the fill to black and draw a square.

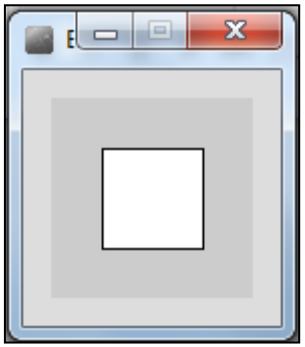


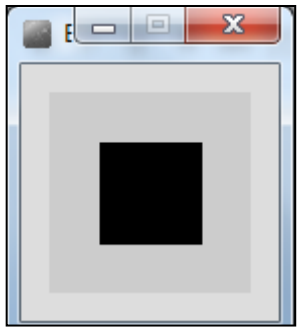


Processing Example 5.2

```
void setup() {
  size(100,100);
}
```

```
void draw() {
  background(204);
  if (mousePressed == true)
  {
       fill(255); // white
   } else {
       fill(0);      // black
   }
   rect(25, 25, 50, 50);
}
```

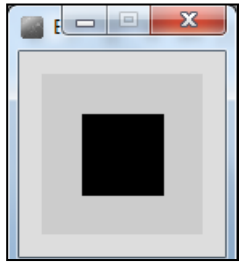


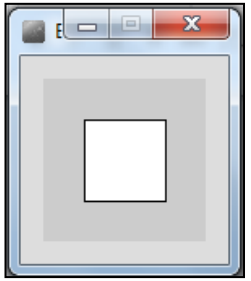


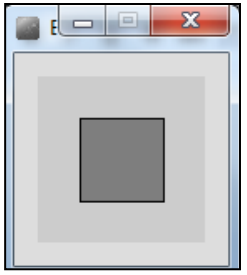
Source: Reas & Fry (2014)

Processing Example 5.3

- Functionality:
  - If the LEFT button on the mouse is pressed, set the fill to black and draw a square. As soon as the LEFT button is released, gray fill the square.
  - If the RIGHT button on the mouse is pressed, set the fill to white and draw a square. As soon as the RIGHT button is released, gray fill the square.
  - If no mouse button is pressed, set the fill to gray and draw a square.



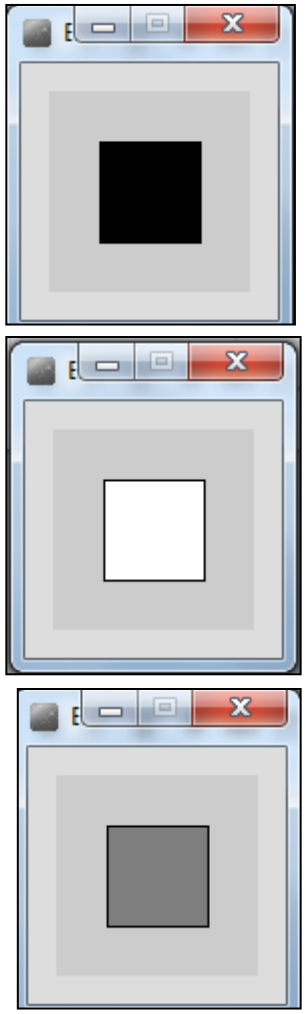




Processing Example 5.3

```
void setup() {
  size(100,100);
}
```

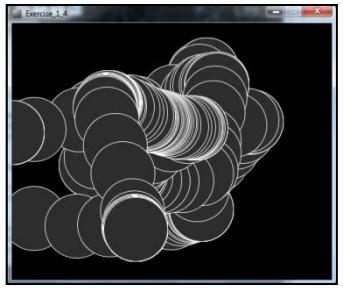
```
void draw() {
   if (mousePressed){
       if (mouseButton == LEFT)
            fill(0);            // black
       else if (mouseButton == RIGHT)
            fill(255);          // white
   }
   else {
       fill(126);               // gray
    }
    rect(25, 25, 50, 50);
}
```

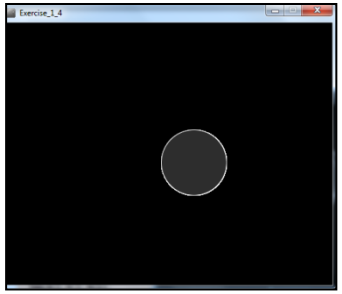


Source: Reas & Fry (2014)

Processing Example 5.4

- Functionality:
  - Draw a circle on the mouse (x,y) coordinates.
  - Each time you move the mouse, draw a new circle.
  - All the circles remain in the sketch until you press a mouse button.
  - When you press a mouse button, the sketch is cleared and a single circle is drawn at the mouse (x,y) coordinates.





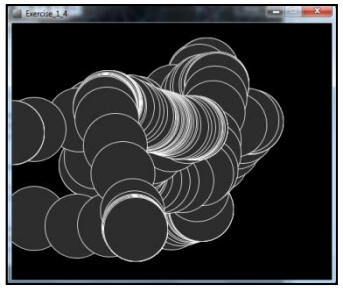
Processing Example 5.4

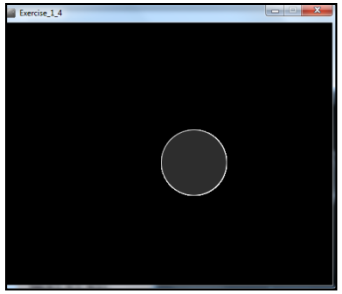
```
void setup() {
  size(500,400);
  background(0);
}
```

```
void draw() {

  if (mousePressed) {
    background(0);
  }

  stroke(255);
  fill(45,45,45);
  ellipse(mouseX, mouseY, 100, 100);
}
```





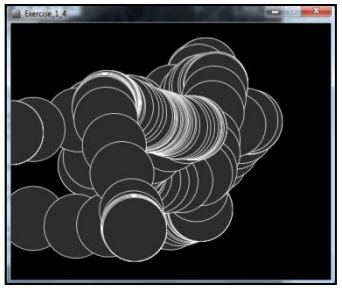
https://processing.org/tutorials/interactivity/

Processing Example 5.4

```
void setup() {
  size(500,400);
  background(0);
  stroke(255);
  fill(45,45,45);
}
```

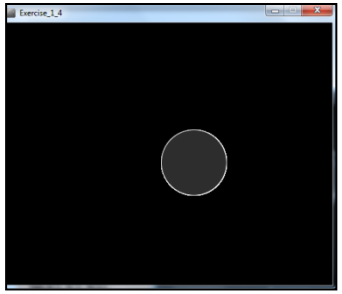
We moved the stroke and fill function calls to the setup() function.

Q: Does this change the functionality of our sketch?



```
void draw() {

  if (mousePressed) {
    background(0);
  }
  ellipse(mouseX, mouseY, 100, 100);
}
```



https://processing.org/tutorials/interactivity/

Questions?

References

- Reas, C. & Fry, B. (2014) Processing – A Programming Handbook for Visual Designers and Artists, 2nd Edition, MIT Press, London.

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