Reacting to the Mouse and Keyboard

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The \textit{mousePressed}, \textit{mouseX}, and \textit{mouseY} Variables

```java
void draw() {
    stroke(0, 0, 0);
    fill(255, 50, 50);
    if (mousePressed) {
        ellipse(mouseX, mouseY, 50, 50);
    }
}
```

\textit{mousePressed} is a built-in variable that is always telling you if a mouse button is currently pressed.

\textit{mouseX} and \textit{mouseY} are built-in variables that are always telling you where the mouse cursor is.
The `mousePressed`, `mouseX`, and `mouseY` Variables
The *keyPressed* and *key* Variables

```java
text
void draw() {
    if (keyPressed) {
        switch (key) {
            case 'r':
                fill(255, 50, 50);
                break;
            case 'g':
                fill(50, 255, 50);
                break;
            case 'b':
                fill(50, 50, 255);
                break;
        }
    }
    if (mousePressed) {
        ellipse(mouseX, mouseY, 50, 50);
    }
}
```

- **keyPressed** is a built-in variable that is always telling you if a keyboard key has been pressed.
- **key** is a built-in variable that tells you what key has been hit.
- The **switch/case** statements are Processing’s way of checking many values without having a whole slew of if-statements.

The **stroke()** and **fill()** calls have been moved to **setup()**.
What if you want to read the Special Keys?

```java
... 
if( keyPressed )
{
    if( key == CODED )
    {
        switch( keyCode )
        {
            case UP: // up-arrow
            ...
            break;
        }
    }
}
```

Values for `keyCode` can be:
- UP
- DOWN
- LEFT
- RIGHT
- ESC
- DELETE
- BACKSPACE
- TAB
- ENTER
- RETURN
You can also define your own functions to handle the mouse and keyboard explicitly, but we don’t need these yet

```java
void mousePressed()
{
  if( Debug )
    println( "mouse button = " + mouseButton );
}

void mouseMoved()
{
  if( Debug )
    println( "mouse has been moved: " + mouseX + " , " + mouseY );
}

void mouseDragged()
{
  if( Debug )
    println( "mouse has been dragged: " + mouseX + " , " + mouseY );
}
```