day92 micro:bit gestures
Monday 5/2/22

Today we're going to look at micro:bit's gesture functionality.

Inside each micro:bit is an accelerometer. Google tells us that an accelerometer is "an instrument for measuring acceleration, typically that of an automobile, ship, aircraft, or spacecraft, or that involved in the vibration of a machine, building, or other structure." You may know that most smartphones have one in them that let them do things like wake up when you pick them up, or flip the screen sideways when you are trying to view something from a different angle.

The micro:bit's accelerometer has two types of information: you can read values of x, y, and z that indicate the position of the micro:bit in space and you can also read what they call "gestures" from the device. A gesture will be "face up", if the device is sitting face up, for example, "left" if you tilt the micro:bit to the left, and "freefall" if you drop your micro:bit from a very high place and let it fall. Gestures are all strings.

A micro:bit will give you one of the following 11 gesture strings:

shake	a rapid back and forth motion
up	moving upwards
down	moving downwards
left	tilting left
right	tilting right
face up	at rest, facing up
face down	facing down
freefall	tossed from an airplane
3g, 6g, 8g	extreme gravity: please don't try to get these to happen, these have to do with extreme forces, like hitting something very hard

A very simple program that accesses the gesture information is here:

```
from microbit import *
while True:
    if accelerometer.was_gesture("shake"):
        display.show(Image.HEART)
        sleep(1000)
        display.clear()
```

You could add elif statements to the above code to check for other gestures and do different things depending upon what gestures have happened. **In fact, realizing how hard it is to shake a micro:bit when it's connected to a PC with a five inch USB cable, we'll use different gestures in today's program.**

Your task today:

Write a program that starts a count at zero, shows the current count when the gesture is "face up" then sleeps for 1 second, adds one to your count every time the "right" gesture appears and subtracts one every time the "left" gesture occurs. If the count gets to 4, show a smiley face for 2 seconds, then start over. Good luck!