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Milestone 1

Step 1:

We went to MakeCode and used the visual editor to write a program that simulated a heartbeat on our microbit.

Step 2:

We downloaded the Mu editor and wrote a heartbeat program in python. Once we felt comfortable with Mu and the microbit api, we moved on to trying to create a step counter program. We made sure display to show the step count if the count was less than 10, and to scroll if the count was greater.

Step 3:

The first thing we noticed was that the display seemed to affect the counter. We added the scroll function and the display was smooth. This ensured that steps were counted as motion was detected.
In addition, we implemented logic to display the step count(when greater than 9) on button press.

We also implemented a button that reset the step counter.

Step 4:

Our next iteration of the step counter still had some bugs. We were using the method `current_gesture()' and 'is_gesture()` to add to our step counter and subsequently registered hundreds of steps for every shake of the microbit. This is because we iterated through the `while True` loop thousands of times every second. A simple change to `was_gesture()` fixed this shake issue.

We could improve this step counter by only considering movements of the accelerometer that are in a certain direction. If we expect to clip this device to the someone's waste, then something like rotating in place should not be considered a step. A rocking motion in one direction and maybe specific vertical movements to simulate climbing up and down stairs should be considered steps.

Code

```
from microbit import *

steps = 0
display.show(str(steps))

while True:
    if accelerometer.was_gesture("shake"):
        steps += 1
        if steps < 10:
            display.show(str(steps))
        else:
            display.clear()
    if button_a.is_pressed():
        display.scroll(str(steps))
```