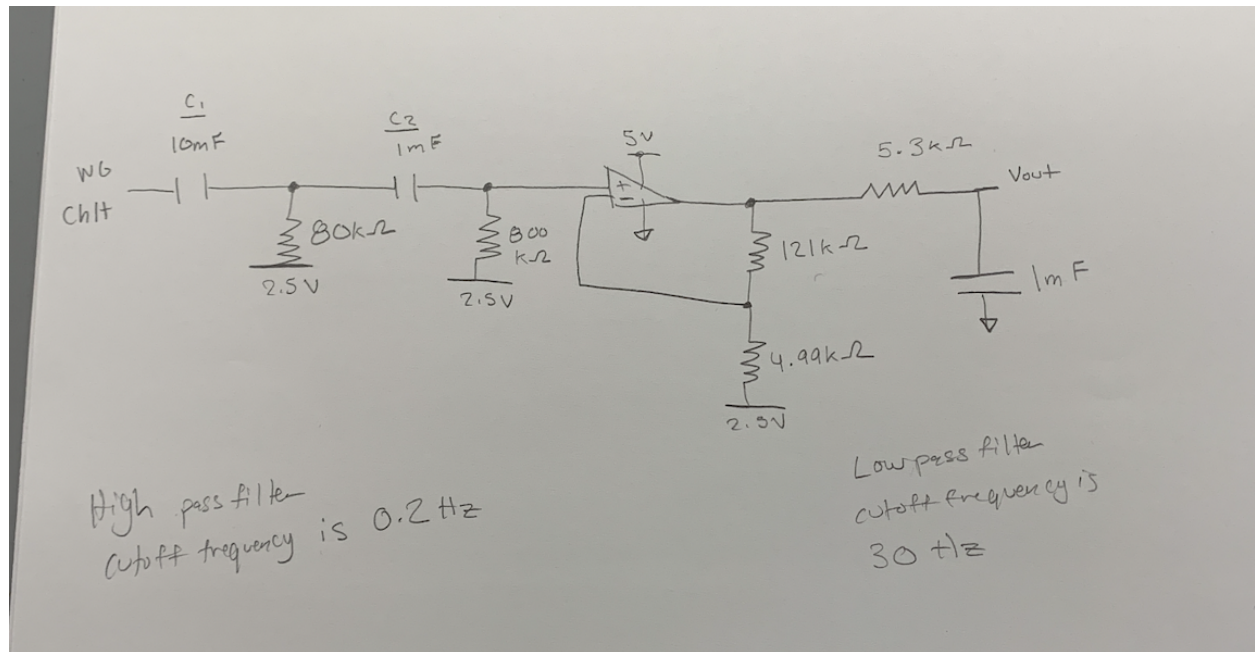


# Lab 6 - Non code

## Circuit Schematic



## Description of circuit

Cutoff Frequencies: I used **0.2 and 30 as my cutoff frequencies**. I chose 0.2 because it was given in the lab. I tried out frequencies like 0.16 and 0.10 to test how the output would change. The main intention of the high pass filter in this lab is to pass frequency values greater than 0.2 with a low pass filter value of 30 (calculated based on the upper limit of heartbeats per minute) so all frequencies below 30 aren't passed. This range creates a band pass filter such that I can isolate the frequency that gives me the blood pressure.

Gain: **The gain for the total circuit is 25.** 25 was the number I set equal to  $1 + (R_f / R_{in})$  to get the two series resistor values following the op-amp.

What the circuit does to input signals: Filters for values within the range of 0.2 - 30 as a result of band pass filter configuration.

## **Advantage of 2.5 V**

There are a couple advantages to using 2.5V over 0V:

- 2.5V as the reference voltage allows the filter to operate with positive and negative input signals. With a 0V reference voltage, the circuit will only accept values greater than 0V, because the op-amp is pinned to ground.
- 2.5V allows the op-amp to move between positive and negative. Without 2.5V all of the output values will be positive.