# ECE 341 Lab 2 Prelab Questions

1. What will affect how close your pure software delay can get to 1 ms resolution?

How high COUNTS\_PER\_MS is determined to be because the higher COUNTS\_PER\_MS is found to be, the higher accuracy of the resolution.

The effect of the inserted LED toggling code to find COUNTS\_PER\_MS will also play a role in how close we can get to a 1 ms resolution. This is because this additional code input for testing takes up some amount of time to execute.

Also, the degree of accuracy we decide to settle on will affect how close we get. It was settled for us that our accuracy will be COUNTS\_PER\_MS plus or minus one count.

1. What do you see as the advantages of the hardware-assisted delay method?  
    We won’t have to reconfigure the method if the processor speed changes.

Also, instead of basing our delay method off of testing and trial and error, we’re able to use hardware specifics to set up our delay method with certainty from the get go.

1. What is the “range” of each method, i.e. the minimum and maximum delay?

For the pure software delay, minimum delay is 1ms and maximum is 49.71 days. Minimum delay is limited by how only a whole integer can be passed to our hardware delay method, and maximum is limited by the maximum value an unsigned integer can take on.

For the hardware assisted day, minimum delay is 1ms and maximum is 1.79 minutes. Minimum delay is limited by how only a whole integer can be passed to our hardware delay method, and maximum is limited by the highest value ‘tWait’ can take on. tWait is limited by the CORE\_MS\_TICK\_RATE, so the tick rate of the core timer, and by the maximum value an unsigned integer can take on.