

ECE4144 ADC Hands On Homework

```
void adc_init(void)
{
    ADMUX = (1<<REFS0);
    ADSRA = (1<<ADEN) | 7;
}

int readAdc(char chan)
{
    ADMUX = (1<<REFS0) | (chan & 0x0f);
    ADSRA |= (1<<ADSC);
    while (ADSRA & (1<<ADSC));
    return ADCW;
}
```

1. In the above code, macros and bits definitions are used (i.e ADMUX, REFS0) instead of pointers etc. Add a comment for each line of code that describes what each line does. Describe the function of ADCW.
2. Rewrite above code without the macros. Use address pointers, bit assignments etc., like we did in class.
3. Write the setup() and loop() code that implements the following. You may use the macros and bit definitions like in question 1 if you wish.
 - a. Pin A0 is an analog input with Vcc as a reference,
 - b. Pin 4 is configured for digital output
 - c. An LED connected to pin 4 should be "ON" if the analog voltage on A0 is greater than 1.0V. The LED is "OFF" otherwise. Be sure to manage the LED cycling if the voltage hovers around 1.0V