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CPE 301
9 November 2016

HW 7

8.1)

    ADCSRA:
        bit 7: 1 // for ADC enable
        bit 6: 1 // to start ADC conversion
        bit 5: 1 // auto trigger enable
        bit 2: 1 /* next 3 lines to set pre-scaler to 16 */
        bit 1: 0
        bit 0: 0
    ADCSRB:
        bit 6: 1 // multiplexer enable
        bit 2: 0 /* next 3 lines to set trigger source to free
        bit 1: 0   running mode */
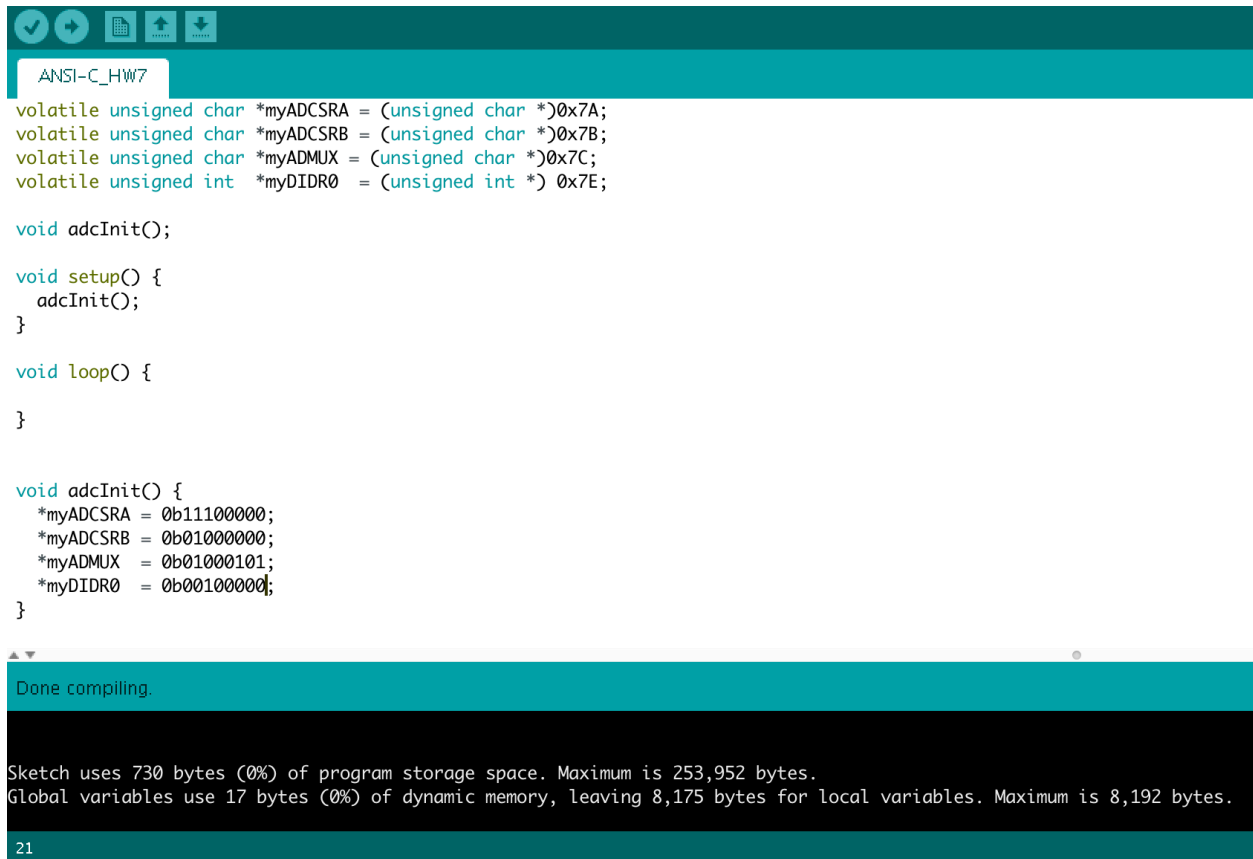   bit 0: 0
    ADMUX:
        bit 7: 0 /* next 2 lines to set volt. ref. selections
        bit 6: 1   to AVcc w/ external capacitor at AREF */
        bit 5: 0 // for right justification
        bit 3: 0 /* next 4 lines for ADC channel 5 */
        bit 2: 1
        bit 1: 0
        bit 0: 1
    DIDR0:
        bit 5: 1 // for ADC5
        bit 4: 0 /* next 5 lines to disable other channels */
        bit 3: 0
        bit 2: 0
        bit 1: 0
        bit 0: 0

8.2)

```
volatile unsigned char *myADCSRA = (unsigned char *)0x7A;
volatile unsigned char *myADCSRB = (unsigned char *)0x7B;
volatile unsigned char *myADMUX = (unsigned char *)0x7C;
volatile unsigned int  *myDIDR0  = (unsigned int *) 0x7E;

void adcInit();

void setup() {
  adcInit();
}

void loop() {

}


void adcInit() {
  *myADCSRA = 0b11100000;
  *myADCSRB = 0b01000000;
  *myADMUX  = 0b01000101;
  *myDIDR0  = 0b00100000;
}
```

Done compiling.

Sketch uses 730 bytes (0%) of program storage space. Maximum is 253,952 bytes.
Global variables use 17 bytes (0%) of dynamic memory, leaving 8,175 bytes for local variables. Maximum is 8,192 bytes.

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8.4)

```
volatile unsigned char *myADCSRA = (unsigned char *)0x7A;
volatile unsigned char *myADCSRB = (unsigned char *)0x7B;
volatile unsigned char *myADMUX = (unsigned char *)0x7C;
volatile unsigned int  *myDIDR0  = (unsigned int *) 0x7E;
volatile unsigned int  *myADCH   = (unsigned int *) 0x78; // adc data register
volatile unsigned int  *my7Seg   = (unsigned int *) 0x00; // would set this to an actual address we would use

void adcInit();

unsigned char pollChannel5();

void setup() {
  adcInit();
}

void loop() {
  switch(pollChannel5()) {
    case:
      break;
    case:
      break;
    default:
      *my7Seg = 0b00000000; // zero it out by default
  }
}

void adcInit() {
  *myADCSRA = 0b11100000;
  *myADCSRB = 0b01000000;
  *myADMUX  = 0b01000101;
  *myDIDR0  = 0b00100000;
}

unsigned char pollChannel5() {
  return (*myADCH & 0b00100000); // return val at bit 5
}
```

Done compiling.

Sketch uses 730 bytes (0%) of program storage space. Maximum is 253,952 bytes.
Global variables use 17 bytes (0%) of dynamic memory, leaving 8,175 bytes for local variables. Maximum is 8,192 bytes.

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