```c
/*
 * MPBS_PROJECT.c
 *
 * Created: 1/22/2020 12:15:54 AM
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 */


#include <avr/io.h>

// defining frequency of 1MHz.
#define F_CPU 1000000UL

#include <util/delay.h>

// defining adc function
void adc(void);

// defining function to read adc
void read_adc(void);


// main function

int main(void)
{
    // setting PORTC as input, to read ADC output
  DDRC=0b00000000;

    // setting PORTE as output for ADDA, ADDB & ADDC of ADC
  DDRE=0xFF;

    // setting some pins of PORTB as output for CLOCK, START, EOC, OE & ALE OF ADC
  DDRB=0b00110111; // PB5=ALE, PB2=Start, //PB1=clock, PB3=EOC, PB4=OE, PB0=OC0;

    // setting PORTD as output to show Digital value on LEDS
    DDRD=0xFF;

    // setting up TCCR2 for ADC
    // WGM21 = 1 & WGM20 = 0    -->>    CTC MODE
    // COM20 = 1 & COM21 = 0    -->>    Toggle OC2 on Compare Match
    // CS20  = 1 & CS21  = 0  & CS22 = 0  -->>  No Pre Scaling
  TCCR2|=(1<<WGM21)|(1<<COM20)|(1<<CS20);

    // Compare value with 2
  OCR2=2;

    // WGM00 = 1 & WGM01 = 0    -->>    PWM, Phase Correct MODE
    // CS00  = 1                -->>    No Prescaling
    // COM00 = 0 & COM01 = 1    -->>    Clear OC0 on Compare Match
  TCCR0 |= (1<<WGM00) | (0<<WGM01) | (1<<CS00)| (0<<COM00) | (1<<COM01) ;

  PORTB=0b00001000;

  while(1)
  {
    adc();
  }
}
```

```
60
61
62 void adc(void)
63 {
64   PORTE=0x00; // Line 0 selected
65   read_adc();
66 } //adc
67
68 void read_adc(void)
69 {
70
71   char num = 0;
72   PORTB=PORTB|0b00100100; //ALE and Start 1
73   _delay_ms(100);
74   PORTB=PORTB&0b11011011;// ALE and Start 0
75   while((PINB&0b00001000)==0b00001000);
76   while((PINB&0b00001000)==0b00000000);
77   PORTB=PORTB|(0b00010000);
78
79     //reading ADC output and storing in num
80   num=PINC;
81   _delay_ms(200);
82   PORTB=PORTB&(0b11101111);
83
84     // output Digital value on PORTD for LEDS
85   PORTD = num;
86
87   // putting Digital value wrt duty cycle directly on OCR0
88     OCR0 = num;
89 }
```