```
/*      Calculations
 * Fosc = 48MHz
 *
 * PWM Period = [(PR2) + 1] * 4 * TMR2 Prescale Value / Fosc
 * PWM Period = 200us
 * TMR2 Prescale = 16
 * Hence, PR2 =  149 or 0x95
 *
 * Duty Cycle = 10% of 200us
 * Duty Cycle = 20us
 * Duty Cycle = (CCPR1L:CCP1CON<5:4>) * TMR2 Prescale Value / Fosc
 * CCP1CON<5:4> = <1:1>
 * Hence, CCPR1L = 15 or 0x0F
 */


#include<p18f4550.h>

unsigned char count=0;
bit TIMER,SPEED_UP;

void timer2Init(void)
{
   T2CON   =   0b00000010;            //Prescalar = 16; Timer2 OFF
   PR2     =   0x95;                  //Period Register
}


void delay(unsigned int time)
{
   unsigned int i,j;
   for(i=0;i<time;i++)
      for(j=0;j<1000;j++);
}


void main(void)
{
   unsigned int i;
   TRISCbits.TRISC1    = 0;           //RC1 pin as output
   TRISCbits.TRISC2    = 0;           //CCP1 pin as output
   LATCbits.LATC1      = 0;
   CCP1CON  =   0b00111100;           //Select PWM mode; Duty cycle LSB CCP1CON<4:5> =
<1:1>
```

```
    CCPR1L   =   0x0F;                //Duty cycle 10%
    timer2Init();                    //Initialise Timer2
    TMR2ON = 1;                      //Timer2 ON

    while(1)                         //Loop forever
    {
       for(i=15;i<150;i++)
       {
          CCPR1L = i;
          delay(100);
       }
       for(i=150;i>15;i--)
       {
          CCPR1L = i;
          delay(100);
       }
    }
}
```