```
/*Proj_1C_LED_display

Testing your reaction time
************************************************************/

#include "Proj_1C1_header_file.h"

volatile unsigned int PORT_1, mask;         //Variables used by both the main routine and also by the ISR
char switch_control;                        //Prevents rapid switch_3 presses from shooting leds down at random


int main (void){
setup_HW;
config_sw1_and_sw2_for_PCI;                   //SW1 is not used

mask = 0xFFFF;                                //0xFFFF = 0b1111111111111111 indicating that none of the leds have yet been shot down
switch_control = 0;
sei();                                       //Enable all interrupts
while(mask){                                  //Exit the "while-loop" as soon as mask gets set to zero
PORT_1=1;                                     //Initialise display to 0000 0000 0000 0001

for(int m = 1; m < 17; m++){                   //Repeat "for-loop" 16 times
if(m == 1)switch_control = 0;                 //Set switch_control to zero at the start of each sweep
I2C_Tx_2_integers
(PORT_1 & mask, (~mask) ^ PORT_1);             //LOGIC: "Dead" leds are transferred to the bottom row

Timer_T0_10mS_delay_x_m(10);                  //Program execution spends most time waiting here, so this is where the interrupt almost always occurs
PORT_1 = (PORT_1 << 1);                       //Move on to next display location
}}I2C_Tx_2_integers(0, 0xFFFF);               //When all leds are dead illuminate all the bottom leds and then
Timer_T0_10mS_delay_x_m(100);                 //pause for 1 sec before starting all over again.
SW_reset;}


/***************ISR Routine executed every time that switch 3 is  operated************************************/
ISR(PCINT2_vect) {                            //This ISR momentarily interrupts the main routine
if(switch_2_up)return;                        //It notes which LED has just been shot down and
if (switch_control) return;                   //Return early if "switch_control" is 1
mask &= ~PORT_1;                              //writes zero at its location in the "mask" register
switch_control = 1;}                          //Set switch conrol to 1.
```