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Experiment No: 04

BECS 31421

**INTERRUPT HANDLING WITH A PIC MICROCONTROLLER**

EXERCISE

**SOURCE CODE**

// Step 1: Declare the main function

int a = 50;

int b = 200;

int temp;

void main()

{

// Step 2: Initialize configuration settings

TRISB = 0x01; // Hint: Set RB0 as input, others as output

TRISA = 0x00; // Hint: Set all port A pins as output

CMCON = 0x07; // Hint: Disable comparators

OPTION\_REG = 0x00; // Hint: Configure option register

// Step 3: Enable interrupts

INTCON.GIE = 1; // Hint: Enable global interrupts

INTCON.PEIE = 1; // Hint: Enable peripheral interrupts

INTCON.INTE = 1; // Hint: Enable RB0/INT interrupt

// Step 4: Define the infinite loop

while (1){ // Hint: Enter an appropriate condition for the loop

// Step 5: Set initial PORT values

PORTB.RB2 = 0; // Hint: Set RB2 to low

PORTA.RA0 = 1; // Hint: Set RA0 to high

PORTA.RA1 = 0; // Hint: Set RA1 to low

if (a == 50) delay\_ms(50);

else if (a == 200) delay\_ms(200);

// Step 6: Toggle PORT values

PORTA.RA0 = 0; // Hint: Set RA0 to low

PORTA.RA1 = 1; // Hint: Set RA1 to high

if (a == 50) delay\_ms(50);

else if (a == 200) delay\_ms(200);

INTCON.INTF = 0; // Hint: Clear the external interrupt flag

}

}

// Step 7: Interrupt service routine

void interrupt() {

if (INTCON.INTF) { // Hint: Check the external interrupt flag (INTCON.INTF)

// Step 8: Set PORT values upon interrupt

PORTB.RB1 = 1; // Hint: Set RB1 to high

PORTB.RB2 = 0; // Hint: Set RB2 to low

if (b == 50) delay\_ms(50);

else if (b == 200) delay\_ms(200);

// Step 9: Toggle PORT values

PORTB.RB1 = 0; // Hint: Set RB1 to low

PORTB.RB2 = 1; // Hint: Set RB2 to high

if (b == 50) delay\_ms(50);

else if (b == 200) delay\_ms(200);

temp = a;

a = b;

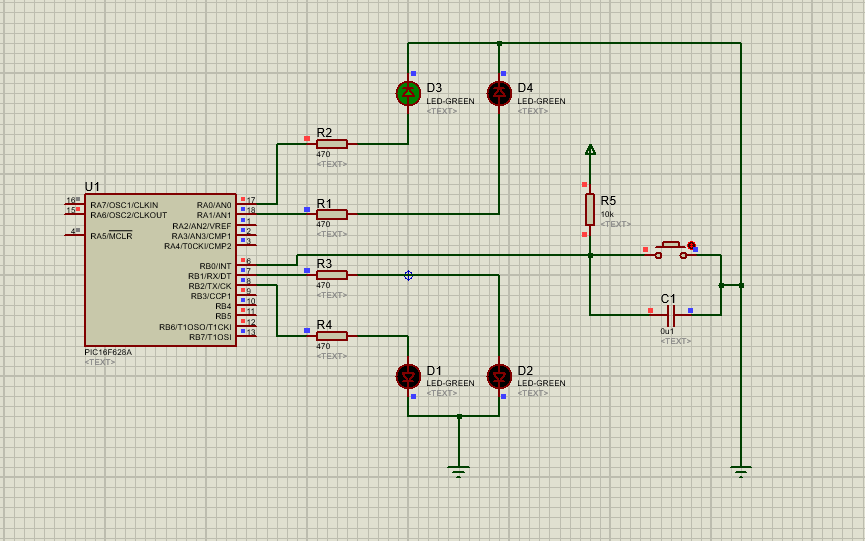
b = temp;

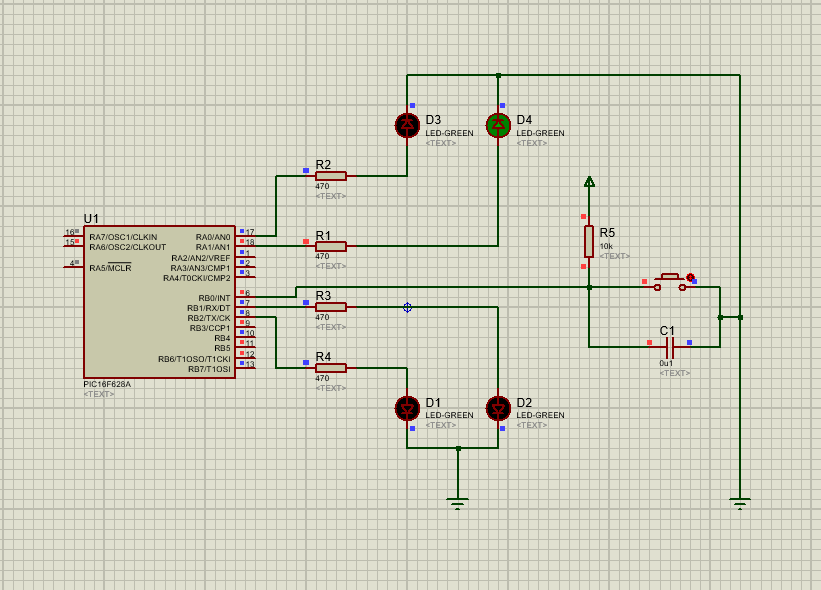
INTCON.INTF = 0; // Hint: Clear the external interrupt flag

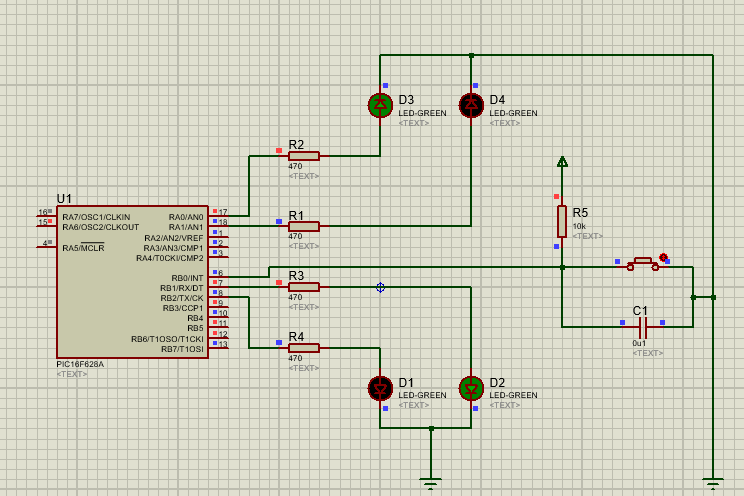
}

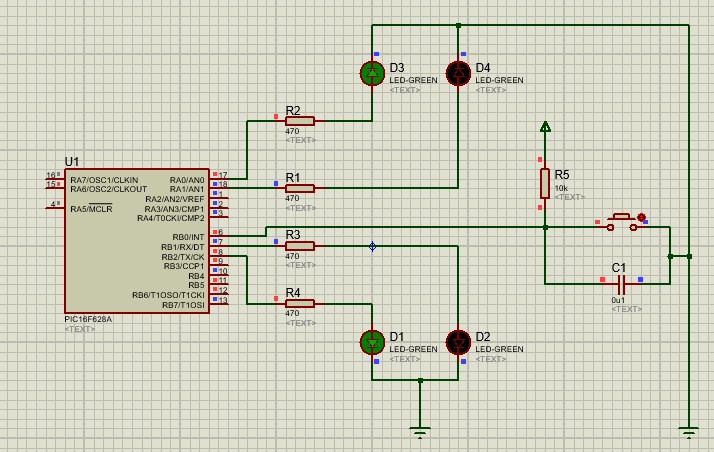
}

**SIMULATION SCREENSHOTS**

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