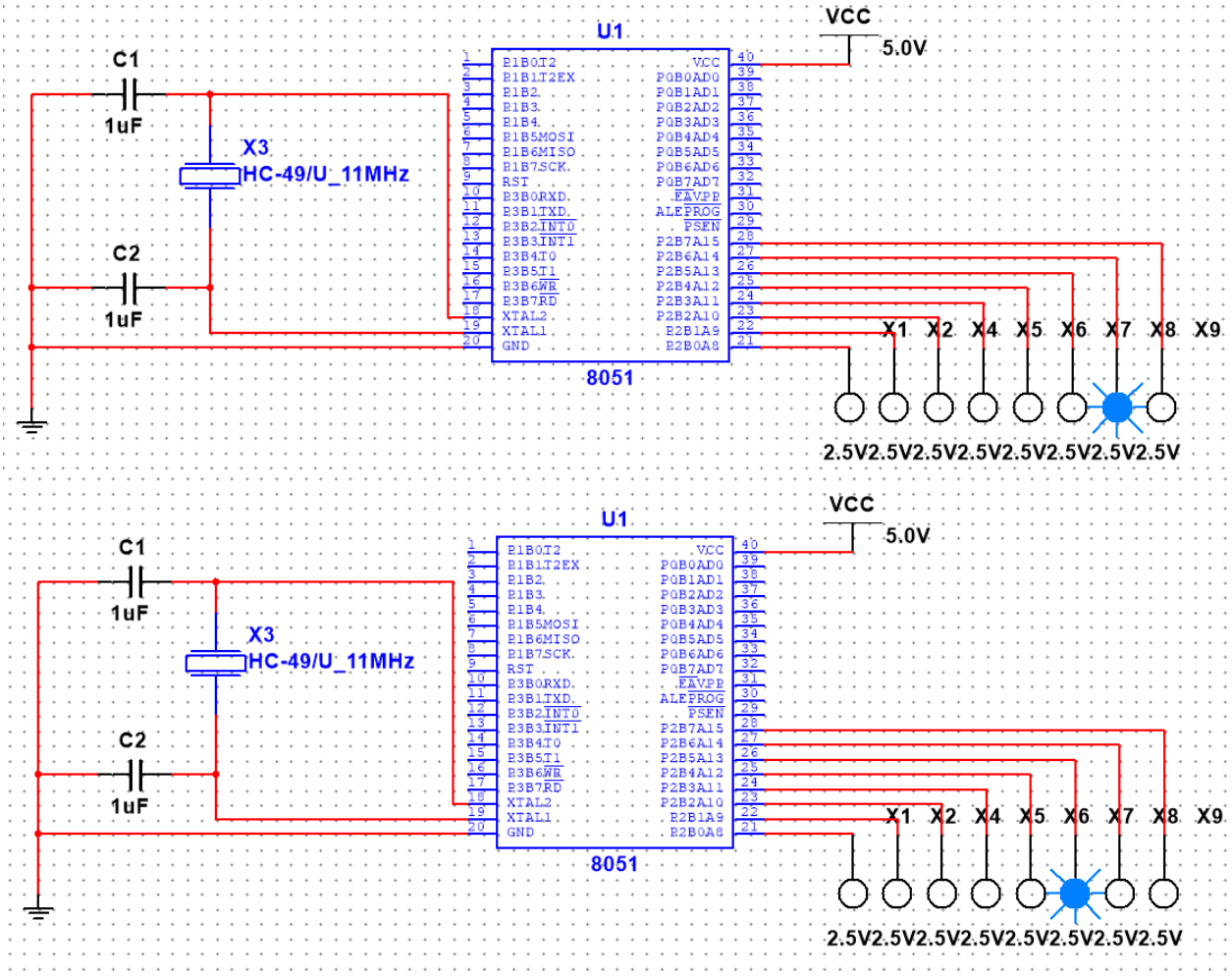
ASSIGNMENT 1

Question 1:

Perform rotation operation:

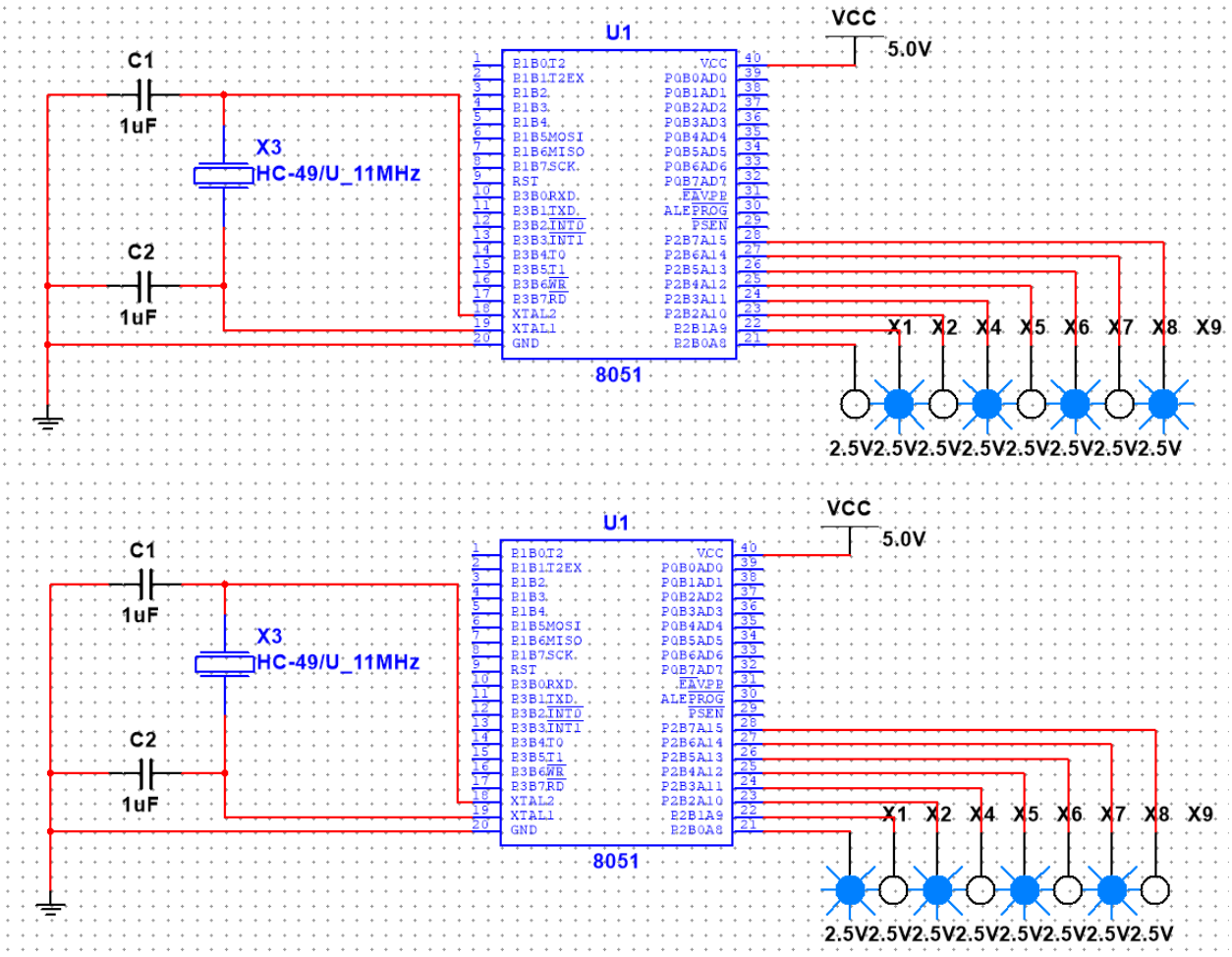


Assembly code:

```
$MOD51
ORG 0000h
MOV A, #001h
start:
MOV P2, A
ACALL delay
RR A
ACALL delay
SJMP start
delay:
MOV R0, #010h
MOV R1, #0ffh
back:
   DJNZ R1, back
   DJNZ R0, back
```

ret
END

Perform four on and off

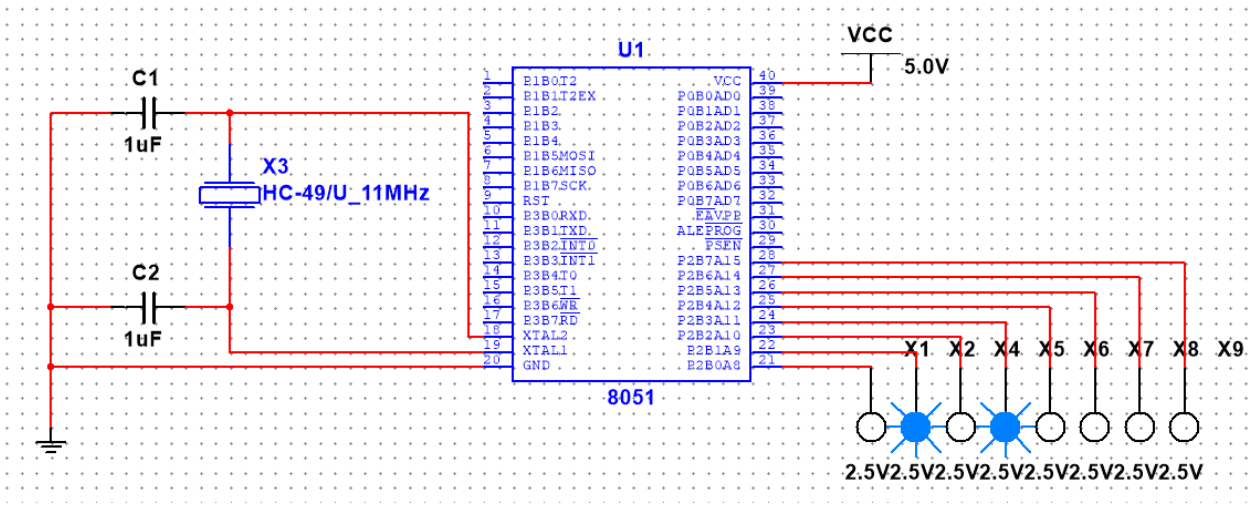


Assembly Code:

```
$MOD51          ; This includes 8051 definitions for the Metalink assembler
; Please insert your code here.
org 0000h;
mov A,#0F5h
mov A,#055h
start:
        mov p2,A
        acall delay
        cpl A
        sjmp start
delay:
        mov r0,#010h
        mov r1,#0ffh
back: djnz r1,back
      djnz r0, back
```

ret
END

Two on and six off:



Assembly Code

```
$MOD51          ; This includes 8051 definitions for the Metalink assembler
; Please insert your code here.
org 0000h;
mov A,#0F5h
mov B,#055h
start:
        mov p2,A
        acall delay
        cpl A
        sjmp start
delay:
        mov r0,#010h
        mov r1,#0ffh
back: djnz r1,back
      djnz r0, back
ret
END
```

C Code:

Perform rotation operation:

```
#include <8051.h>
void main(){
while(1){
P2 = 0xAA;
Delay();
P2 = 0x055;}
}
void Delay(){
```

```
for(int i=0;i<255;i++);
}
```

Perform four on and off

```
#include <8051.h>
void delay() {
   unsigned int i, j;
   for(i = 0; i < 500; i++)
      for(j = 0; j < 1000; j++);
}
void main() {
   unsigned char pattern = 0x0F;
   while(1) {
      P1 = ~pattern;
      delay();
      pattern = pattern;
       delay();

   }
}
```

Two on and six off:

```
#include <8051.h>
void delay() {
   unsigned int i, j;
   for(i = 0; i < 500; i++)
      for(j = 0; j < 1000; j++);
}
void main() {
   unsigned char pattern = 0x03; // Initial pattern (two LEDs on, six off)
   while(1) {
      P1 = ~pattern;
      delay();
      P1 = pattern; // Turn off LEDs on P1
      delay();
   }
}
```