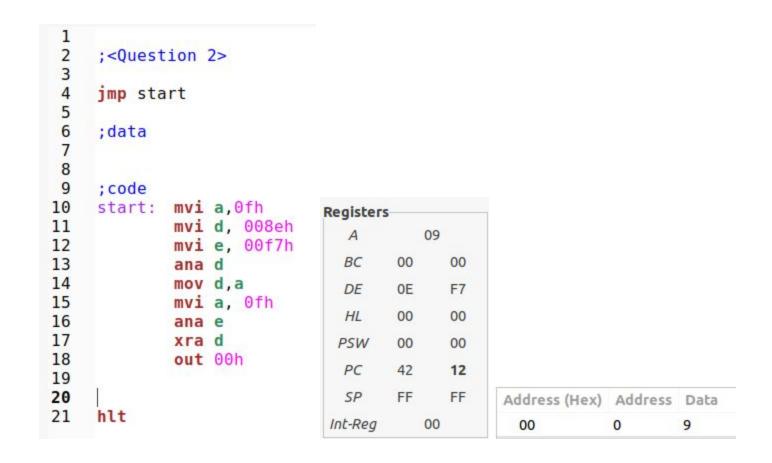
MIT Practicals Assignment 4 Krunal Rank (U18C0081)

Question 1: Write a program to load the data byte A8H in register C. Mask the high-order bits(D7- D4), and display the low-order bits (D3-D0) at an output port.

```
1
 2
     ;<Question 1>
 3
 4
     jmp start
                             Registers
 5
 6
     ;data
                                A
                                         08
 7
                               BC
                                      00
                                            A8
 8
     ; code
                               DE
                                      0E
                                            07
 9
10
     start:
              mvi c,00a8h
                               HL
                                      00
                                            00
11
              mov a,c
                               PSW
                                      00
                                            00
12
              ani 000fh
13
              out 00h
                               PC
                                      42
                                            0B
14
     hlt
                               SP
                                      FF
                                            FF
                                                  Address (Hex) Address Data
                              Int-Reg
                                         00
                                                    00
                                                               0
                                                                       8
```

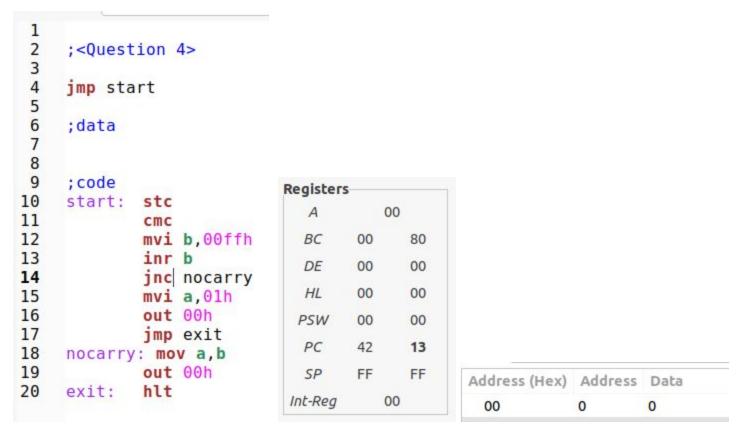
Question 2: Write a program to load the data byte 8EH in register D and F7H in register E. Mask the high-order bits (D7-D4) from both the data bytes, Exclusive-OR the low-order bits (D3-D0) and display the answer.



Question 3: Write a program to load the bit pattern 91H in register B and 87H in register C. Mask all the bits except D0 from registers B and C.

```
1
    ;<Question 3>
 2
 3
 4
    jmp start
 5
 6
    ;data
 7
 8
     ; code
 9
                             Registers
             mvi b,91h
     start:
10
             mvi c,87h
                                A
                                        01
11
12
             mvi a,0001h
                               BC
                                     01
                                           01
13
             ana b
                               DE
                                     00
                                           00
14
             mov b, a
             mvi a,0001h
15
                               HL
                                     00
                                           00
16
             ana c
                              PSW
                                     00
                                           00
17
             mov c,a
18
                               PC
                                     42
                                           10
19
                               SP
                                     FF
                                           FF
20
     hlt
                              Int-Reg
                                        00
```

Question 4: Write a program to clear the CY flag, to load number FFH in register B, and increment B. If the CY flag is set, display 01 at the output port, otherwise, display the contents of register B.



Remember that the question asked for Incrementing it, not adding 1.

Question 5: Write a program to mask the lower bit of an 8 bit number.

```
1
   ; Question 5
2
                        Registers
3
                          A
                                  30
4
   jmp start
5
                          BC
                                    00
                               00
6
   ;data
                          DE
                              00
                                    00
 7
8
                          HL
                              00
                                    00
9
   ; code
                         PSW
                                    00
                              00
10 start: mvi a,31h
                         PC
                               42
                                    08
           ani 00feh
11
12
           hlt
                          SP
                               FF
                                    FF
                         Int-Reg
                                  00
```

Question 6: Write a program:

Load two unsigned numbers in register B and register C respectively.

Subtract C from B. If the result is in 2's complement, convert the result in absolute magnitude and display it at PORT 1, otherwise, display the positive result. Execute the program with the following sets of data:

```
Set1:B=42H,C=69H
Set2:B=69H,C=42H
Set 3: B=F8H,C = 23H
```

```
1
 2
     ;<Question 6>
 3
 4
    jmp start
 5
 6
     ;data
 7
 8
9
     ; code
10
     start:
             mvi b, 42h
11
             mvi c,69h
12
             mov a,b
13
             sub c
14
             jm neg
15
             out 01h
16
             imp exit
17
     neg:
             xri 00ffh
18
             adi 01h
19
             out 01h
20
     exit:
             hlt
```



Address (Hex)	Address	Data
00	0	0
01	1	39

```
1
 2
     ;<Question 6>
 3
 4
     jmp start
 5
 6
     ;data
 7
 8
     ; code
 9
                             Registers-
              mvi b,69h
10
     start:
                                        27
                               A
11
              mvi c,42h
12
              mov a,b
                               BC
                                     69
                                           42
13
              sub c
                               DE
                                     00
                                           00
14
              im neg
15
              out 01h
                               HL
                                     00
                                           00
16
              jmp exit
                              PSW
                                     00
                                           00
17
              xri 00ffh
     neg:
                               PC
                                     42
                                           18
18
              adi 01h
19
              out 01h
                               SP
                                     FF
                                           FF
20
     exit:
              hlt
                             Int-Reg
                                        00
```

```
        Address (Hex)
        Address
        Data

        00
        0
        0

        01
        1
        39
```

```
;<Question 6>
 2
 3
     jmp start
 4
 5
 6
     ;data
 7
 8
 9
     ; code
             mvi b,00f8h
10
     start:
             mvi c,23h
11
12
             mov a,b
13
             sub c
14
             im neg
15
             out 01h
16
             imp exit
17
             xri 00ffh
    neg:
             adi 01h
18
19
             out 01h
20
    exit:
             hlt
```

1

```
Registers
   A
             2B
  BC
         F8
                23
  DE
         00
                00
  HL
         00
                00
 PSW
         00
                00
  PC
         42
                18
  SP
         FF
                FF
Int-Reg
             00
```

Address (Hex)	Address	Data
00	0	0
01	1	43