Experiment 1

Q.1 Write a program to subtract 16-bit number.

Statement: -

Subtract number 1234H and 4897H and store the result in memory location 2055H and 2056H.

Program: -

```
9    ;code
0    start: nop
1    LXI H, 4896H
2    LXI D, 1234H
3    MOV A, L
4    SUB E
5    MOV L, A
6    MOV A, H
7    SBB D
8    MOV H, A
9    SHLD 2055H
0
1    hlt
```

Output: -

Address (Hex)	Address	Data
2052	8274	0
2053	8275	0
2054	8276	0
2055	8277	98
2056	8278	54
2057	8279	0

Registers: -

Registers			Flag	
A	36		S	0
BC	00	00		
DE	12	34	Z	0
HL	36	62		
PSW	00	00	AC	0
PC	42	14	P	1
SP	FF	FF		
Int-Reg	00		C	0

Q.2 Write a program to subtract 16-bit number.

Statement: -

Input first number from memory location 2050H and 2051H and second number from memory location 2052H and 2053H and store result in memory location 2055H and 2056H

Program: -

```
;code
start: nop
LHLD 2052H
XCHG
LHLD 2050H
MOV A, L
SUB E
MOV L, A
MOV A, H
SBB D
MOV H, A
SHLD 2055H

hlt
```

Output: -

Address (Hex)	Address	Data
2050	8272	78
2051	8273	45
2052	8274	24
2053	8275	34
2054	8276	0
2055	8277	54
2056	8278	11

Registers: -

Registers			Flag	
A	0B		S	0
BC	00	00		
DE	22	18	Z	0
HL	0B	36		
PSW	00	00	AC	0

Q.3 Write a program to multiply two 8-bit numbers.

Statement: -

Multiply 06 and 03 and store result in memory location 2055H.

Program: -

```
9    ;code
10   start: nop
11   MVI A, 00H
12   MVI B, 06H
13   MVI C, 03H
14   X: ADD B
15   DCR A
16   JNZ X
17   STA 2055H
18   hlt
```

Output: -

Address (Hex)	Address	Data
2050	8272	0
2051	8273	0
2052	8274	0
2053	8275	0
2054	8276	0
2055	8277	0

Registers: -

Registers			Flag	
A	00		S	0
BC	06	03		
DE	00	00	Z	1
HL	00	00		

Q.4 Write a program to divide 8-bit numbers

Statement: -

Divide 08H and 03H and store quotient in memory location 2055H and remainder in memory location 2056H.

Program: -

```
        STA 2055H
        HLT

(4) Program to de divide 8-bit numbers
 → Divide 08H & 03H & store quotient in
    memory location 2055H & remainder in
    memory locatio 2056H.
 → MVI A, 08H
    MVI B, 03H
    MVI C, 00H
  X: CMP B
     JC Y
     INR C
     JMP X
  Y: STA 2056H
     MOV A, C
     store 2056H
     HLT
```
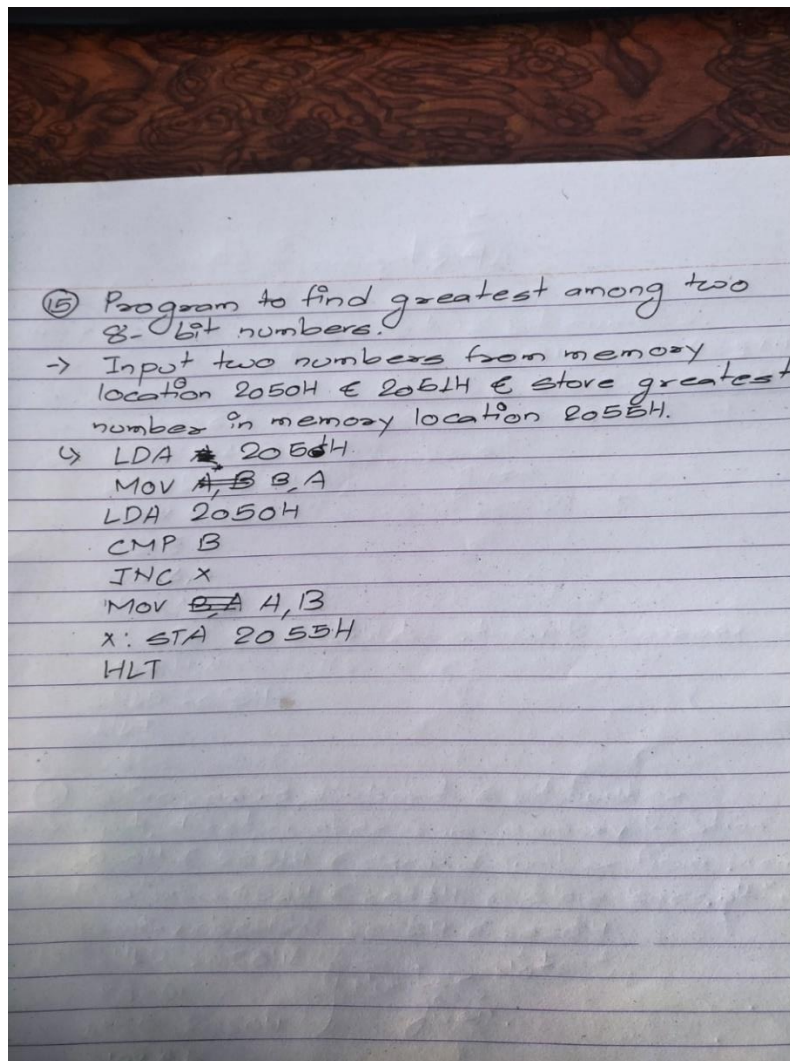
Q.5 Write a program to find greatest among two 8-bit numbers.

Statement: -

Input two numbers from memory location 2050h and 2051h and store greatest number in memory location 2055h.

Program: -

(15) Program to find greatest among two 8-bit numbers.

-> Input two numbers from memory location 2050H & 2051H & store greatest number in memory location 2055H.

```
↳ LDA   2050H
  MOV A,B B,A
  LDA  2050H
  CMP B
  JNC X
  MOV A,B 4,B
  X: STA  2055H
  HLT
```

P.S.

The GNUsim8085 application kept on crashing so I had to insert pictures.