LAB-SHEET :- 1

Title: WAP to copy 1B H to register D and copy the value of D to register B.

Apparatus Required

8085 microprocessor or transfer kit, power supply

Assumptions

We assume that the starting address to be 8000. Then we move data to D register then to B register.

8085 Code

```
MVI D, 1BH
MOV B, D
HLT
```

Hex Code Grid

Address	Data
8000	16
8001	1B
8002	24
8003	52

Conclusion

Thus, we have successfully transfered 1B H into D register and then to B register

LAB- SHEET :- 2

Title: WAP to pass two numbers in B and C register and find its sum.

Apparatus Required

8085 microprocessor trainer kit

Assumption

We assume 8000 to be starting address to be 8000. We also assign 10H and 15H to B and C registers respectively.

8085 Coding

```
MVI B, 10H
MVI C, 15H
MOV A, B
ADD C
HLT
```

Hex Code Grid

ADDRESS	DATA
8000	06
8001	10
8002	0E
8003	15
8004	78
8005	81
8006	76

~~Output~~

Input :

B = 10
C = 15

Output

A = 25

Conclusion

Thus, we have successfully pass two numbers in B and C register and ~~sum~~ the value.

LAB-SHEET-3

Title: WAP to pass two numbers in B and C registers. Find its sum and store the result in 2050 memory address

Apparatus Required

8085 microprocessor trainer kit

Assumption

We assume 8000 to be starting address.
We also assume that 2050 is an address where result of the sum of value in register B and C.

8085 Coding

```
MVI B, 12H
MVI C, 3EH
MOV A, B
ADD C
STA 2050H
HLT
```

Hex Code Grid

Address	Data
8000	06
8001	12
8002	0E
8003	3E
8004	78
8005	81
8006	32
8007	50
8008	20
8009	76

Output

User Data Grid

Address	Data
2050	50

Conclusion

Hence, we have successfully ~~add~~ pass two numbers in B and C registers and store their sum in 2050 memory address.

LAB-SHEET :-

Title: WAP to add two 8-bit numbers, first number is in 2050 H and second number is in 2052 H. The result are then stored in 2052 H

Apparatus Required

8085 microprocessor trainer kit

Assumption

Assume starting address of data lop code is 8000
Assume there is 8-bit numbers in 2050H and 2051H memory address

8085 Coding

```
LXI H, 2050H
MOV A, M
INX H
ADD M
INX H
MOV D, H
MOV E, L
STAX D
HLT
```

Hex Coding

Address	Data
8000	21
8001	50
8002	20
8003	7E
8004	23
8005	86
8006	23
8007	54
8008	5D
8009	12
800A	76

Input

Address	Data
2050	21
2051	50

Output

Address	Data
2052	71

Conclusion

Hence, we add two 8-bit number stored in 2050h and 2051h and stored in 2052h address.

LAB-SHEET:-5

Title: WAP to subtract number assigned in different memory locations and store the result in next memory location. And show the status of flag as well.

Apparatus Required

8085 microprocessor trainer kit

Assumption

We assume 8000 to be starting address for datalop code. We also assume 2050 H and 2051 H to be address containing values and 2052H be address where result to be stored.

8085 Coding

```
LXI H, 2050h
MOV A, M
INX H
SUB M
INX H
MOV D, H
MOV E, L
STAX D
HLT
```

Hex Code Grid

Address	Data
8000	21
8001	50
8002	20
8003	73
8004	23
8005	96
8006	23
8007	54
8008	5D
8009	12
800A	76

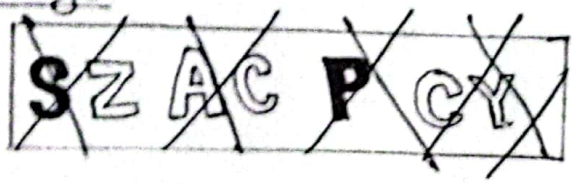
Input

Address	Data
2050	20
2051	22

Output

Address	Data
2052	EE

Flags:



S	Z	X	AC	X	P	X	CY
1	0	X	0	X	1	✓	0

Conclusion

Hence, we have subtracted number stored in different memory location, stored it and we also did study the flags.

LAB-SHEET :- 6

Title: WAP to find the larger of two number stored in 1001H and 1002H, store the result in 1003H

Apparatus Required

8085 microprocessor trainer kit

Assumptions

Lets assume the starting address to be 8000H we also assume numbers to be in 1001H and 1002H address respectively

8085 coding

```
LDA 1001 H
MOV B, A
LDA 1002 H
CMP B
JNC down
MOV A, B
STA 1003H
JMP Exit
down: STA 1003H
Exit : HLT
```

Hex Code Grid

Address	Data	Address	Data
8000	3A	800B	78
8001	01	800C	32
8002	10	800D	03
8003	47	800E	10
8004	3A	800F	C3
8005	02	8010	15
8006	10	8011	80
8007	88	8012	32
8008	D2	8013	03
8009	12	8014	10
800A	80	8015	76

Input

Address	Data
1001	20
1002	30

Output

Address	Data
1003	30

Conclusion

Hence, we compared two numbers stored in different memory location and stored the greater number.

LAB-SHEET:- 7

Title: WAP to find multiplication from memory locations 4150 & 4151. Then store the result in 4152 and overflow in 4153

Apparatus Required

8085 microprocessor trainer b/d

Assumption

We assume starting address to be 8000H from where operations begin. We also assign addresses 4150 and 4152 two values which are going to be multiplied, then the result are to be stored in 4152 & 4153

8085 coding

```
MVI  D, 00H
MVI  A, 00H
LXI  H, 4150H
MOV  B, M
INX  H
MOV  C, M
LOOP: ADD B
JNC  NEXT
INR  D
NEXT: DCR C
JNZ  LOOP
STA  4152H
MOV  A, D
STA  4153H
HLT
```

Hex Code Grid

Address	Data
8000	16
8001	00
8002	3E
8003	00
8004	21
8005	50
8006	41
8007	46
8008	23
8009	4E
800A	80
800B	D2
800C	0F
800D	80
800E	14
800F	0D
8010	C2
8011	0A
8012	80
8013	32
8014	52
8015	41
8016	7A
8017	32
8018	53
8019	41
801A	76

Input / Output Data Grid

Address	Data
4150	02
4151	03
4152	06
4153	00

Conclusion

Hence, we successfully multiplied the numbers and stored in different location including overflow.

LAB-SHEET :-8

Title: WAP to perform two 8-bit divisor by numbers from memory locations and store remainder, quotient in next memory locations.

Apparatus Required

8085 microprocessor trainer kit

Assumption

We assume ~~two~~ starting address to be 8000 H from where operations start. We also assign two numbers into 2050H and 2051H address. Then remainder and quotient are stored in next locations

8085 Code

```
LXI H, 2050H
MOV B, M
INX H
MOV A, M
MVI C, 00H
NEXT: CMP B
JC LOOP
SUB B
INR C
JMP NEXT
LOOP: STA, 2052H
MOV A, C
STA 2053H
HLT
```

Address	Data	Address	Data
8000	21	8010	80
8001	50	8011	32
8002	20	8012	52
8003	46	8013	20
8004	23	8014	79
8005	7E	8015	32
8006	0E	8016	53
8007	00	8017	20
8008	B8	8018	76
8009	DA		
800A	11		
800B	80		
800C	90		
800D	0C		
800E	C3		
800F	08		

Input

Address	Data	
2050	02	← Divisor
2051	06	← Dividend

Output

Address	Data	
2052	00	← Remainder
2053	03	← Quotient

Conclusion

Hence, we performed programme program to divide two numbers and store quotient and remainder.

LAB-SHEET :- 9

Title: WAP to find greatest number among the numbers from the list

Apparatus Required

8085 microprocessor trainer kit

Assumption

Assume starting address of data /op code is 8000H where operation is performed.
Assume an address for the total number of variables and another address for result.

8085 coding

```
LXI H, 2050H
MOV B, M
INX H
MOV A, M
DCR B
LOOP: INX H
CMP M
JNC NEXT
MOV A M

NEXT: DCR B
JNC LOOP
INX H
MOV M A
HLT
```

Hex Code Grid

Address	Data
8000	21
8001	50
8002	20
8003	4E
8004	23
8005	7E
8006	0D
8007	23
8008	46
8009	B8
800A	D2
800B	0E
800C	80
800D	78
800E	0D
800F	C2
8010	07
8011	80
8012	77
8013	76

Input

Address	Data
2050	74
2051	34
2052	43
2053	23
2054	12
2055	14

Output

Address	Data
2056	74

Conclusion

Hence, the greatest number from the list has been found.

LAB-SHEET :-10

Title : WAP to subtract two 8-bit numbers and share the status of flags

Apparatus Required

8085 microprocessor trainer kit

Assumption

We assume 8000 to be the starting address for o/p code line. We also assume an address 2050 to be store the result.

8085 code

```
MVI  A, 20H
MVI  B, 24H
SUB  B
STA  2050H
HLT
```

Hex Code Grid

Address	Data
8000	3E
8001	20
8002	06
8003	24
8004	90
8005	32
8006	50
8007	20
8008	76

Output

Address	Data
2050	FC

Status of flags

S	Z	X	AC	X	P	X	CY
1	0	1	0	1	1	1	1

Conclusion

Hence, we subtracted two numbers and obtained the status of flags.

LAB-SHEET-11

Title: WAP to add two 16 bit numbers

Apparatus required:

8085 microprocessor trainer kit

Assumptions

Assume starting address to be 8000.
Assume two 16 bit numbers be stored in 3000 & 3001 and 3002 & 3003 addresses

8085 Coding

```
LHLD 3000H
XCHG
LHLD 3002H
DAD D
SHLD 3004H
HLT
```

Hex Code Grid

Address	Data
8000	2A
8001	00
8002	30
8003	EB
8004	2A
8005	02
8006	30
8007	19
8008	22
8009	04
800A	30
800B	76

IF

Input

Address	Data
3000	21
3001	22
3002	A2
3003	12

Output

Address	Data
3004	C3
3005	34

Conclusion

Hence, we have ~~already~~ successfully added two 16 bit numbers and stored the result into memory.

LAB-SHEET-12

Title: WAP to sort the given list of numbers from memory locations starting from 8051H in ascending order.

Apparatus Required

8085 microprocessor trainer kit

Assumptions

Assume starting address to be 8000
Assume 8050 address to hold the total number of numbers that are going to use.

8085 Coding

```
REPEAT: MVI D FFH
LXI H, 8050H
MOV B, M
DCR B
INX H
LOOP: MOV A, M
INX H
CMP M
JC NEXT
MOV C, M
MOV M, A
DCX H
MOV M, C
INX H
DCR D
NEXT: DCR B
JNZ LOOP
MOV, A, D
CPI FFH
JNZ REPEAT
HLT
```

Hex Code Grid

Address	Data
6000	16
6001	FF
6002	21
6003	50
6004	80
6005	46
6006	05
6007	23
6008	7E
6009	23
600A	BE
600B	DA
600C	14
600D	60
600E	4E
600F	77
6010	2B
6011	71
6012	23
6013	15
6014	05
6015	C2
6016	08
6017	60
6018	7A
6019	FE
601A	FF
601B	C2
601C	00
601D	60
601E	76

Input / Output

Address	Data
8050	05
8051	33
8052	04
8053	10
8054	44
8056	2E

Address	Data
8050	05
8051	04
8052	10
8053	2E
8054	33
8056	44

Conclusion

Hence, we have successfully sorted list of numbers from memory in ascending order.

LAB SHEET-13

Title: WAP to sort the given list of numbers from memory location starting from 8051 H in descending order.

Apparatus Required

8085 microprocessor trainer kit

Assumptions

Assume starting address to be 6000.
Assume 8050 address to hold the total number of numbers that are going to use.

8085 Coding

```
REPEAT: MVI D, FFH
LXI H, 8050 H
MOV B, M
DCR B
INX H

LOOP: MOV A, M
INX H
CMP M
JNC NEXT
MOV M, A
DCX H
MOV M,C
INX H
DCR D

NEXT: DCR B
JNZ LOOP
MOV A, D
CPI FF H
JNZ REPEAT
HLT
```

Hex Code Grid

Address	Data
6000	16
6001	FF
6002	21
6003	50
6004	80
6005	46
6006	05
6007	23
6008	7E
6009	23
600A	BE
600B	D2
600C	14
600D	60
600E	4E
600F	77
6010	2B
6011	71
6012	23
6013	15
6014	05
6015	C2
6016	08
6017	60
6018	7A
6019	FE
601A	FF
601B	C2
601C	00
601D	60
601E	76

Inputs and Outputs

Address	Data
8050	05
8051	33
8052	04
8053	10
8054	44
8055	2E

Address	Data
8050	05
8051	44
8052	33
8053	2E
8054	10
8055	04

Conclusion

Hence, we have successfully sorted the given list of numbers from memory location in descending order.

LAB SHEET - 14

Title: WAP to load a value is accumulator and B register and find its result using OR operator and also copy the status of flags

Apparatus Required

8085 microprocessor trainer kit

Assumptions

Assume the starting address to be 8000

8085 Coding

```
MVI A, 22H
MVI B, 11H
ORA B
HLT
```

Hex Code Grid

Address	Data
8000	3E
8001	22
8002	06
8003	11
8004	B0
8005	76

Output

A
33

Status of Flags

S	Z	X	AC	X	P	X	CY
0	0	X	0	X	1	X	0

Conclusion

Hence, we have successfully performed OR operation between two numbers and shown the status of flags.

LAB-SHEET-15

Title: WAP to convert BCD to HEX

Apparatus Required

8085 microprocessor trainer kit

Assumptions

Assume the starting address to be 8000.

Assume a 8-bit BCD number to be stored in ~~3000~~ 4150

8085 Coding

```
LXI H, 4150H
MOV A, M
ADD A
MOV B, A
ADD A
ADD B
INX H
ADD M
INR H
MOV M, A
HLT
```

HEX Code Grid

Address	Data
8000	21
8001	B0
8002	41
8003	7E
8004	87
8005	47
8006	87
8007	87
8008	80
8009	23
800A	86
800B	23
800C	77
800D	76

Inputs

Address	Data	
4150	04	(MSD)
4151	02	(LSD)

Outputs

Address	Data
4152	2A

Conclusion

Hence, we have converted a BCD number into a HEX number.