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Addition of 16 Bit Numbers

Aim :-

Write a program in 8086 microprocessor to add two 16 bit numbers.

Algorithm :-

1. Start
2. Load a value to AX register
3. Load a value to BX register
4. Add AX register with BX and store in AX register
5. Stop.

Program :-

```
org 100h
MOV AX, 1234 H
MOV BX, 567 H
ADD AX, BX
HLT
```

Result :-

The Program is executed successfully and output is verified.

Teacher's Signature:

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Addition of 8 Bit Numbers

Aim :-

Write a program to add two 8-bit numbers in 8086 microprocessor.

Algorithm :-

Step 1 : Start
Step 2 : Load a value to AL register
Step 3 : Load a value to BL register
Step 4 : Add AL register with BL register and store the value in AL register.
Step 5 : Stop.

Program :-

```
MOV AL, 12H
MOV BL, 34H
ADD AL, BL
HLT
```

Result

The program is executed successfully and output is verified.

Teacher's Signature

tput

	Register		
Input	AL BL		12 34
Output	AL		46

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Multiplication of two 8 bit numbers

Aim :-

Write a program in 8086 microprocessor to multiply two 8-bit numbers.

Algorithm :-

Step 1 : Start
Step 2 : Load a value to AL register
Step 3 : Load a value to BL register
Step 4 : multiply AL register with BL
Step 5 : Stop

Program :-

```
MOV AL, 03H
MOV BL, 04H
MUL BL
HLT
```

Result

The program is executed successfully and output is verified

Teacher's Signature:

	Register	H	L
Input	AL BL		03 04
output	AL		0C

	Registra	H	L
Input	AX BX		0C 04
output	AX		03

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Multiplication of 16-bit Numbers

Aim :-

write an assembly language program to multiply two 16-bit numbers.

Algorithm :-

Step 1 : start
Step 2 : Load a value to AX register
Step 3 : Load a value to BX register
Step 4 : multiply AX and BX and store value into AX.
Step 5 : Stop

Program :-

```
mov AX, 12H
mov BX, 343H
mul BX
HLT
```

Result

The program is executed successfully and the output is verified.

Teacher's Signature:

	Registra	H	L
Inputo	AX BX	1 3	21 43
outputt	AX BX	AE	A3 3

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Division of two 8-bit numbers

Aim :-

write a assembly language program to divide 2 8-bit numbers.

Algorithm :-

Step 1 : Start
Step 2 : Load a value to AL register.
Step 3 : Load a value to BL register.
Step 4 : Divide AL with BL and store the value in AL.

Program :-

```
MOV AL, 0CH
MOV BL, 04H
DIV BL
INT 21H
```

Result :-

The program is executed successfully and verified the output.

Teacher's Signature:

	Register	H	L
Input	AX BX	02	AC 04
output	AX		AB

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LOOP

Aim :-

Write an assembly language Program to illustrate loop

Algorithm :-

Step 1 : Start
Step 2 : Load AX with a value
Step 3 : Load BX with a value
Step 4 : Load CX register with a value which works as a counter for the loop.
Step 5 : Add AX register with BX register and store value at AX register.
Step 6 : Repeat the addition number of times, which is loaded in the CX register.
Step 7 : Stop

Program :-

```
MOV AX, 00H
MOV BX, 02H
MOV CX, 05H
ABC : ADD AX, BX
LOOP ABC
HLT
```

Teacher's Signature

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Division of two 16-bit numbers

Aim :-

Write a assembly language program to divide 2 16-bit numbers.

Algorithm :-

Step 1 : Start
Step 2 : Load a value to AX register
Step 3 : Load a value to BX register
Step 4 : divide AX with BX and store the value at AX.
Step 5 : stop.

Program :-

```
MOV AX, 02ACH
MOV BL, 04H
DIV BL
INT 3H
```

Result :-

The program is executed successfully and the output is verified.

Teacher's Signature:

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Comparison

Aim:-

Write an assembly language program to illustrate comparison.

Algorithm:-

Step 1 : Start
Step 2 : Load a value into AX register
Step 3 : Load a value into BX register
Step 4 : Compare AX with BX register
Step 5 : If the compared value is 1, move the value of AX register to CX register.
Step 6 : If the compared value is zero, move the value of BX register to CX register.
Step 7 : Stop

Program :-

```
MOV AX, 1235H
MOV BX, 1234H
CMP AX, BX
JG ABC
MOV CX, BX
HLT
ABC : MOV CX, AX
```

Teacher's Signature:

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Result :-

The program is executed successfully and the output is verified.

	Register	H	L
input	BX BX CX	12 21 FF	34 79 FF
output	BX	21	78
	CF flag = 1		

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Result :-

The program is executed successfully and the output is verified.

output

Hello IGNOU!

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Add carry operation

Aim :-

Write a program in assembly language to illustrate ADC (add carry) operation.

Algorithm :-

Step 1 : Start
Step 2 : load a value to BX register
Step 3 : Add a value to with BX register using ADD instruction
Step 4 : Load a value to CX register
Step 5 : add BX register with CX register using ADC instruction
Step 6 : Stop

Program :-

```
carry look
mov BX, 1234 H
ADD BX, 0F45H
mov CX, 0FFFF H
ADC BX, CX
HLT
```

Result :-

The program is executed successfully and the output is verified.

Teacher's Signature:

output

	Register	H	L
input	AX	12	35
	BX	12	34
	CX	00	00
output	AX	12	35
	BX	12	34
	CX	12	35

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Result :-

The program is executed successfully and output verified

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String Display

Aim :-

Write an assembly language program to display "Hello World"

Algorithm :-

Step 1 : Start
Step 2 : Store "Hello World" in variable named msg
Step 3 : Load address of the variable msg to DX register
Step 4 : Print using DOS interrupt using function 9 (Recollect function 9 requires 9 to be loaded in register AH followed by call to interrupt 21 H)
Step 5 : Exit to operating system. Once the message has been printed, it successfully terminated the program by returning to operating system.

Program :-

```
JMP start
msg DB 'Hello World', '$'
START: LEA DX, msg
MOV AH, 9
INT 21H
MOV AH, 4CH
INT 21 H
```

Teacher's Signature:

output

	Register	H	L
Input	AX BX	12 56	34 78
output	AX	68	AC

	Register	H	L
Input	AX	00	00
	BX	00	02
	CX	00	05
output	AX	00	0A
	BX	00	02
	CX	00	00