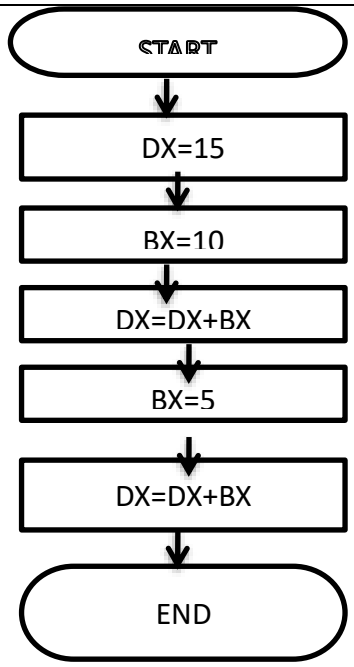
Example-01: Write algorithm, Draw flowchart and write assembly code of assign two integer number and their addition.

Algorithm steps

1. STORE 15 to DX
2. STORE 10 TO BX
3. SUM BX TO DX
4. STORE 5 TO BX
5. SUM DX,BX

Assembly Program

```
MOV DX,000F
MOV BX,000A
ADD DX,BX
MOV BX,0005
ADD DX,BX
 INT 20h  ; return to dos
```



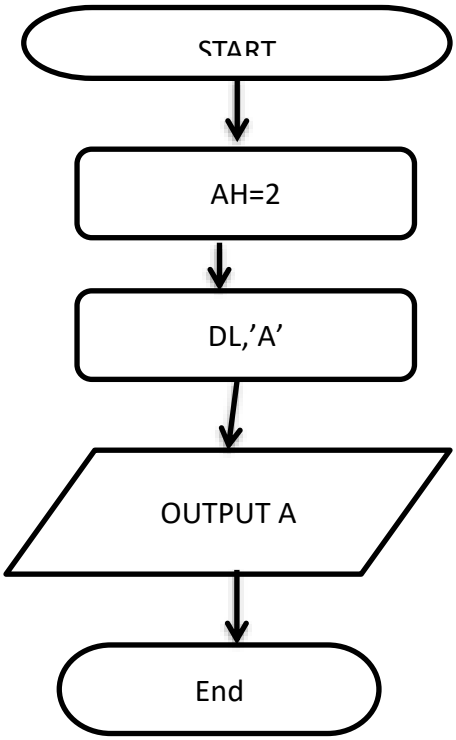
Example-02: Write an Assembly program for Display a character on the screen with algorithm and flowchart.

Algorithm steps

1. Store 02 service to AH register
2. Store character 'A' to DL register
3. Call dos I/O routine/interrupt
4. End program

Assembly Program

```
MOV AH,02h
MOV DL,41h
 INT 21h

MOV AH,4ch; return to dos for better way
INT 21h
```



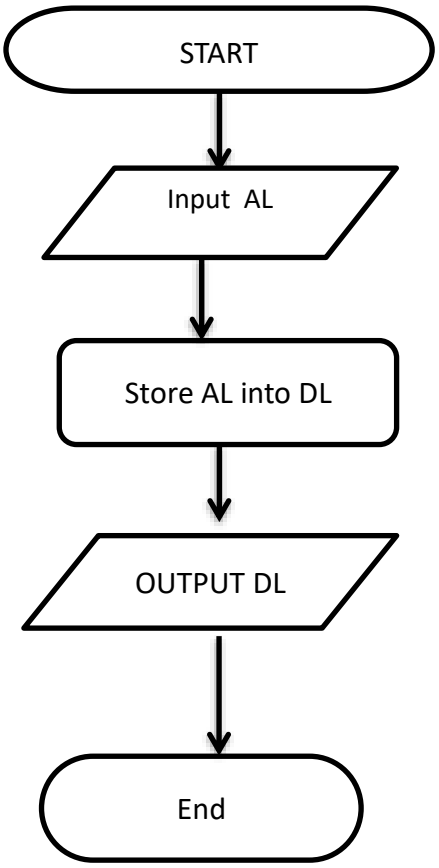
Exampe-03: Write an Assembly program for input a character from keyboard and Display character on the screen with algorithm and flowchart.

Algorithm steps

1. Store 01 service to AH register
2. Input character into AL register
3. Call dos I/O routine/interrupt
4. Store AL into DL
5. Store 02 service into AH Register
6. Call dos I/O routine/interrupt
7. End program

Assembly Program

```
MOV ah,01h  ; input one value of key
INT 21h

  MOV AH,02h
  MOV DL,AL
   INT 21h
MOV AH,4ch; return to dos for better way
 INT 21h
```



Example-04: Write an Assembly program for multiply 2-integer number and display result on the screen this program consist of one byte.

Algorithm steps

1. Store first value must be in AL register
2. Store second value in any available register here we use BL register
3. Multiply AL to BL
4. Store result must be in AL Register
5. Display result
6. End program

Assembly Program

```
MOV AL,3       ; store 3 into AL register
MOV BL,2       ; store 2 into BL register

MUL BL

MOV DL,AL
ADD DL,30H
MOV AH,02H
INT 21h
MOV AH,4ch; return to dos for better way
INT 21h
```

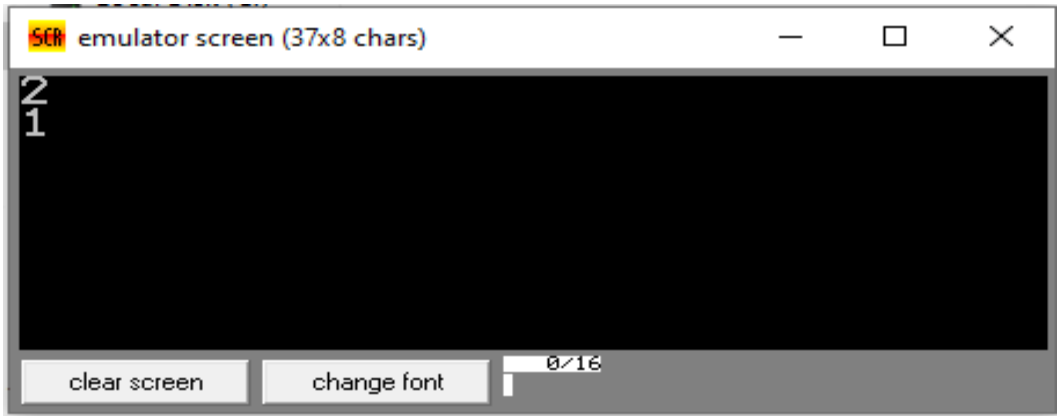
Example-05: Write an Assembly program for Divide 2-integer number and display result on the screen this program consist of one byte.

Algorithm steps and description

1. Store dividend value must be in AL register
2. Store divisor value in any available register here we use BL register
3. Divide by AL to BL
4. Automatic Store quotient result must be in AL Register
5. Automatic store remainder result in AH register
6. Display result
7. End program

Assembly Program

```
MOV AL,7        ; store 3 into AL register
MOV BL,3        ; store 2 into BL register

DIV BL

MOV DL,AL      ; store AL(Quotient) value in DL
MOV CL,AH     ; store AH(remainder) value in AH

ADD DL,30H  ; display AL(Quotient) Value
MOV AH,02H
INT 21h

MOV DL,0AH  ; cursor move next line
INT 21H

MOV DL,0DH  ; cursor move go-back 1st  column
INT 21H


MOV  DL,CL   ; store CL(remainder) value in DL
ADD DL,30H  ;  display DL(Remainder) Value
MOV AH,02H
INT 21h

MOV AH,4ch; return to dos for better way
INT 21h
```



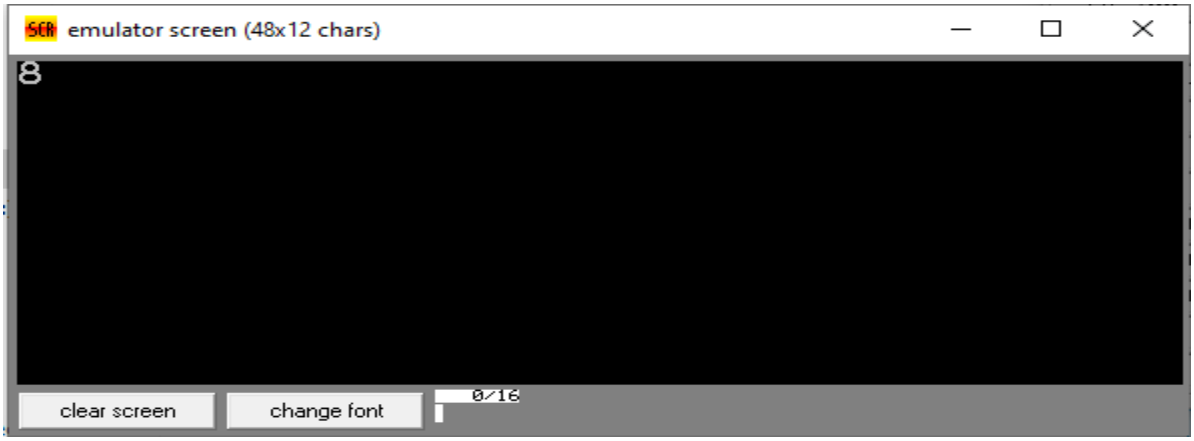
Example-06: Write an Assembly program for Multiply 2-integer number and display result on the screen this program consist of one byte.

Algorithm steps and description

1. Store first operand value of must be in AL register for multiply
2. Store second operand value for multiply by register here we use BL register
3. Multiply by BL into AL
4. Automatic Store Answer /result must will be in AL Register
5. Display result
6. End program

Assembly Program

```
MOV AL,4        ; store 3 into AL register
MOV BL,2        ; store 2 into BL register

MUL  BL

MOV DL,AL     ; store AL(Answer ) value in DL

ADD DL,30H  ;add 30h in dl
MOV AH,02H ; display (Answer value of DL) Value
INT 21h

INT 20h    ; return to dos
```



Exercise

Theory Questions.

1. Define algorithm and flowchart and why we use.
2. How do work DIV and MUL Commands in assembly language for 8086 mp.

Practical Questions.

1. Write assembly code to input two-integer number for multiplication and display result on the screen with flowchart and algorithms.

Objective and MCQs:

1. Must be store dividend value in _____ register for 1 byte.
   a) AL
   b) BL
   c) CL
   d) DL

2. Must be store dividend value in _____register for 2 bytes.
   a) DX
   b) CX
   c) BX
   d) AX

3. After In division operation quotient value will be store , in _____ register for one byte operation
   a) AL
   b) BL
   c) CL
   d) DL

4. After In division operation remainder value will be store , in _____ register for one byte operation
   e) AL
   f) BL
   g) AH
   h) DH

5. Function/Services store always in _____register of any interrupts Number (INT).
   a) BL
   b) BH
   c) AL
   d) AH