Experiment No: 01

Experiment Name: Familiarization of MDA-8086

Objective:1) To understand the component of MDA-8086 trainer board
2)To know about 8086 Microprocessor

Equipment: MDA-8086 Kit

Figure:

Result:
Familiarizing with the MDA-8086 enhances understanding of 8086 architecture, assembly programming, hardware interfacing, and microprocessor system design, building essential skills for embedded systems and computer architecture.

Discussion:
Familiarization with the MDA-8086 provides hands-on experience with 8086 microprocessor architecture, programming, and interfacing, essential for learning embedded systems and hardware design.

Experiment No: 02

Experiment Name:Add, Substraction, Multiplication, Division using 8086 Compiler

Objective:1) To learn how to use arithmatic instructions in assembly language
2) To understand the register operation of 8086 for data manipulation
3) To gain hands-on experience in programming and debugging with the 8086 microprocessor

Equipment: 8086 Compiler(Online Compiler)/Emu8086

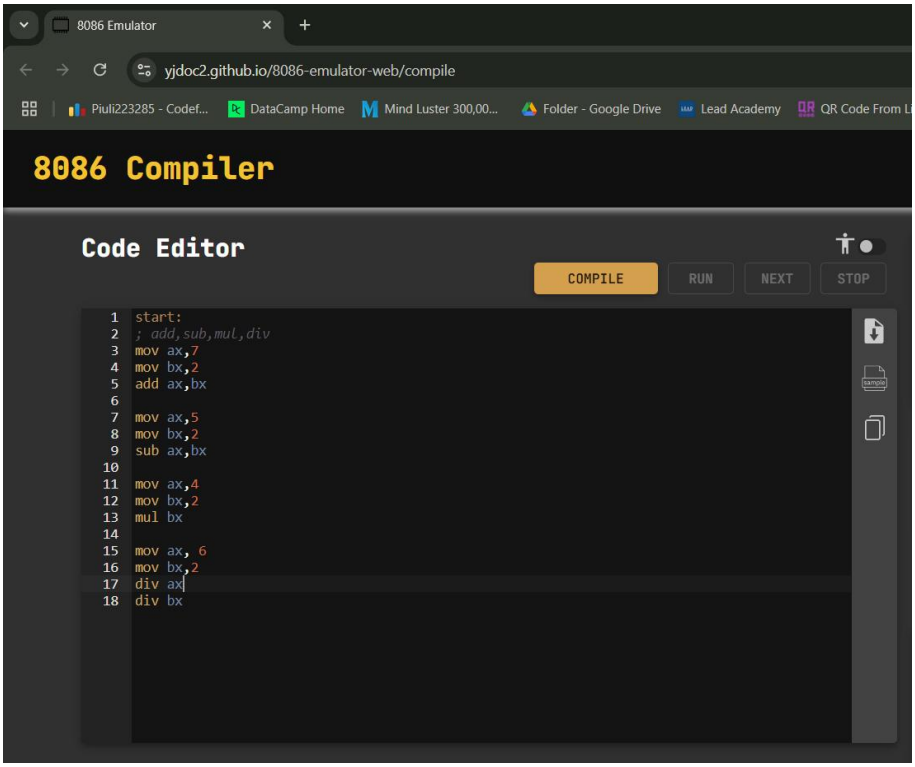
Code:

```
start:
; add,sub,mul,div
mov ax,7
mov bx,2
add ax,bx

mov ax,5
mov bx,2
sub ax,bx

mov ax,4
mov bx,2
mul bx

mov ax, 6
mov bx,2
div ax
div bx
```



Result:

Add:

Reg	H	L
A	00	09
B	00	02
C	00	00
D	00	00

Sub:

Reg	H	L
A	00	03
B	00	02
C	00	00
D	00	00

Mul:

Reg	H	L
A	00	08
B	00	02
C	00	00
D	00	00

Div:

Reg	H	L
A	00	03
B	00	02
C	00	00
D	00	00

Discussion:

Experiment No: 03

Experiment Name:JMP and LOOP using 8086 Compiler

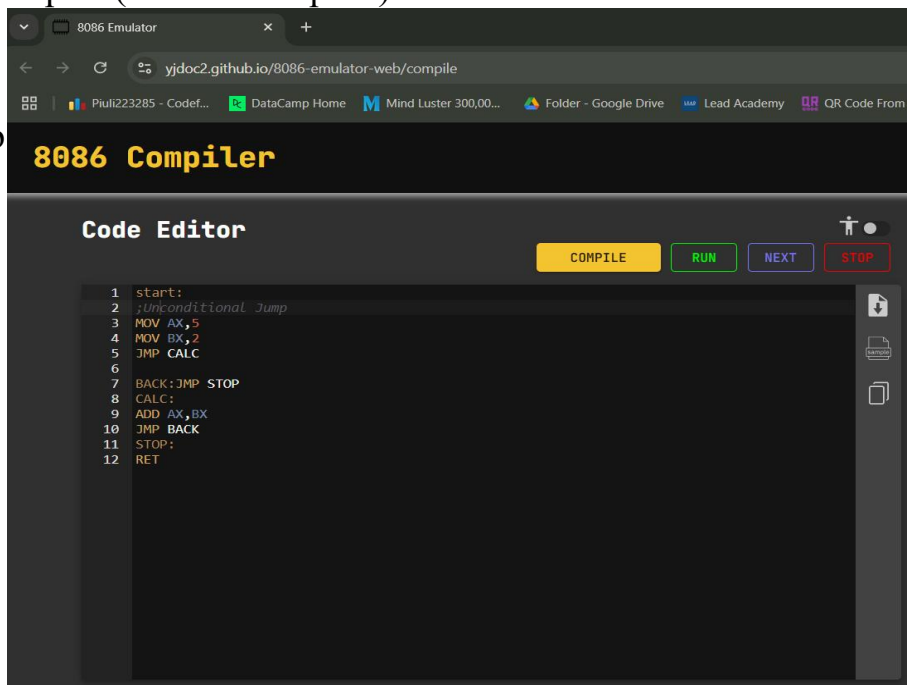
Objective:1) To learn how to use arithmatic instructions in assembly language
2)To understand the register operation of 8086 for data manipulation
3)To gain hands-on experience in programming and debugging with the 8086 microprocessor

Equipment: 8086 Compiler(Online Compiler)/Emu8086

Code:(i)JMP

```
start:
;Unconditional Jump
MOV AX,5
MOV BX,2
JMP CALC

BACK:JMP STOP
CALC:
ADD AX,BX
JMP BACK
STOP:
RET
```

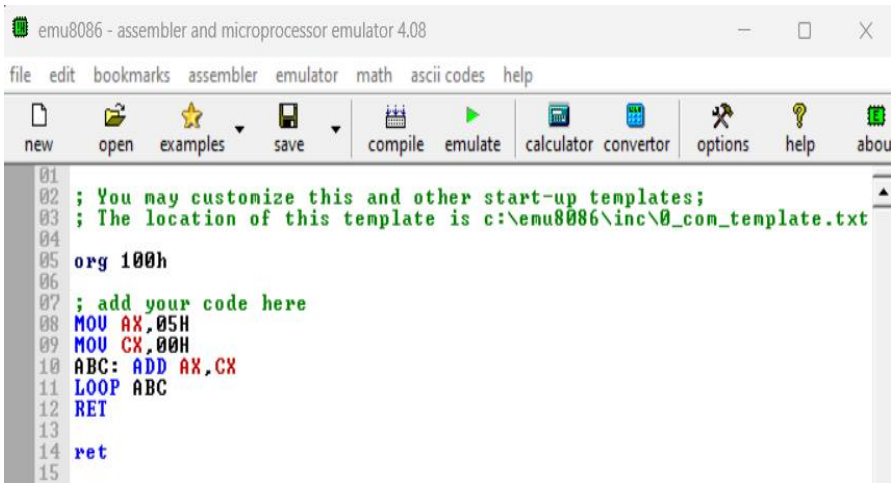


(ii)LOOP

```
org 100h

; add your code here
MOV AX,05H
MOV CX,00H
ABC: ADD AX,CX
LOOP ABC
RET

ret
```

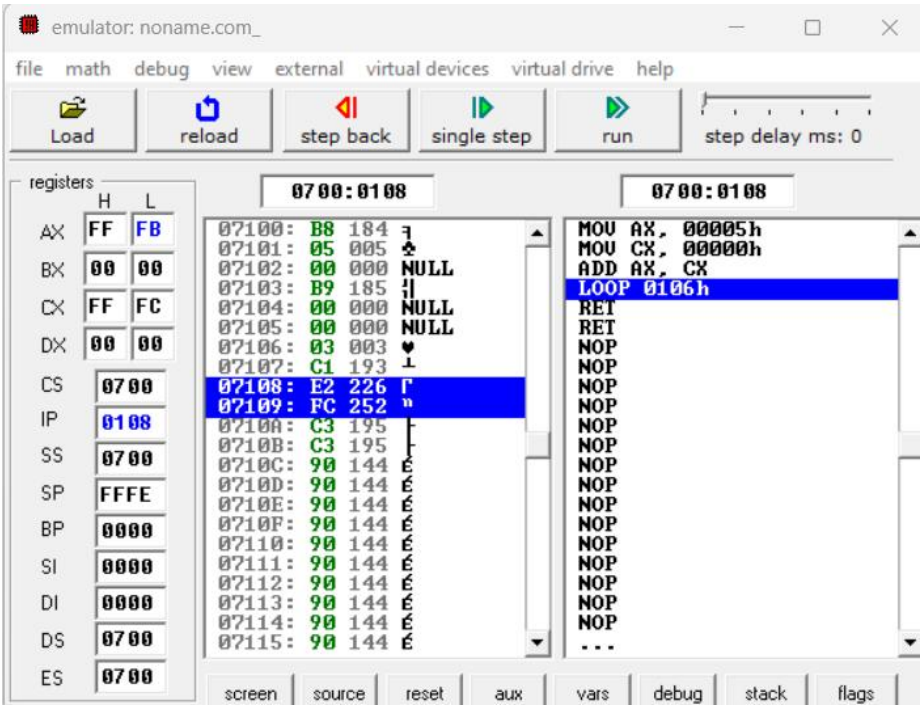


Result:

(i)JMP:

Reg	H	L
A	00	07
B	00	02
C	00	00
D	00	00

(ii)LOOP:



Discussion:

Experiment No: 04

Experiment Name:Shift Left, Shift Right, Rotate Left, Rotate Right using 8086 Compiler

Objective:1) To learn how to use arithmatic instructions in assembly language
2)To understand the register operation of 8086 for data manipulation
3)To gain hands-on experience in programming and debugging with the 8086 microprocessor

Equipment: 8086 Compiler(Online Compiler)/Emu8086

Code:

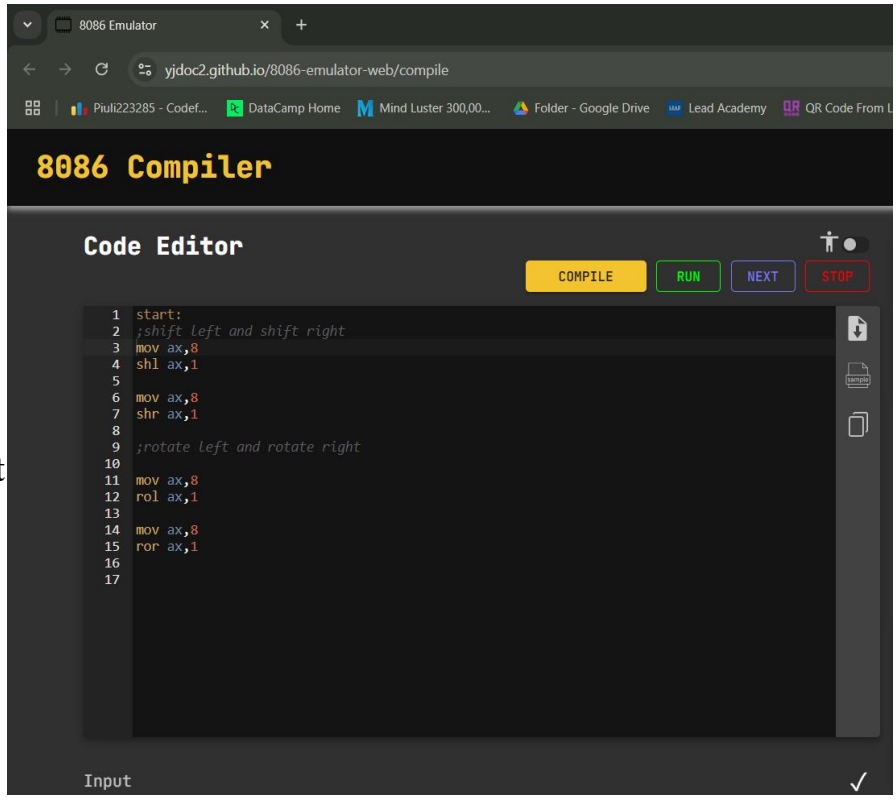
```
start:
;shift left and shift right
mov ax,8
shl ax,1

mov ax,8
shr ax,1

;rotate left and rotate right

mov ax,8
rol ax,1

mov ax,8
ror ax,1
```



Result:

Shift Left:

Reg	H	L
A	00	10
B	00	00
C	00	00
D	00	00

Shift Right:

Reg	H	L
A	00	04
B	00	00
C	00	00
D	00	00

Rotate Left:

Reg	H	L
A	00	10
B	00	00
C	00	00
D	00	00

Rotate Right:

Reg	H	L
A	00	04
B	00	00
C	00	00
D	00	00

Discussion:

Experiment No: 05

Experiment Name:Simple Program Run using 8086 Compiler

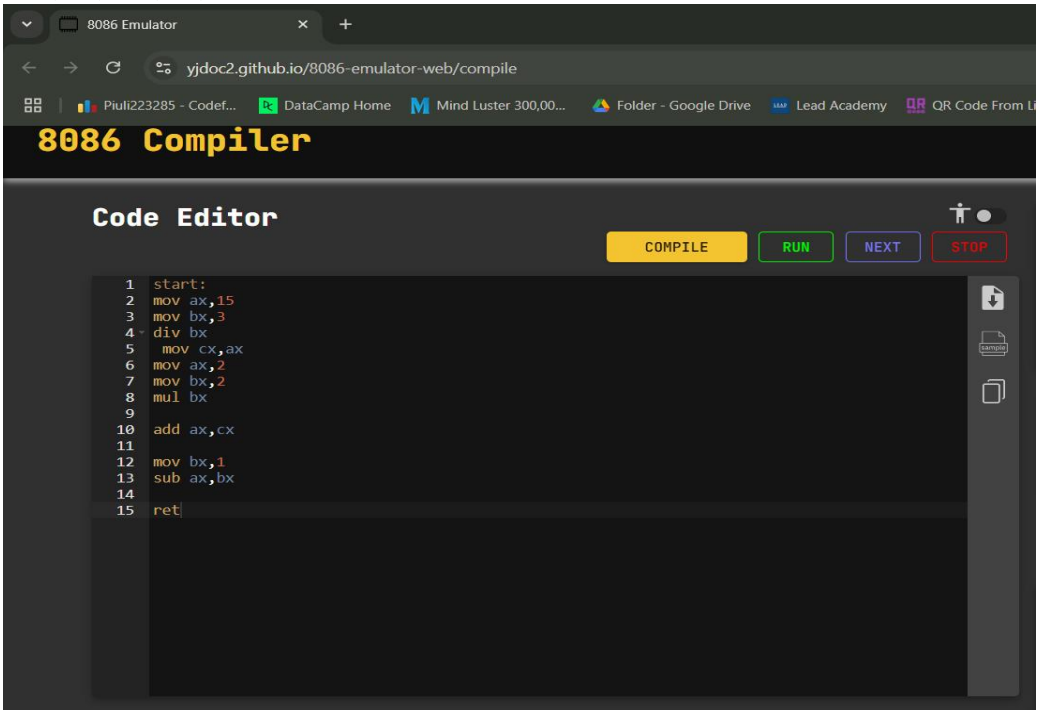
Objective:1) To learn how to use arithmatic instructions in assembly language
2)To understand the register operation of 8086 for data manipulation
3)To gain hands-on experience in programming and debugging with the 8086 microprocessor

Equipment: 8086 Compiler(Online Compiler)/Emu8086

Code:**(i)**(((15/3)+(2*2)-1)

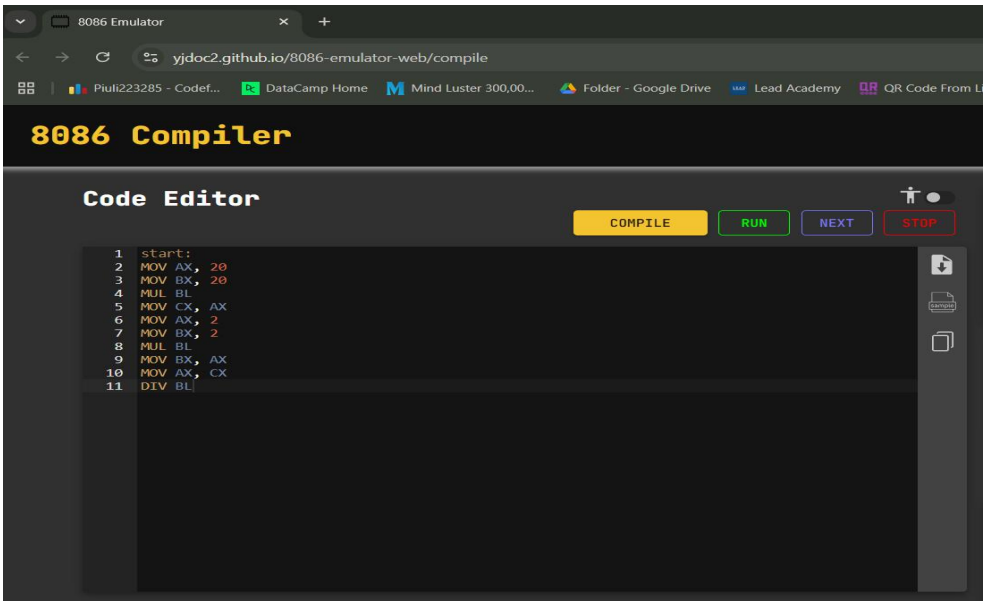
```
start:
mov ax,15
mov bx,3
div bx
 mov cx,ax
mov ax,2
mov bx,2
mul bx
add ax,cx

mov bx,1
sub ax,bx
ret
```



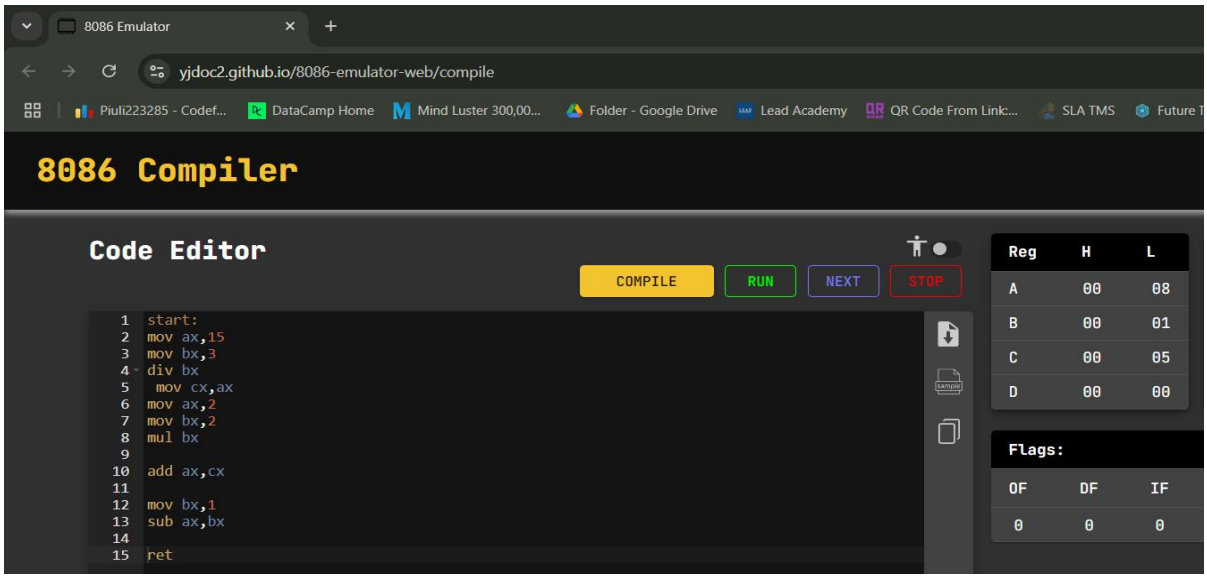
(ii) Floor size 20*20, Tiles size 2*2. How many tiles are needed to cover up the floor?

->start:
MOV AX, 20
MOV BX, 20
MUL BL
MOV CX, AX
MOV AX, 2
MOV BX, 2
MUL BL
MOV BX, AX
MOV AX, CX
DIV BL

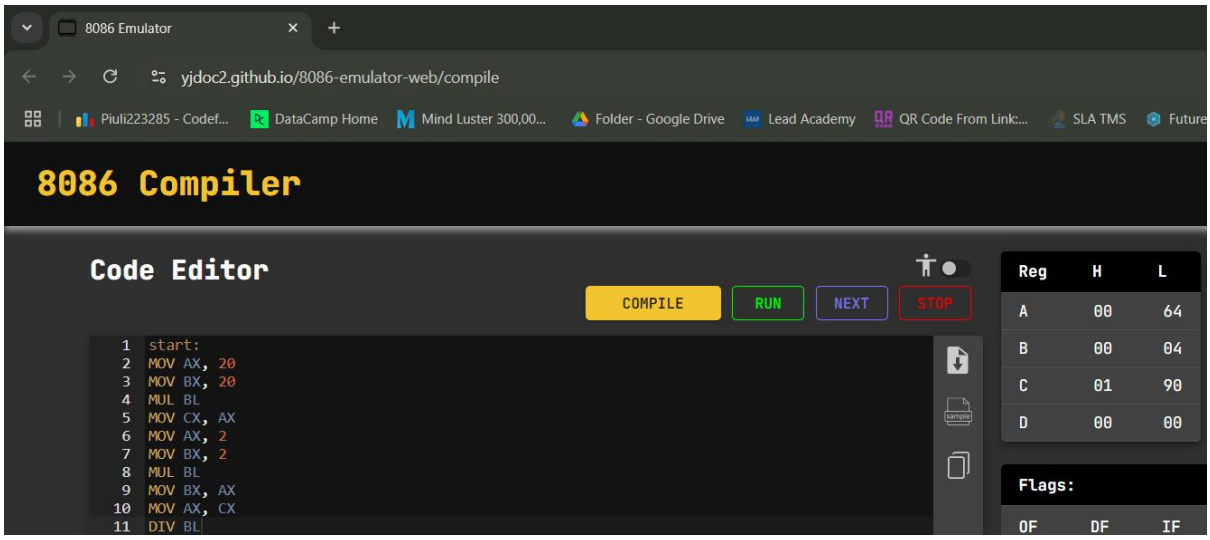


Result:

(i)



(ii)



Discussion:

Experiment No: 06

Experiment Name:Temperature,Area,Factorial using 8086 Compiler

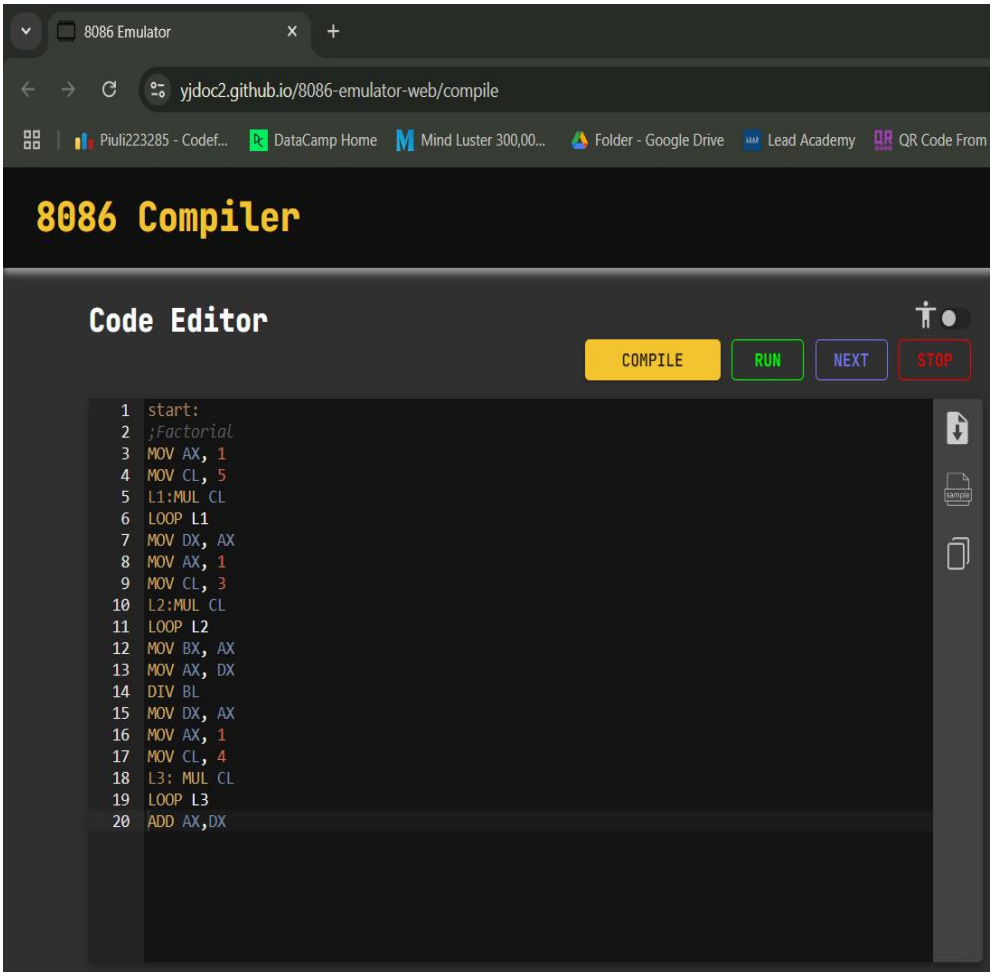
Objective:1) To learn how to use arithmatic instructions in assembly language
2)To understand the register operation of 8086 for data manipulation
3)To gain hands-on experience in programming and debugging with the 8086 microprocessor

Equipment: 8086 Compiler(Online Compiler)/Emu8086

Code:

Factorial:(5! / 3!) + 4!

```
start:
;Factorial
MOV AX, 1
MOV CL, 5
L1:MUL CL
LOOP L1
MOV DX, AX
MOV AX, 1
MOV CL, 3
L2:MUL CL
LOOP L2
MOV BX, AX
MOV AX, DX
DIV BL
MOV DX, AX
MOV AX, 1
MOV CL, 4
L3: MUL CL
LOOP L3
ADD AX,DX
```

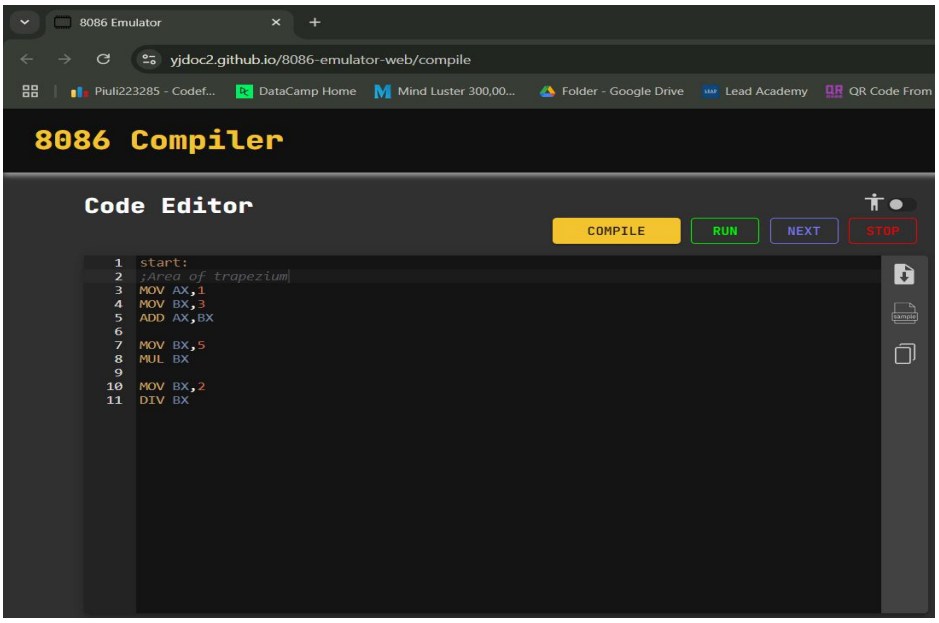


Area: Trapezium

```
start:
;Area of trapezium
MOV AX,1
MOV BX,3
ADD AX,BX

MOV BX,5
MUL BX

MOV BX,2
DIV BX
```



Temperature:

Result:

Factorial:

Reg	H	L
A	00	2c
B	00	06
C	00	00
D	00	14

Area:
Trapezium

Reg	H	L
A	00	0a
B	00	02
C	00	00
D	00	00

Temperature: