

COAL LAB 2

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Task1:

Write a assembly language program to print hello world using mov ah,02 service routine.



```
D:\>D:\test  
HELLO WORLD  
D:\>
```

In this task, I made 11 modules to print 1 character each.

ASM task1.asm ●

ASM task2.asm

ASM task3.asm

ASM task4.asm


ASM task5.as

ASM task1.asm

```
1  .model small
2  .stack 100H
3  .data
4  .code
5  main proc
6  mov dl,'H'
7  mov ah,2
8  int 21h
9  mov dl,'E'
10 mov ah,2
11 int 21h
12 mov dl,'L'
13 mov ah,2
14 int 21h
15 mov dl,'L'
16 mov ah,2
17 int 21h
18 mov dl,'O'
19 mov ah,2
20 int 21h
21 mov dl,' '
22 mov ah,2
23 int 21h
24 mov dl,'W'
25 mov ah,2
26 int 21h
27 mov dl,'O'
28 mov ah,2
29 int 21h
30 mov dl,'R'
31 mov ah,2
32 int 21h
33 mov dl,'L'
34 mov ah,2
35 int 21h
36 mov dl,'D'
37 mov ah,2
38 int 21h
39 mov ah,4ch
40 int 21h
41 main endp
42 end main
```

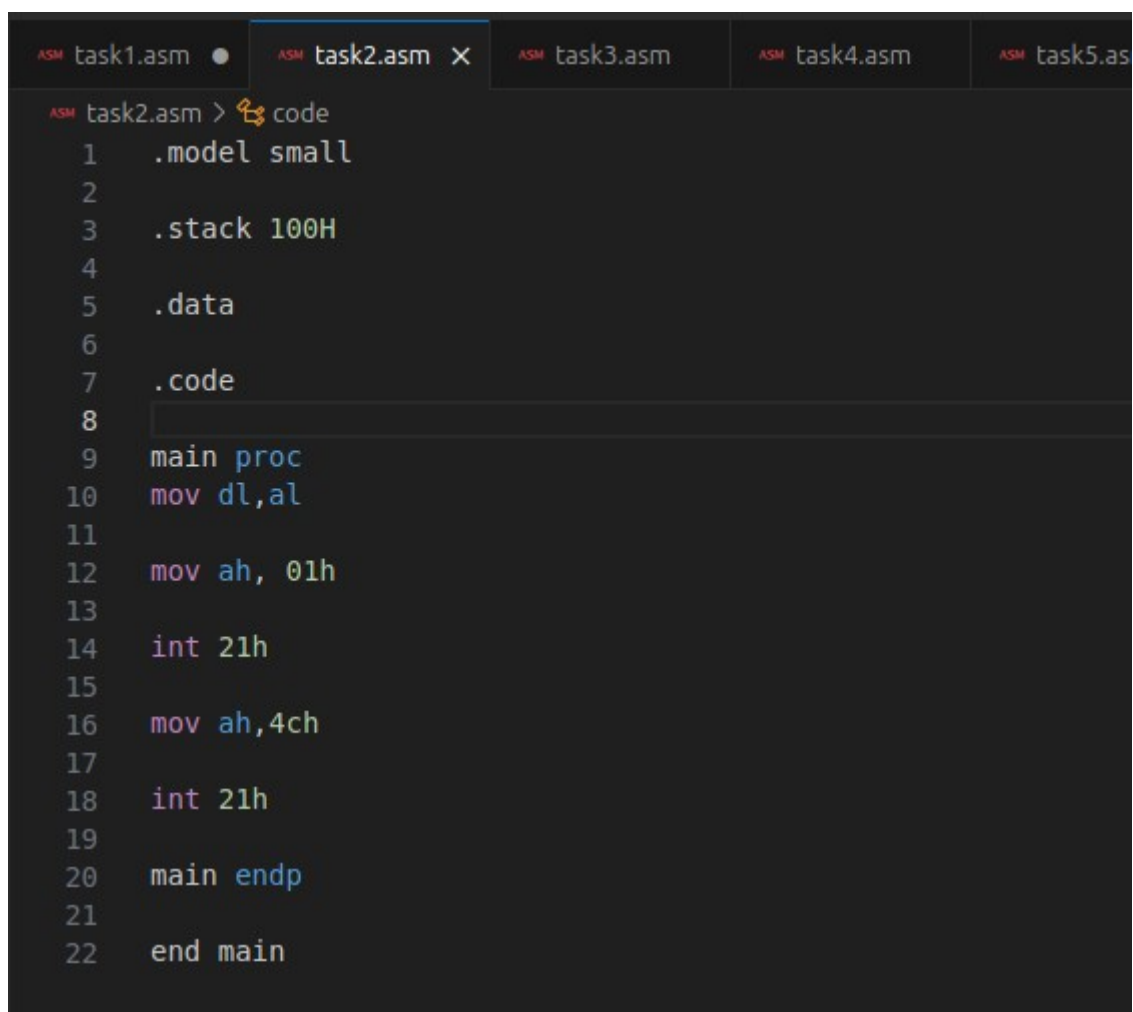
Task2:

Write Assembly program to Input Character from user and display it.



```
D:\>D:\test
1
D:\>_
```

In this task, I took one character input from user using 01 schedule which echoes it's data (saved in register) onto the output screen.



```
ASM task1.asm ● ASM task2.asm ✕ ASM task3.asm ASM task4.asm ASM task5.as
ASM task2.asm > code
1  .model small
2
3  .stack 100H
4
5  .data
6
7  .code
8
9  main proc
10 mov dl,al
11
12 mov ah, 01h
13
14 int 21h
15
16 mov ah,4ch
17
18 int 21h
19
20 main endp
21
22 end main
```

Task3:

Take number and print the next number

```
D:\>D:\test
5
D:\>
```

In this task, I took a number as input from user and incremented in it using inc.

```
ASM task1.asm  ASM task2.asm  ASM task3.asm X  ASM task4.asm  ASM task5.as
ASM task3.asm > data
1  .model small
2
3  .stack 100H
4
5  .data
6
7  .code
8
9  main proc
10 mov al,08
11 mov ah,08
12 int 21h
13 mov dl,al
14 inc dl
15 mov ah,02
16 int 21h
17 mov ah,4ch
18
19 int 21h
20
21 main endp
22
23 end main
```

Task4:

Take a number and print the previous number

```
D:\>D:\test
3
D:\>
```

In this task, I took a number as input from user and decremented it using dec.

```
ASM task1.asm  ASM task2.asm  ASM task3.asm  ASM task4.asm  ASM task5.asm
ASM task4.asm > code > main
1  .model small
2
3  .stack 100H
4
5  .data
6
7  .code
8
9  main proc
10 mov al,08
11 mov ah,08
12 int 21h
13 mov dl,al
14 dec dl
15 mov ah,02
16 int 21h
17 mov ah,4ch
18
19 int 21h
20
21 main endp
22
23 end main
```

Task5:

Write Assembly program to Input Lower Case letter from user and display it's upper case. (Subtract 32 in ASCII)

```
D:\>D:\test
R
D:\>
```

In this task, I took a lowercase input from user and subtracted 32 from it before displaying it again.

```
ASM task1.asm  ASM task2.asm  ASM task3.asm  ASM task4.asm  ASM task5.asm
ASM task5.asm > code > main
1  .model small
2
3  .stack 100H
4
5  .data
6
7  .code
8
9  main proc
10 mov al,08
11 mov ah,08
12 int 21h
13 mov dl,al
14 sub dl,32
15 int 21h
16 mov ah,02
17 int 21h
18
19
20 mov ah,4ch
21
22 int 21h
23
24 main endp
25
26 end main
```

Task6:

Write Assembly program to Input Upper Case letter from user and display it's lower case. (ADD 32 from ASCII)

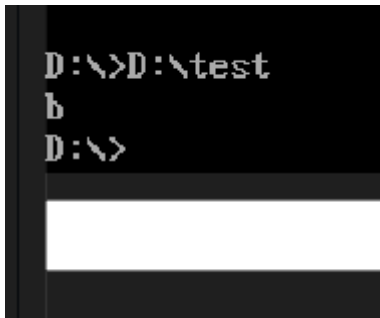


In this task, I took an uppercase character as input from user and added 32 to it to convert it into lowercase.

```
ASM task1.asm  ASM task2.asm  ASM task3.asm  ASM task4.asm  task5.asm
ASM task6.asm > code > main
1  .model small
2
3  .stack 100H
4
5  .data
6
7  .code
8
9  main proc
10 mov al,08
11 mov ah,08
12 int 21h
13 mov dl,al
14 ADD dl,32
15 int 21h
16 mov ah,02
17 int 21h
18
19
20 mov ah,4ch
21
22 int 21h
23
24 main endp
25
26 end main
```

Task7:

Write Assembly program to input letter from the user and display the next character



In this task, I took an input from user and incremented the input by 1 which changes the input to the next character.

```
ASM task1.asm  ASM task2.asm  ASM task3.asm  ASM task4.asm  ASM task7.asm > code > main
1  .model small
2
3  .stack 100H
4
5  .data
6
7  .code
8
9  main proc
10 mov al,08
11 mov ah,08
12 int 21h
13 mov dl,al
14 inc dl
15 mov ah,02
16 int 21h
17 mov ah,4ch
18
19 int 21h
20
21 main endp
22
23 end main
```


Task8:

Write an assembly language program to ADD two values.

```
D:\>D:\test
448
D:\>_
```

In this task, I took a value from user, stored it in the base register, took another input from user and updated the value stored in the accumulator register before displaying it again. I also added and subtracted 30h to not let the ASCII value get added.

```
ASM task1.asm  ASM task2.asm  ASM task3.asm  ASM task4.asm  task8.asm
ASM task8.asm
1
2 .model small
3 .stack 100H
4 .data
5 .code
6 main proc
7 mov ah,01h      ; Input first number
8 int 21h
9 sub al, 30h     ; Convert ASCII to numeric value
10 mov bl, al
11 mov ah,01h     ; Input second number
12 int 21h
13 sub al, 30h    ; Convert ASCII to numeric value
14 add al, bl     ; Add the two numbers
15 add al, 30h    ; Convert numeric value to ASCII
16 mov dl, al
17 mov ah,02h     ; Output the result
18 int 21h
19 mov ah,4ch     ; Exit the program
20 int 21h
21 main endp
22 end main
```

Task9:

Write an assembly language program to subtract two values.

```
D:\>D:\test
440
D:\>
```

In this task, I took a value from user, stored it in the base register, took another input from user and updated the value stored in the accumulator register before displaying it again. I also added and subtracted 30h to not let the ASCII value get subtracted.

```
ASM task1.asm  ASM task2.asm  ASM task3.asm  ASM task4.asm  task9.asm
ASM task9.asm
1
2 .model small
3 .stack 100H
4 .data
5 .code
6 main proc
7 mov ah,01h          ; Input first number
8 int 21h
9 sub al, 30h         ; Convert ASCII to numeric value
10 mov bl, al
11 mov ah,01h         ; Input second number
12 int 21h
13 sub al, 30h        ; Convert ASCII to numeric value
14 sub al, bl         ; Subtract the two numbers
15 add al, 30h        ; Convert numeric value to ASCII
16 mov dl, al
17 mov ah,02h         ; Output the result
18 int 21h
19 mov ah,4ch         ; Exit the program
20 int 21h
21 main endp
22 end main
```