

ML Assignment

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Roll No: 2039

Batch: S4 Comp

Assignment 4:

Code:

```
section .data
    num1 db 4h
    num2 db 2h
    msg db "Enter 1(+).Add",10
    msg_len equ $-msg
    msg1 db "Enter 2(-).Subtract",10 msg1_len equ $-msg1
    msg2 db "Enter 3(*).Multiply",10 msg2_len equ $-msg2
    msg3 db "Enter 4(/).Divide",10 msg3_len equ $-msg3
    msg4 db "Enter your choice:(+,-,*,/) ",10 msg4_len equ $-msg4
    msg5 db "Result: "
    msg5_len equ $-msg5
    msg6 db 10,"Quotient: "
    msg6_len equ $-msg6
    msg7 db 10,"Remainder: "
    msg7_len equ $-msg7
    msg8 db "Error: Enter correct choice" msg8_len equ $-msg8
section .bss
    chc resb 2
    res resb 4
section .text
    global _start
_start:
    mov rax, 1
    mov rdi, 1
    mov rsi, msg
    mov rdx, msg_len syscall
    mov rax, 1
    mov rdi, 1
    mov rsi, msg1 mov rdx, msg1_len syscall
    mov rax, 1
    mov rdi, 1
    mov rsi, msg2 mov rdx, msg2_len syscall
    mov rax, 1
```

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    mov rdi, 1
    mov rsi, msg3 mov rdx, msg3_len syscall
    mov rax, 1
    mov rdi, 1
    mov rsi, msg4 mov rdx, msg4_len syscall
    mov rax, 0
    mov rdi, 0
    mov rsi, chc
    mov rdx, 2
    syscall
    cmp byte[chc], '+' je Addition
    cmp byte[chc], '-' je Subtraction cmp byte[chc], '*' je Multiplication cmp
    byte[chc], '/' je Division
    jmp lw
lw:
    mov rax, 1
    mov rdi, 1
    mov rsi, msg8 mov rdx, msg8_len syscall
    mov rax, 60
    mov rdi, 0
    syscall
Addition:
    call add1 mov rax, 60
    mov rdi, 0
    syscall
add1:
    mov al,[num1] mov bl,[num2] mov ah,00
    mov bh,00
    add ax,bx
    mov bx,ax
    call disp
    ret
Subtraction:
    call sub1 mov rax, 60
    mov rdi, 0
    syscall
sub1:
    mov al,[num1] mov bl,[num2]
    mov ah,00
    mov bh,00
    sub ax,bx
    mov bx,ax

```

call disp

ret

Multiplication:

call multi1 mov rax, 60

mov rdi, 0

syscall

multi1:

mov al,[num1] mov bl,[num2]

mov ah,00

mov bh,00

mul bx

mov bx,ax

call disp

ret

Division:

call div1 mov rax, 60

mov rdi, 0

syscall

div1:

mov al,[num1] mov bl,[num2] mov dx,00

mov ah,00

mov bh,00

div bx

push ax

push dx

mov rax, 1

mov rdi, 1

mov rsi, msg7 mov rdx, msg7_len syscall

pop dx

mov bx,dx

call disp

mov rax, 1

mov rdi, 1

mov rsi, msg6 mov rdx, msg6_len syscall

pop ax

mov bx,ax

call disp

ret

disp:

mov rdi,res

mov cx,16

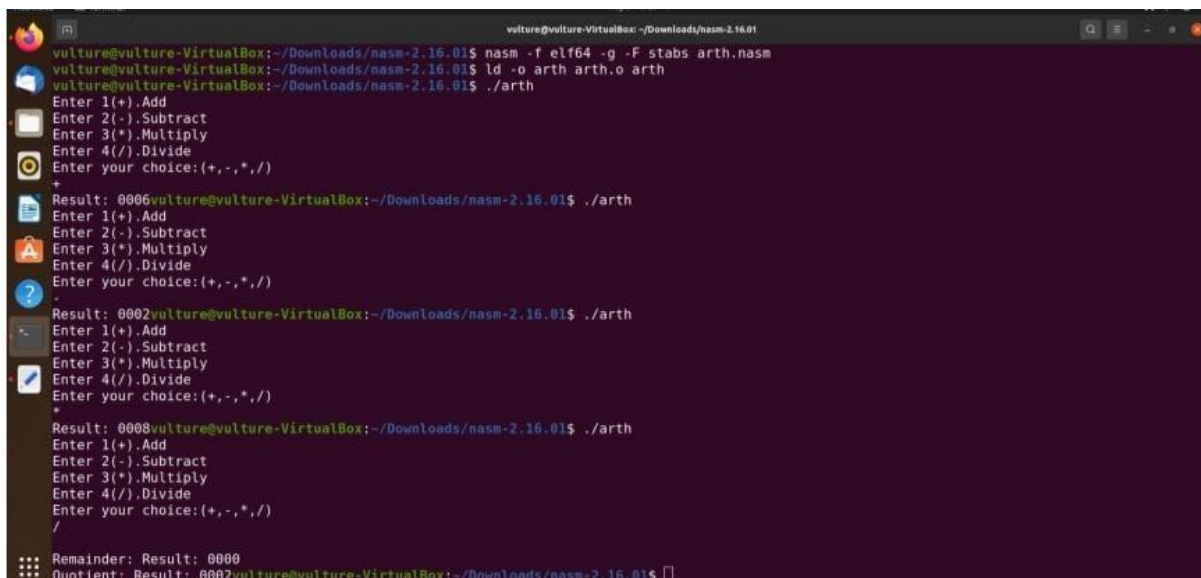
d1:

```

rol bx,04
mov al,bl
and al,0fh
cmp al,09h
jg up2
add al,30h
jmp down
up2:
add al,37h
down:
mov [rdi],al inc rdi
dec cx
jnz d1
mov rax, 1
mov rdi, 1
mov rsi, msg5 mov rdx, msg5_len syscall
mov rax, 1
mov rdi, 1
mov rsi,res
mov rdx, 4
syscall
ret

```

Output:



```

vulture@vulture-VirtualBox: ~/Downloads/nasm-2.16.01
vulture@vulture-VirtualBox:~/Downloads/nasm-2.16.01$ nasm -f elf64 -g -F stabs arth.nasm
vulture@vulture-VirtualBox:~/Downloads/nasm-2.16.01$ ld -o arth arth.o arth
vulture@vulture-VirtualBox:~/Downloads/nasm-2.16.01$ ./arth
Enter 1(+).Add
Enter 2(-).Subtract
Enter 3(*).Multiply
Enter 4(/).Divide
Enter your choice:(+,-,*,/)
+
Result: 0006vulture@vulture-VirtualBox:~/Downloads/nasm-2.16.01$ ./arth
Enter 1(+).Add
Enter 2(-).Subtract
Enter 3(*).Multiply
Enter 4(/).Divide
Enter your choice:(+,-,*,/)
*
Result: 0002vulture@vulture-VirtualBox:~/Downloads/nasm-2.16.01$ ./arth
Enter 1(+).Add
Enter 2(-).Subtract
Enter 3(*).Multiply
Enter 4(/).Divide
Enter your choice:(+,-,*,/)
/
Result: 0008vulture@vulture-VirtualBox:~/Downloads/nasm-2.16.01$ ./arth
Enter 1(+).Add
Enter 2(-).Subtract
Enter 3(*).Multiply
Enter 4(/).Divide
Enter your choice:(+,-,*,/)
/
Result: 0000vulture@vulture-VirtualBox:~/Downloads/nasm-2.16.01$

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