Code:-

%macro display 2 mov rax,1 mov rdi,1 mov rsi,%1 mov rdx,%2 syscall %endm %macro input 2 mov rax,0 mov rdi,0 mov rsi,%1 mov rdx,%2 syscall %endm global _start section .data msg db 0dh,0ah,"result of addition is:" ;Taking input from user msg_len equ \$-msg msg1 db 0dh,0ah,"result of subtraction is:" msg1_len equ \$-msg1 msg2 db 0dh,0ah,"result of multiplication is:" msg2_len equ \$-msg2 msg3 db 0dh,0ah,"result of division is:Quotionent:" msg3_len equ \$-msg3 msg4 db 0dh,0ah,"result of division is:Remainder:" msg4_len equ \$-msg4 msg5 db 0dh,0ah,"Enter your choice for 1:addition 2:subtraction 3:multiplication 4:division:" msg5_len equ \$-msg5

msg6 db 0dh,0ah,"Error :" msg6_len equ \$-msg6

num1 dq 012345678h num2 dq 010h

section .bss

add_result resq 1
add_result_ascii resq 2
add_carry resb 1
add_carry_ascii resb 1
sub_result resq 1
mulrdx_result resq 1
mulrax_result resq 1
quo_result resq 1
rem_result resq 1
choice resb 2

section .text

_start:

display msg5,msg5_len input choice,2

mov rsi,num1 mov rax,[rsi] mov rbx,[num2]

mov cl,[choice] cmp cl,31h jne dn_ch

call addition jmp ext

dn_ch: cmp cl,32h

```
jne dn_ch1
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call subtraction jmp ext

dn_ch1: cmp cl,33h jne dn_ch2

call multiplication jmp ext

dn_ch2: cmp cl,34h jne dn_error

mov rdx,0 call division jmp ext

dn_error: display msg6,msg6_len

ext: mov rax,60 mov rdi,0 syscall

division: div rbx mov [rem_result],rdx mov [quo_result],rax

display msg3,msg3_len mov rax,[quo_result] call disp_result display add_result_ascii,10h

display msg4,msg4_len mov rax,[rem_result] call disp_result ret

addition:
mov cl,00
add rax,rbx
jnc dn1
inc cl
dn1: mov [add_result],rax
mov [add_carry],cl
display msg,msg_len

mov cl,[add_carry] add cl,30h mov [add_carry_ascii],cl display add_carry_ascii,1

mov rax,[add_result]
call disp_result
display add_result_ascii,10h
ret

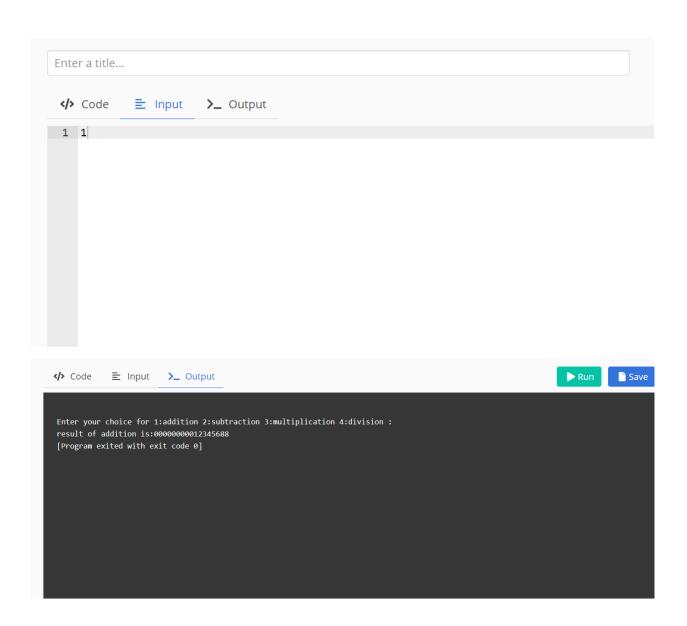
subtraction: sub rax,rbx mov [sub_result],rax

display msg1,msg1_len mov rax,[sub_result] call disp_result display add_result_ascii,10h ret

```
multiplication:
mul rbx
mov [mulrax_result],rax
mov [mulrdx_result],rdx
display msg2,msg2_len
mov rax,[mulrdx_result]
call disp_result
display add_result_ascii,10h
mov rax,[mulrax_result]
call disp_result
display add_result_ascii,10h
ret
disp_result:
mov cl,10h
mov rdi,add_result_ascii
                                 ;RAX= 1234567812345678
up1: rol rax,4
                                 ;RAX= 2345678123456781
mov rbx,rax
and al,0fh
                                 ;RAX= 000000000000001
cmp al,09
ja dn2
add al,30h
jmp dn3
dn2: add al,37h
dn3: mov [rdi],al
inc rdi
mov rax,rbx
dec cl
jnz up1
```

Output:-

ret



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