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SOURCE CODE:

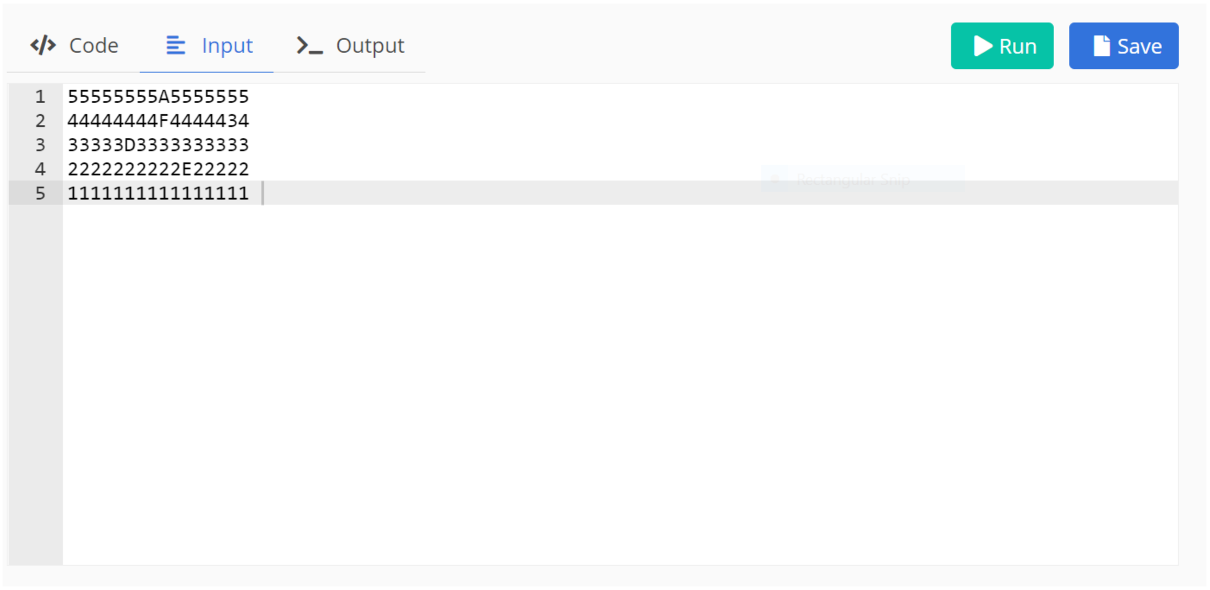
```
%macro IO 4

mov rax,%1

mov rdi,%2

mov rsi,%3

mov rdx,%4

syscall

%endmacro

section .data

m1 db "Enter the five 64 bit numbers:" ,10 ; 10d -> line feed

  l1 equ $-m1

  m2 db "The  five 64 bit numbers are:" ,10

  l2 equ $-m2

  m3 db "Priyanka Salunke F19111151" ,10

  l3 equ $-m3

  m4 db "Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and
store them in an array and display the accepted numbers." ,10d

  l4 equ $-m4

  m5 db 10,"Exiting now" ,10

  l5 equ $-m5

  m6 db "incorrect input error" ,10

  l6 equ $-m6

  m7 db 10

  debug db "debug "

  debug_l equ $-debug

time equ 5

size equ 8

section .bss
```

```
arr resb 300
_input resb 20
_output resb 20
count resb 1
section .text
global _start
_start:
IO 1,1,m3,l3
IO 1,1,m4,l4
   mov byte[count],time ; store time = 5 in count;
mov rbp,arr     ;rbp points to begining of arr
IO 1,1,m1,l1
input:
   IO 0,0,_input,17
   IO 1,1,debug,debug_l
   IO 1,1,_input,17

call ascii_to_hex
   mov [rbp],rbx   ; put the complete summed rbx value to arr[n]
add rbp,size    ; move to next value of array 8 -> 4*2 = 1 place -> arr[n+1]
dec byte[count] ; loop
jnz input

mov byte[count],time ; set loop count to 5
mov rbp,arr     ;make rbp point to arr beginning
jmp display
display:
   mov rax,[rbp]   ; address of rbp in rax
call hex_to_ascii
IO 1,1,m7,1
IO 1,1,_output,16
```

```
add rbp,size    ; move to next value of array 8 -> 4*2 = 1 place arr[n+1]
dec byte[count] ; loop
jnz display
jmp exit
exit:
IO 1,1,m5,l5
mov rax,60
mov rdi,0
syscall
error:
  IO 1,1,m6,l6
  jmp exit
ascii_to_hex:
        mov rsi,_input
        mov rcx,16
        xor rbx,rbx  ;cleaning rbx since rbx == rbx , rbx is set to 0without wasting the space
    xor rax,rax  ;cleaning rax
  letter:
    rol rbx,4    ; shifting rbx to left by 4 bytes
        mov al,[rsi] ; adrress of rsi (_input ) in al _input[0]
        cmp al,47h   ; error checking
        jge error    ;
        cmp al,39h   ;if < ascii 39 => 0-9
        jbe skip
        sub al,07h   ;else => ascii is (A-F)
  skip:
    sub al,30h   ; get value between 0-9
        add rbx,rax  ; add generated hex value to rbx
        inc rsi      ; now rsi points at _input[n+1]
        dec rcx      ; loop
        jnz letter
```

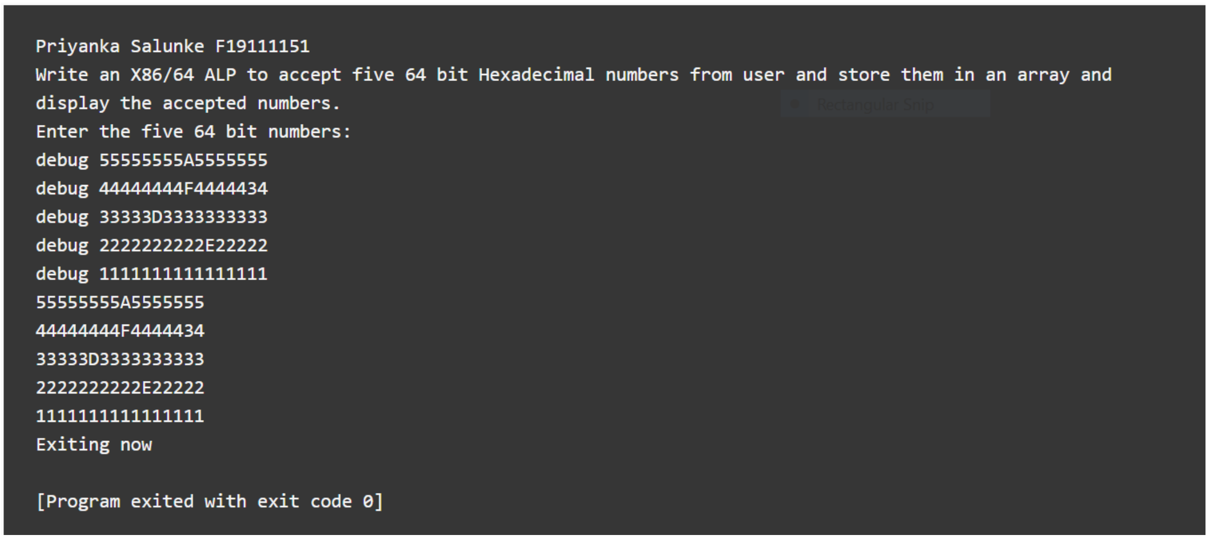
```
   ret
hex_to_ascii:
   mov rsi,_output+15   ;max display of 16 characters and rsi points to _output[16]
      mov rcx,16          ;loop runs 16 times
   letter2:
      xor rdx,rdx         ;cleaning rdx need dl for division remainder and
      mov rbx,16          ;base 16
      div rbx             ;dividing by base 16
      cmp dl,09h          ;checking if hex value < 9
      jbe add30           ;if yes simply add 30h to get the ascii
      add dl,07h          ;else => (A-F)  so add 7 to make it 37 total
   add30:
      add dl,30h          ;common step of adding 30h
      mov [rsi],dl        ;move generated ascii to  _output[n]
      dec rsi             ;rsi points to _output[n-1]
      dec rcx             ;loop
      jnz letter2
ret
```

INPUT:



```
55555555A5555555
44444444F4444434
33333D3333333333
2222222222E22222
1111111111111111
```

OUTPUT:



```
Priyanka Salunke F19111151
Write an X86/64 ALP to accept five 64 bit Hexadecimal numbers from user and store them in an array and
display the accepted numbers.
Enter the five 64 bit numbers:
debug 55555555A5555555
debug 44444444F4444434
debug 33333D3333333333
debug 2222222222E22222
debug 1111111111111111
55555555A5555555
44444444F4444434
33333D3333333333
2222222222E22222
1111111111111111
Exiting now

[Program exited with exit code 0]
```