Practical5

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section .data
msg dw "ALP to count the number of positive, negative, even, and odd
numbers in an array", 10
msg_len equ $ - msg
array dq 11, -2, -12, -14, -3
msg_pos dw 10, "The count of positive numbers is : ", 10
msg_pos_len equ $ - msg_pos
msg_neg dw 10, "The count of negative numbers is : ", 10
msg_neg_len equ $ - msg_neg
msg_even dw 10, "The count of even numbers is : ", 10
msg_even_len equ $ - msg_even
msg_odd dw 10, "The count of odd numbers is : ", 10
msg_odd_len equ $ - msg_odd
section .bss
result resb 100
pos_count resq 1
neg_count resq 1
even_count resq 1
odd_count resq 1
%macro write 2
mov rax, 1
mov rdi, 1
mov rsi, %1
mov rdx, %2
syscall
%endmacro
section .text
global _start
_start:
mov cx, 5
mov rbx, 0
mov rdx, 0
mov r8, 0
mov r9, 0
mov rsi, array
repeat:
mov rax, [rsi]
shl rax, 1
jc negative
inc rbx
jmp check_even_odd
negative:
inc rdx
check_even_odd:
mov rax, [rsi]
test rax, 1
jnz odd
inc r8
```

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jmp next
odd:
inc r9
next:
add rsi, 8
loop repeat
mov [pos_count], rbx
mov [neg_count], rdx
mov [even_count], r8
mov [odd_count], r9
write msg, msg_len
write msg_pos, msg_pos_len
mov rax, [pos_count]
call disp
write msg_neg, msg_neg_len
mov rax, [neg_count]
call disp
write msg_even, msg_even_len
mov rax, [even_count]
call disp
write msg_odd, msg_odd_len
mov rax, [odd_count]
call disp
mov rax, 60
xor rdi, rdi
syscall
disp:
mov rbx, rax
mov rdi, result
mov cx, 16
up1:
rol rbx, 4
mov al, bl
and al, 0fh
cmp al, 09h
jg add_37
add al, 30h
jmp skip
add_37:
add al, 37h
skip:
mov [rdi], al
inc rdi
dec cx
jnz up1
write result, 16
ret
```

output

```
rllab@fedora:/home/liveuser$ nasm -f elf64 prathamesh5.nasm
rllab@fedora:/home/liveuser$ ld -o prathamesh5 prathamesh5.o

rllab@fedora:/home/liveuser$ ./prathamesh5

ALP to count the number of positive, negative, even, and odd numbers in an array

The count of positive numbers is :
0000000000000001
The count of negative numbers is :
0000000000000004
The count of even numbers is :
0000000000000002
The count of odd numbers is :
0000000000000003rllab@fedora:nasm -f elf64 prathamesh5.nasm
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ALP to count the number of positive, negative, even, and odd numbers in an array

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ALP to count the number of positive, negative, even, and odd numbers in an array

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The count of even numbers is :
0000000000000001
The count of odd numbers is :
rllab@fedora:/home/liveuser$
```