Arithmetic and Logical Operations: Recap

The following table lists the x86-64 integer arithmetic operations.

Instruction	Effect	Description
leaq S, D	$D \leftarrow \&S$	Load effective address
inc D	$D \leftarrow S + 1$	Increment
dec D	$D \leftarrow S - 1$	Decrement
neg D	$D \leftarrow -S$	Negate
not D	$D \leftarrow \sim S$	Complement
add S, D	$D \leftarrow D + S$	Add
sub S, D	$D \leftarrow D - S$	Subtract
imul S, D	$D \leftarrow D \times S$	Multiply
xor S, D	$D \leftarrow D \wedge S$	Exclusive-or
or S, D	$D \leftarrow D \mid S$	Or
and S, D	$D \leftarrow D \& S$	And
sal k, D	$D \leftarrow D << k$	Left shift
shl k, D	$D \leftarrow D << k$	Left shift (same as *sal*)
sar k, D	$D \leftarrow D >>_A k$	Arithmetic right shift
shr k, D	$D \leftarrow D >>_L k$	Logical right shift