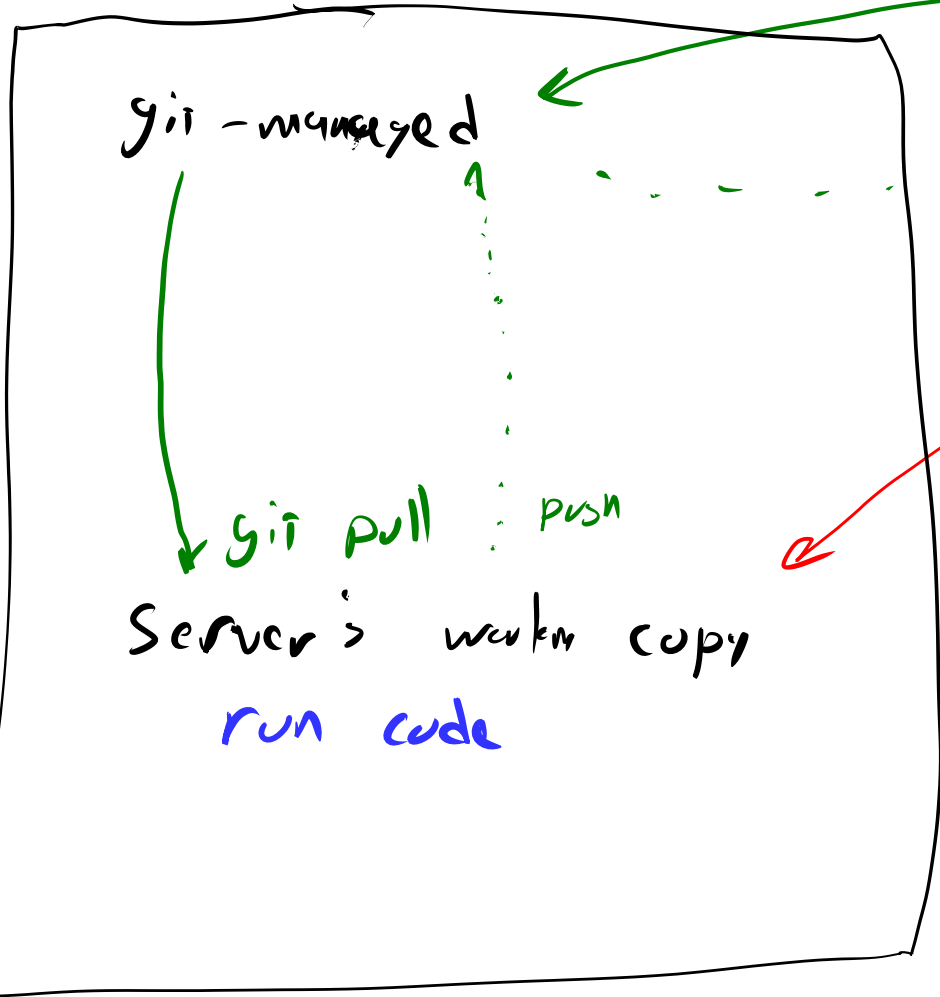
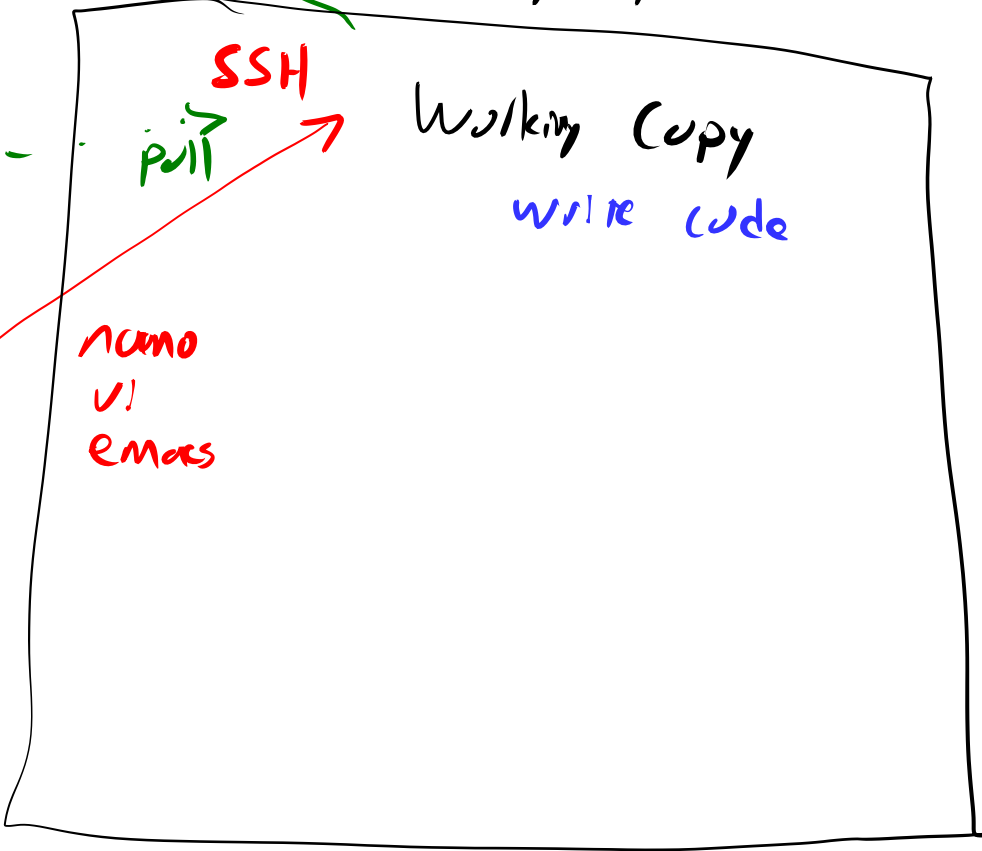


Server



git push laptop



Signed = 2's complement

00101     4+ bit: 5  
             3 bit: -3

101  
+ 1  
-----  
110  
+ 1  
-----  
111  
+ 1  
-----  
1000

8-bit  
10101101  
+ 01010011  
-----  
00000000

$n + 82 = -1$      - (82, 1)  
 $n = -83$

x + y - x \* y  
x - y - x / y  
-x

not T → F  
not F → T

~ 00110101

↳ 11001010

<<

>>

~

!

^  
&  
|

tilde (tuddle) - Flip bits  
bitwise not

bitwise XOR

bitwise and

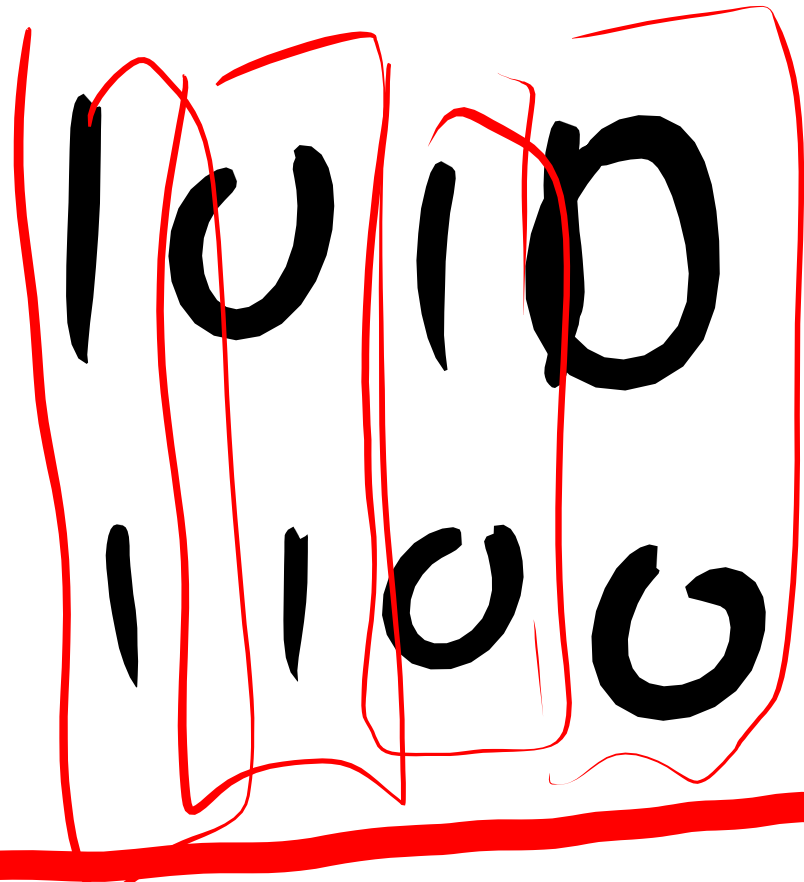
bitwise or

11001010

0111100

01001000

2



11001010

1

0111100

---

111110

110001010

↑

01111100

---

10110110

$$0x1A \wedge 0x72 = 0x68$$

$$\begin{array}{r} 0001\ 1010 \\ \wedge 0111\ 0010 \\ \hline 0110\ 1000 \\ \underbrace{\quad\quad} \quad \underbrace{\quad\quad} \\ | \quad | \\ 0x6 \quad 8 \end{array}$$



! logical not

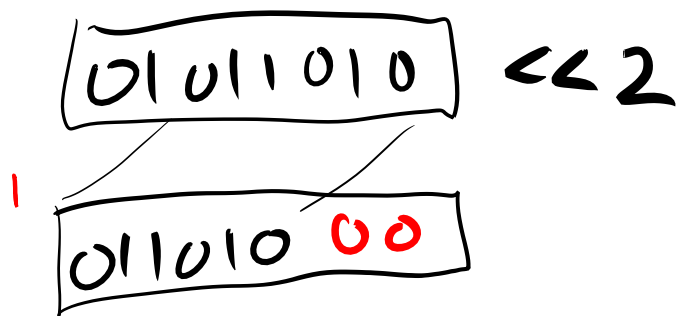
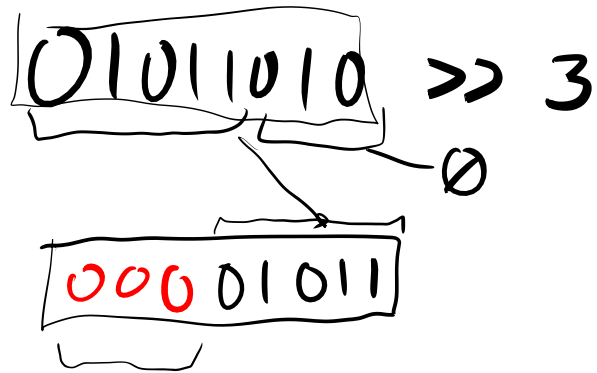
$$!0 = 1$$

$$!x = 0$$

$$A * \neq 0$$

bit-shift

1111101  $\gg 1 = -3 \gg$   
0111110  $= 254 \ll$



31415  $\ll_{10} 2$   
 $\times 100$   
3141500