



Numbers

Characters

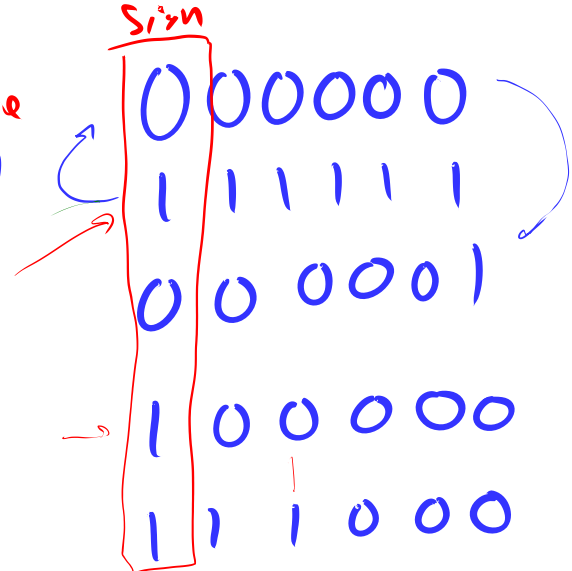
MP2 → Programs

Z's complement ex  
non-integers ( $\frac{1}{3}$  vs  $\frac{1}{5}$ )  
see CS 357

4 1 1/2 1/8  
1101.101  
8 2 1/4

6-bit 2's complement

0 - non-neg  
1 - negative



→ Zero 0  
 → neg one -1  
 → One +1

→ -32  
 → -8

↓ 001100 +12

1111  
 01111  
 +  
 100000

000111  
 +  
 1000

1 bit - limited use

Small group of bits = Byte

Powers of 2 are fast

1 ~ 2

2 ~ 4

4 ~ 16

OCTET = byte = 8 ~ 256

16

32

⋮

text

26 letters x 2 case

10 digits

#

no

#7

?

ASCII

Unicode  $\sim$  Code point (integer label a symbol)

UTF-8 (code point  $\leftrightarrow$  bytes sequence)

code point

0x12345

0b00010010001101000101

17 bits

1111 0000 | 10010010 | 10001101 | 10000101

0x...x ≤ 7 bits

110xxxxy 10xxxxy ≤ 11 bits

1110xxx 10xxx 10... ≤ 16 bits

11110xxx 10... 10... 10... ≤ 21 bits