

CS31K-01 Strings 2s Comp

project02 code

project02 exam probs due wed 11:59 pm
problems.pdf

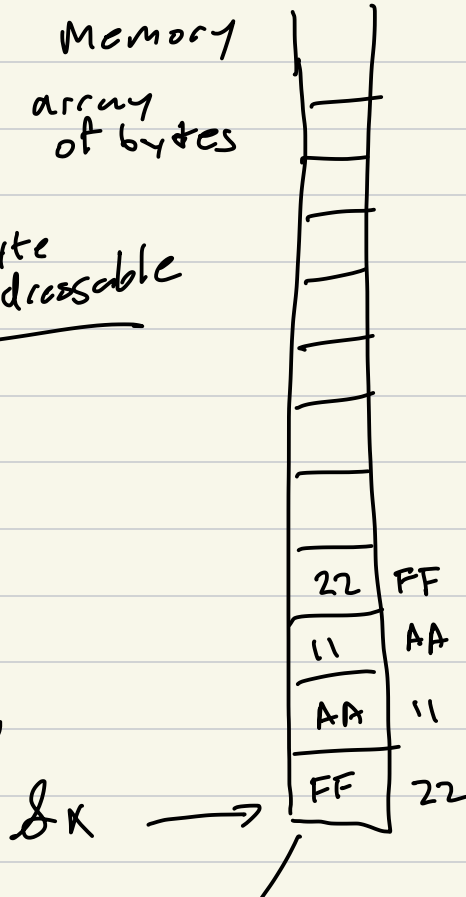
project03 today, due Mon Sep 25th
IG on Tue Sep 26th

Strings

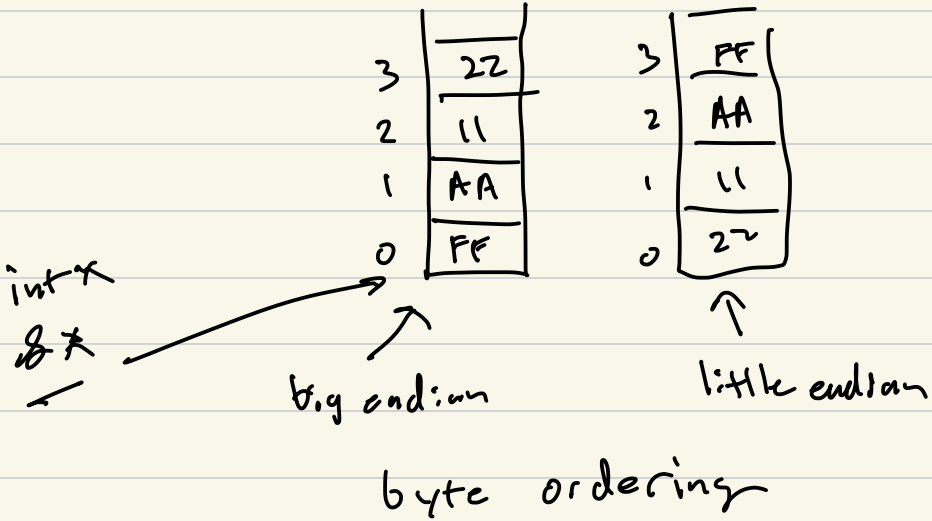
Memory
array
of bytes

byte
addressable

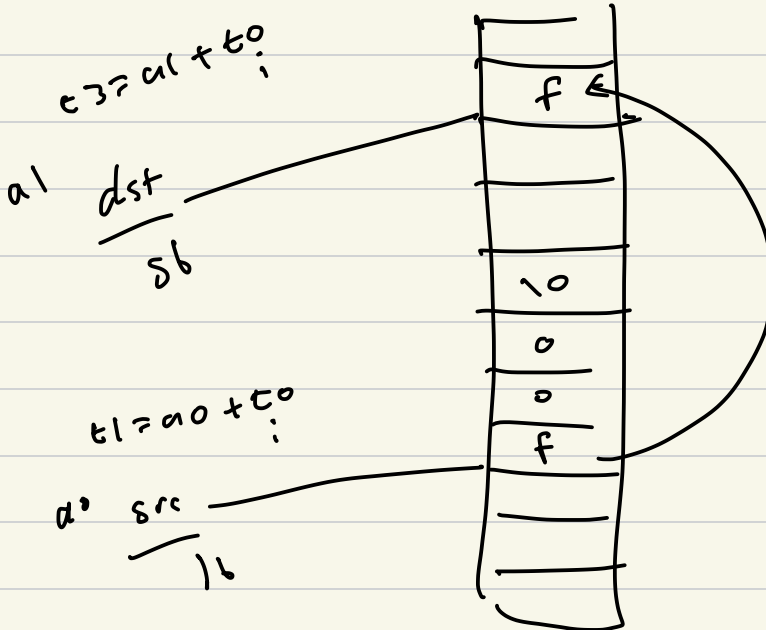
int x = 0xFFAA1122
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int x 0xFFAA1122



Strings



Two's Complement

3 bit number

unsigned
Dec

Bin

signed
magnitude

0	000	0	*
1	001	1	
2	010	2	
3	011	3	
4	100	-0	*
5	101	-1	
6	110	-2	
7	111	-3	

$$\begin{array}{r} 00 \\ 001 \quad (1) \\ + 010 \quad (2) \\ \hline 011 \quad (3) \end{array}$$

$$\begin{array}{r} 11 \\ 011 \quad (3) \\ + 101 \quad (-1) \\ \hline \boxed{000} \end{array}$$

3 bit

Bin	Dec
000	0
001	1
010	2
011	3
100	-4
101	-3
110	-2
111	-1

Alg pos \rightarrow neg

want -2

$$\begin{array}{r} \text{inv}(x) + 1 \\ x = 2 \quad 010 \\ \text{inv} \quad 101 \\ +1 \quad 001 \\ \hline 110 \quad (-2) \end{array} \quad \rightarrow \quad \begin{array}{r} 110 \quad (-2) \\ \text{inv} \quad 001 \\ +1 \quad 001 \\ \hline 010 \quad (2) \end{array}$$

$$\begin{array}{r}
 3 \\
 + -1 \\
 \hline
 2
 \end{array}
 \quad
 \begin{array}{r}
 \textcircled{1} 11 \\
 011 \\
 + 111 \\
 \hline
 010 \quad (2)
 \end{array}$$

$$\begin{array}{r}
 -1 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 00000001 \quad (+1) \\
 \text{inv } 11111110 \\
 + 1 \qquad \qquad \qquad 1 \\
 \hline
 11111111 \quad (-1)
 \end{array}$$