ICS Homework Week 3

September 27, 2022

1. Suppose that A and B have 2-byte values 0xABCD and 0x5E2F, respectively. Fill in the following table indicating the 2-byte values of the different C expressions:

Expression	Value	Expression	Value
$A\&B$	0x0A0D	$A\|B$	0xFFEF
$A\&\&B$	0x0001	$A\|\|B$	0x0001
$\sim A\& \sim B$	0x0010	$!A\|\|!B$	0x0000
$A\&!B$	0x0000	$A\hat{}B << 3$	0x5AB5

2. Using |, & and −, write a C expression that is equivalent to A^B.

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(A|B)-(A&B)
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3. Suppose we number the bytes in a 4-byte word from 0 (least significant) to 3 (most significant). Design a C expression, which will return a 4-byte word in which byte i of word X has been replaced by byte i of word Y.

   For example, X=0x12345678, Y=0xABCDEF09, and i=2, it will generate 0x12CD5678

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(X&~(0xFF<<8*i))|(Y&0xFF<<8*i)
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