ICS Homework 2

October 8, 2021

1 Expressions

优先级: ~ 移位 & ^ | && ||

Suppose that A and B have 2-byte values 0xABCD and 0x635F, respectively. Fill in the following table indicating the 2-byte values of the different C expressions:

Expression	Value	Expression	Value
A&B	0x234D	A|B	0xEBDF
A&&B	0x1	A||B	0x1
~A&~B	0x1420	!A||!B	0x0
A&!B	0x0	A^B<<3	0xB135

!

2 C expression 1

using &, ˆ and ˜, write a C expression that is equivalent to A | B

A | B = ~((~A) & (~B))

3 C expression 2

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Design a C expression, which will return a 4-byte word in which byte i of word X has been replaced by byte i of word Y.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

```
int mask = 0xFF<<(8*i);

return (x&(~mask))|(Y&mask);
```