

Homework2

李俊霖

2021201709

Homework2

- 题目1

- Assume we have an integer type of 8 bits, fill in the table below.

Value	Two's complement
37	00100101
-15	11110001
85	01010101
-86	10101010

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• 题目2

- Consider the following C expressions:

- short s = -3;

- unsigned short us = s;

- int i = -52;

- unsigned int ui = i;

0011 1100

1101

1101

11001100

11001100

00110100

11001011

11001100

- Assume we are running code on 8-bit machine using two's complement for signed integers. Also assume that right shift of signed values are performed arithmetically. A "short" integer is encoded 4 bits. Fill in the table below.

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- 题目2

Expression	Binary Representation
us	1101
ui	11001100
us << 1	1010
i >> 2	11110011
ui >> 2	00110011
(short) i	1100
(int) s	11111101

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最高2位不能同时为1
 $\begin{cases} 01\dots\dots \\ 01\dots\dots \end{cases} \Rightarrow \text{溢出}$

• 题目3

- Write a function with the following prototype:
- /* Determine whether arguments can be added without overflow
- * This function should return 0 if arguments x and y can be added without causing overflow
- */
- int uadd_ok(unsigned x, unsigned y);

```
1  int uadd_ok(unsigned x, unsigned y)
2  {
3      return ((x & 0xC0000000) & (y & 0xC0000000));
4  }
```