**1. Divide Two Integers**

**binary search + bit manipulation logN N is the dividend**

**Corner Case: over flow {0 INT\_MIN -1}**

Without using the “/” operator, create a function/method in a strongly-typed language of your choice that takes two integers and returns their quotient, exactly mimicking the behavior of the / operator.

**2. Pow(x, n)**

**binary search**

if(res > INT\_MAX || res < INT\_MIN) throw overflow\_error("power Overflow");

**3.** **Fraction to Recurring Decimal**

**hash table**

分母为0, throw invalid\_argument ("Empty Input");

**4. Excel Sheet Column Number / Excel Sheet Column Title**

Microsoft Excel A, B, ..., Z, AA, AB, ...返回integer列数

**5. Read N Characters Given Read4 II - Call multiple times**

Queue<char>

**6. String to Integer (atoi)**

Corner case:

1.负数

2.字母符号空格

3.Overfow if (res\*sign > INT\_MAX || res\*sign < INT\_MIN) ) throw overflow\_error("result overflow");

Follow up: 十进制字符串，转为10进制结果

建hashmap给ABCDEF存值

**7. Compare Version Numbers**

i < n1 || j < n2

**8. Find the Duplicate Number**

有一个unsorted int array有100个元素， 每个元素都是1到100之间的，如果有重复的元素， 把它找出来。（不能修改数组，空间O（1））

1.用一个固定size的bool table[100]，或者bitset.

bitset<100> table;

for(int num : nums)

if(table.test(num-1) == true) return num;

else table.set(num-1);

2.Binary Search

**9. Pascal's Triangle && Pascal's Triangle II**

**10. Count Primes**

**找出m和n之间的所有prime number**

**11. Next Permutation**

**1.从后向前的第一个升序 2.翻转 3.swap第一个大于的数字**

**12.Longest Substring Without Repeating Characters**

**13.Subsets** (backtracking + bit manipulation)

**14.Word Break**

**15.Triangle**

**改为求max sum Follow UP: output the path**

**16.Word Search（letter plyaboard）**

Given a 3 by 3 array filled with single character, and a dictionary,

print out all the words the given characters can form that are valid in the dictionary.

Words can be different lengths. Dictionary有一个function: ispresent().

c a t a

d u b k

e x b l

t o a b

word search,不一样的是对角线也可以

**17.Valid Sudoku**

然后问了一道sudoku的题，就是给了一个已经填满的9\*9的sudoku,让我判断这个sudoku是否valid。

follow up, 一个合法的sudoku的边长有什么特点？（n必须是某个整数的平方）

follow up, 把程序改成适合任意合法长度的sudoku。（也就是说不一定要填1-9，也可以是比如1-16,1-64什么的，随长度定）

follow up, 把程序改成也可以判断有cell没填的sudoku是否valid（只要已填的部分未重复就好）

**18. string permutation**

给abc，打印出所有abc的组合，比如abc，acb，bac...

**19. Number of 1 Bits**

返回一个int值的bit有几个是1。写了个位移1的 位移n，n等于0的时候跳出。

找出一个integer的二进制表示里有多少个1（用right shift / bit wise and）

**20.** **Reverse Words in a String**

Reverse string Ex: Hello word! --> !dord olleH

Reverse word in a string Ex: Hello word! --> word! Hello

**21. Longest Palindromic Substring**

22. stack

23.queue

**24.two pointer**

**This class will be given a list of words (such as tokenized words from a paragraph of text).**

**It will also provide a method that takes two words and returns the shortest distance(in words)**

**between these two words in the provided text.**

**Example:**

**WordDistanceFinder finder = new WordDistanceFinder(Arrays.asList(“the”, “quick”, “brown”, “fox”, “quick”));**

**assert(finder.distance(“fox”, “the”) == 3);**

**assert(finder.distance(“quick”, “fox”) == 1);**

**要注意的是，输入List中的words会有重复。**

25. 用2个heap求median

**26. Power of Two**

27. 给一个int数字输出English word，eg. 4500，输出four thousand five hundred，最多六位数。

28. Add Binary

29. Bulls and Cows

**30. Implement strStr()**

31. Count and Say

给定binary数组(比如[1010]), 计算每个digit数量, 返回这种形式([11011101]).

count and say 数字+个数