My Google Interview Experience

**First Interview:**

This interview was really a very fast one ended in 20 min including introducing questions He asked me about knowledge at first

**Interviewer:** What's the difference between OOP in C++ and in Java?

**ME:** both do the same job but with different syntax and everyone has a pros and cons for example C++ allow multiple inheritance he stopped me.

**Interviewer**: what's multiple inheritance and what's the problem of it?

**ME:** class Inherit from more than one class and the problem is diamond problem so if I have the same function in two classes which one I will call? Then I told him I'm using c++ only in competitions so I don't use OOP in c++ regularly but at work I use c# so I know OOP in c# or java more than c++.

**Interviewer:** ok I will ask you Algorithmic question

You have numbers from 0 to 99 and array of number produce string that contains gaps

Example input: [0, 1, 2, 50, 52, 75] Output input: "3-49, 51, 53-74, 76-99"

**ME**:I solved this question and I was appending the result to string.

**Interviewer:** what about complexity

**ME**: O(N)

**Interviewer**: what about appending to string?

**ME:** I'm not sure if it double it's size or copy the whole string in a new memory location and append to it every time but in this case the complexity will be O(N^2) I can check for that but in java I'm sure it make a new copy each time.

**Interviewer**: it's a good stop point.

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Feedback came recruiter told me you have a mixed feedback coding is very good but knowledge isn't good so we need a second interview I told him ok let me revise some knowledge for 1 week and then schedule another phone interview.

I revised knowledge part well interview time came and he asked me two questions (No knowledge stuff in this question (I means memory management or OOP or system …)

Just test coding part despite recruiter told me you are good at coding.

For now I have a second interview so I assume if I did well I will go onsite.

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First thing I have to mention interviewer was very nice and friendly

**Interviewer**: First question

Given an sorted array and number find if this number exist return it's index or return -1 if not exist.

**ME:** we can make linear search

**Interviewer**: Can you do better?

**ME:** Yes I can make binary search but I have some clarification questions

Is this array will contains duplicate numbers?

**Interviewer**: Yes

**ME:** So if I find the number occur in more than one place which index I have to return ?

**Interviewer**: I'm happy you asked this question let's return any of them

**ME:** Ok I did binary search

**Interviewer**: cool but what if we want the first index that contain this number?

**ME:**I modified my binary search to do that.

**Interviewer**: awesome let's go for Second question

Write a prefix notation calculator. That is, given a valid input string expr that matches the following grammar:

expr ::= number |

op expr expr

number ::= '0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9'

op ::= '+' | '-' | '\*' | '/'

Write a function int eval(const std::string& expr) that returns the integer value of evaluating that string. For example input string "+ 5 \* 3 7" would return 26, "8" would return 8, and "+ + + + 1 2 3 4 5" would return 15

**ME**: Ok first I will do some helper functions I will use it

**Interviewer**: Pretty cool go ahead

**ME**:I will make a function that take two numbers and operation and return the result

**Interviewer**: Ok go ahead

**ME**:I have a question what if you give me a prefix that contains division by Zero ?

**Interviewer**: Very happy you asked me this question let's assume that the equation will not contain that

**ME:** Ok I wrote my helper function while writing it he stopped me at the last line and told me assume you have it , I told him ok but I just finished it.

I will make another function to check if this number is digit or operator? He told me you can use built in function to do that , I know it but I just don't want to use it for the interview purpose or in the first question I will use lower\_bound and it will do the job perfectly :D

Then I started to solve this problem using stack first thing I tried to make it in one stack put numbers and operators on it he told me the equation will contains just digits but during that he told me what if we multiply \* \* \* \* \* \* \* \* \* \* 9 9 9 9 9 9 9 9 9 9 9 9 9 I told him yep I got your point it will overflow in character data type so I will add another stack that hold numbers and if the stack size is 2 I will pop those two numbers the first one will be second number and the second one will be first number because this is the correct order of them and pop one operator from the top of the operators stack then do operation then push the result to the number stack at the end I told him we can use just use one variable rather than stack of numbers

**Interviewer**: Ok that's fine and good solution you will get the feedback very soon.

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Then after 1 day recruiter told me you were too close but the feedback was negative.

I didn't talk to him too much I was shocked I did the two question in the interview time with correct solution with best time complexity and if the negative feedback came because I did wrong implementation at first using one stack of character but then I re-implement it very fast I assume he has to measure my debugging skills.

And if the negative feedback came from the first interview then why they asked for second one

Anyway who know maybe this is better for me ☺