

Google STEP Intern Interview Experience

- Difficulty Level :[Hard](#)
- Last Updated : 03 Dec, 2020

The shortlisting was done through our university based on our resume and academic performance. I was shortlisted and had two interviews of 45 minutes, each with a break of fifteen minutes in between. Both of them were technical rounds involving hands-on coding in a shared google doc while I was on a video call through Hangouts with the interviewer from Google.

Round 1:

Question: A boolean expression is given in the form of a string. It contains one variable x ; logical operators $\&$, $\&\&$, $\&\&\&$, $\&\&\&\&$ and relational operators $\>$, $\>=$, $\<$, $\<=$ (there is no \geq or \leq). Find if the expression always evaluates to False. If yes, output False, otherwise if there exists at least one x such that the given expression can be true, output true.

Example:

1. $x < 0$ and $x > 5$

Output False

Explanation This can never be true as there is no x such as $x < 0$ and $x > 5$. So, the given boolean expression always evaluates to false.

2. $x < 0$ or $x < -1$

Output True

Explanation We have at least one x for which given boolean expression evaluates to true. For example, put $x = 2$ in the given expression, and it evaluates to true.

Hint: Whenever there is only $\&$ or $\&\&$ in the boolean expression, the result is always true. (Eg: $x > 0$ or $x < 0$ There exists some x such that this is true and whatever be the latter part of the expression, it evaluates to true as only $\&$ or $\&\&$ is present. If there is no $\&$ or $\&\&$ present (only $\&\&\&$ or $\&\&\&\&$ is there), then we check for the expressions if you find at least two contradicting expressions as in example 1 (that is their solution sets are disjoint), then the output is False (as we have only $\&$ or $\&\&$ logical operation which evaluates to False unless all the expressions are True), otherwise it is True.

I have no idea how to approach the problem when both $\&$ and $\&\&$ are present in the expression, and I could not find such a problem anywhere on the internet.

I request someone who read this article to contribute the code to this problem kindly. (preferably in C++)

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