

--- Day 9: Stream Processing ---

A large stream blocks your path. According to the locals, it's not safe to cross the stream at the moment because it's full of garbage. You look down at the stream; rather than water, you discover that it's a stream of characters.

You sit for a while and record part of the stream (your puzzle input). The characters represent groups - sequences that begin with `{` and end with `}`. Within a group, there are zero or more other things, separated by commas: either another group or garbage. Since groups can contain other groups, a `}` only closes the most-recently-opened unclosed group - that is, they are nestable. Your puzzle input represents a single, large group which itself contains many smaller ones.

Sometimes, instead of a group, you will find garbage. Garbage begins with `<` and ends with `>`. Between those angle brackets, almost any character can appear, including `{` and `}`. Within garbage, `<` has no special meaning.

In a futile attempt to clean up the garbage, some program has canceled some of the characters within it using `!`: inside garbage, any character that comes after `!` should be ignored, including `<`, `>`, and even another `!`.

You don't see any characters that deviate from these rules. Outside garbage, you only find well-formed groups, and garbage always terminates according to the rules above.

Here are some self-contained pieces of garbage:

- `<>`, empty garbage.
- `<random characters>`, garbage containing random characters.
- `<<<<>`, because the extra `<` are ignored.
- `<{>`, because the first `>` is canceled.
- `<!!>`, because the second `!` is canceled, allowing the `>` to terminate the garbage.
- `<!!!>`, because the second `!` and the first `>` are canceled.
- `<{0"!a,<{i<a>`, which ends at the first `>`.

Here are some examples of whole streams and the number of groups they contain:

- `{}`, 1 group.
- `{{{}}`, 3 groups.
- `{{},{}}`, also 3 groups.
- `{{{},{},{}}}`, 6 groups.
- `<{},{>`, 1 group (which itself contains garbage).
- `<a>,<a>,<a>,<a>`, 1 group.
- `{{<a>},{<a>},{<a>},{<a>}}`, 5 groups.
- `{{{<!>},{<!>},{<!>},{<a>}}`, 2 groups (since all but the last `>` are canceled).

Your goal is to find the total score for all groups in your input. Each group is assigned a score which is one more than the score of the group that immediately contains it. (The outermost group gets a score of 1.)

- `{}`, score of 1.
- `{{{}}`, score of $1 + 2 + 3 = 6$.
- `{{},{}}`, score of $1 + 2 + 2 = 5$.

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- $\{\{\{\},\{\},\{\{\}\}\}\}$, score of $1 + 2 + 3 + 3 + 3 + 4 = 16$.
- $\{\langle a \rangle, \langle a \rangle, \langle a \rangle, \langle a \rangle\}$, score of 1 .
- $\{\{\langle ab \rangle\}, \{\langle ab \rangle\}, \{\langle ab \rangle\}, \{\langle ab \rangle\}\}$, score of $1 + 2 + 2 + 2 + 2 = 9$.
- $\{\{\langle !! \rangle\}, \{\langle !! \rangle\}, \{\langle !! \rangle\}, \{\langle !! \rangle\}\}$, score of $1 + 2 + 2 + 2 + 2 = 9$.
- $\{\{\langle a! \rangle\}, \{\langle a! \rangle\}, \{\langle a! \rangle\}, \{\langle ab \rangle\}\}$, score of $1 + 2 = 3$.

What is the total score for all groups in your input?

To begin, [get your puzzle input](#).

Answer: [\[Submit\]](#)

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