REGEX atomic groups `(?>)`

WE'LL COVER THE FOLLOWING

By definition, a REGEX **atomic** group is a non-capturing group that exits the group and throws away all alternatives after the first match of the pattern inside the group, so backtracking is **disallowed**".

While a **non-atomic** group will **allow backtracking**, it will still find the first match, then if the matching ahead fails it will backtrack and find the next match, until a match for the entire expression is found or all possibilities are exhausted.

Example 1 :

Let's consider the input string: `xoots`.

- A non-atomic group in the expression `(xoo|xoot)s` applied to `xoots` will:
  - match its 1st alternative `xoo`, then fail as `s` does not immediately follow in `xoot`, and backtrack to its 2nd alternative;
  - match its 2nd alternative `xoot`, then succeed as s immediately follows in `xoots`, and stop.
- An atomic group in the expression `(?>xoo|xoot)s` applied to `xoots` will match its 1st alternative `xoo`, then fail as `s` does not immediately follow, and stop as backtracking is disallowed.

Example 2:

Let's consider the input string: `bbabbbabbbbc`.

- Without an atomic grouping for the regex pattern `/(.*|b*)[ac]/`, the string will have a single match which is the whole string, due to backtracking at the end to match `[ac]`.
- In contrast, for the atomic pattern: `/((?>.*)|b*)[ac]/`, there will be only three matches to this regex, which are `bba`, `bbba`, `bbbbc`.