

## Regex Basics & Metacharacters

### Basic Matching

<code>/pattern/</code> - Matches the literal string 'pattern'.
<b>Example:</b> <code>/hello/</code> matches 'hello' in 'hello world'.
<code>.</code> - Matches any single character except newline.
<b>Example:</b> <code>/at/</code> matches 'cat', 'hat', 'sat', etc.
<code>\</code> - Escapes a special character to treat it literally.
<b>Example:</b> <code>/\./</code> matches a literal dot ('.').
<code>^</code> - Matches the beginning of the string.
<b>Example:</b> <code>/^hello/</code> matches 'hello' only if it's at the start.
<code>\$</code> - Matches the end of the string.
<b>Example:</b> <code>/world\$/</code> matches 'world' only if it's at the end.
<code> </code> - Acts as an 'OR' operator.
<b>Example:</b> <code>/cat dog/</code> matches either 'cat' or 'dog'.

### Quantifiers & Grouping

#### Quantifiers

<code>*</code> - Matches the preceding character zero or more times.
<b>Example:</b> <code>/a*/</code> matches "", 'a', 'aa', 'aaa', etc.
<code>+</code> - Matches the preceding character one or more times.
<b>Example:</b> <code>/a+/</code> matches 'a', 'aa', 'aaa', but not "".
<code>?</code> - Matches the preceding character zero or one time.
<b>Example:</b> <code>/a?/</code> matches "" or 'a'.
<code>{n}</code> - Matches the preceding character exactly n times.
<b>Example:</b> <code>/a{3}/</code> matches 'aaa'.
<code>{n, }</code> - Matches the preceding character n or more times.
<b>Example:</b> <code>/a{2, }/</code> matches 'aa', 'aaa', 'aaaa', etc.
<code>{n, m}</code> - Matches the preceding character between n and m times (inclusive).
<b>Example:</b> <code>/a{2, 4}/</code> matches 'aa', 'aaa', or 'aaaa'.

### Character Classes

<code>[abc]</code> - Matches any single character 'a', 'b', or 'c'.
<b>Example:</b> <code>/[bc]at/</code> matches 'bat' or 'cat'.
<code>[^abc]</code> - Matches any single character <i>except</i> 'a', 'b', or 'c'.
<b>Example:</b> <code>/[^bc]at/</code> matches 'hat' but not 'bat' or 'cat'.
<code>[a-z]</code> - Matches any lowercase letter from 'a' to 'z'.
<b>Example:</b> <code>/[a-z]at/</code> matches 'bat', 'cat', 'dat', etc.
<code>[A-Z]</code> - Matches any uppercase letter from 'A' to 'Z'.
<b>Example:</b> <code>/[A-Z]at/</code> matches 'Bat', 'Cat', 'Dat', etc.
<code>[0-9]</code> - Matches any digit from 0 to 9.
<b>Example:</b> <code>/[0-9]at/</code> matches '1at', '2at', '3at', etc.
<code>\w</code> - Matches any word character (letters, numbers, and underscore).
<b>Example:</b> <code>/\w+/</code> matches 'hello', 'world123', 'abc_def'.

#### Grouping and Capturing

<code>()</code> - Groups characters together and captures the matched group.
<b>Example:</b> <code>/(ab)+/</code> matches one or more occurrences of 'ab'.
<code>(?:pattern)</code> - Groups characters without capturing the group.
<b>Example:</b> <code>/(?:ab)+/</code> matches one or more occurrences of 'ab', but doesn't capture it.
<code>\1</code> , <code>\2</code> , ... - Backreferences to captured groups.
<b>Example:</b> <code>/(.)(.)\2\1/</code> matches 'abba', 'xyyx', etc.

# Anchors & Lookarounds

## Anchors

<code>^</code> - Matches the beginning of the string or line (in multiline mode).
<b>Example:</b> <code>/^start/m</code> matches 'start' at the beginning of each line.
<code>\$</code> - Matches the end of the string or line (in multiline mode).
<b>Example:</b> <code>/end\$/m</code> matches 'end' at the end of each line.
<code>\b</code> - Matches a word boundary (the position between a word character and a non-word character).
<b>Example:</b> <code>/\bword\b/</code> matches 'word' as a whole word.
<code>\B</code> - Matches a non-word boundary.
<b>Example:</b> <code>/\Bword\B/</code> matches 'awordb' but not 'word'.

## Lookarounds

<code>(?=pattern)</code> - Positive lookahead assertion: ensures that the pattern follows, but doesn't include it in the match.
<b>Example:</b> <code>/\w+(?=\s)/</code> matches a word followed by a space, but doesn't include the space.
<code>(?&lt;=pattern)</code> - Positive lookbehind assertion: ensures that the pattern precedes, but doesn't include it in the match.
<b>Example:</b> <code>/(?&lt;=\s)\w+/</code> matches a word preceded by a space, but doesn't include the space.
<code>(?!pattern)</code> - Negative lookahead assertion: ensures that the pattern does not follow.
<b>Example:</b> <code>/\d+(?!\.)/</code> matches a number not followed by a dot.
<code>(?&lt;!(pattern))</code> - Negative lookbehind assertion: ensures that the pattern does not precede.
<b>Example:</b> <code>/(?&lt;!(\.\.))\d+/</code> matches a number not preceded by a dot.

# Common Regex Patterns

## Common Patterns

URL: <code>(https?:\/\/(?:www\. (!www)) [a-zA-Z0-9] [a-zA-Z0-9- ]+ [a-zA-Z0-9] \. [^\s]{2, }  www\ . [a-zA-Z0-9] [a-zA-Z0-9- ]+ [a-zA-Z0-9] \. [^\s]{2, }  https?:\/\/(?:www\. (!www)) [a-zA-Z0-9] + \. [^\s]{2, }  www\ . [a-zA-Z0-9] + \. [^\s]{2, } )</code>
Matches a URL.
Email: <code>[a-zA-Z0-9. _%+ - ]+@[a-zA-Z0-9. - ] \. [a-zA-Z]{2, }</code>
Validates a basic email format.
IP Address: <code>\b(?:\d{1,3} \. ) {3} \d{1,3} \b</code>
Matches an IPv4 address.
Date (YYYY-MM-DD): <code>\d{4} - \d{2} - \d{2}</code>
Matches a date in YYYY-MM-DD format.
Phone Number (US): <code>\b\d{3} [ - ] \d{3} [ - ] \d{4} \b</code>
Matches a US phone number format (XXX-XXX-XXXX).
HTML Tag: <code>&lt; [ ^ &gt; ] + &gt;</code>
Matches an HTML tag.

# cheats tweaks