|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **<regular\_expressions>** | | | | | | | | | | | | | | |
|  |  | Anchors | | | | | |  |  | **Backreferences (Substitution)** | | | | |
| 01 | ^ | | | ^(415)-(\w{3})-(\w{4}) | | | Start of line | 01 | $n | | nth non-passive (active) group | | | |
| 02 | $ | | | (\d{3})-(\d{3})-\d{4}$ | | | End of line | 02 | $2 | | Matches "xyz"     in       /^(abc)(xyz)$/ | | | |
| 03 | \A | | | \A\d{3}- | | | Start of string | 03 | $1 | | Matches "xyz"     in       /^(?:abc)(xyz)$/ | | | |
| 04 | \Z | | | -\d{3}\Z | | | End of string (before \n) | 04 | $` grave accent | | Before matched string | | | |
| 05 | \b | | | \b\w+\s\w+\b | | | Word boundary | 05 | $'  single quote | | After matched string | | | |
| 06 | \B | | | \B\w+\s\w+\B | | | NOT word boundary | 06 | ${name} | | Substitutes string matched by the name | | | |
| 07 | \< | | | \<415 | | | Start of word | 07 | $& | | Entire matched string | | | |
| 08 | \> | | | 1212\> | | | End of word | 08 | $\_ | | Entire input string | | | |
|  | 415-555-1212 | | | | | |  |  |  | |  | | | |
|  |  | | **Pattern Modifiers** | | | | |  |  | **Assertions** | | | | |
| 01 | g    /abc/g | | | Global match (the same line) | | | | 01 | ?= | | Lookahead (Follow by) | | | |
| 02 | i     /abc/gi | | | Case-insensitive | | | | 02 | ?! | | Negative Lookahead (NOT follow by) | | | |
| 03 | m   /abc/qim | | | Multiple lines | | | | 03 | ?<= | | Lookbehind (Following) | | | |
| 04 | s    /abc/s | | | Treat string as single line | | | | 04 | ?<! | | Negative Lookbehind (NOT following) | | | |
| 05 | x    /# com/x | | | Allow comments & white space | | | | 05 | ?() | | Condition [if then] | | | |
| 06 | e    /abc/e | | | Evaluate replacement | | | | 06 | ?()| | | Condition [if then else] | | | |
| 07 | U   /abc/U | | | Ungreedy pattern | | | | 07 | ?# | | Comment - (?# this is a comment) | | | |
|  |  | | | |  | | |  |  | |  | | | |
|  |  | | **Character Groups & Ranges** | | | | |  |  | Shorthand Character Classes | | | | |
| 01 | (abc|def) | | | Alternation matches  - abc or def | | | | 01 | **.** | | Any character (except new line \n) | | | |
| 02 | (abc)(abc)\1 | | | Group of multiple  char + Capturing | | | | 02 | \c        (0 - 31) | | Control character | | | |
| 03 | (?:abc) | | | Passive Group (NON-Capturing) | | | | 03 | \s    (9, 10, 32) | | Whitespace characters (tab, space linefeed) | | | |
| 04 | [abc] | | | Matches a single char  - a or b or c | | | | 04 | \S | | NOT whitespace characters | | | |
| 05 | [^abc] | | | Group NOT a or b or c (single char) | | | | 05 | \d | | Matches any decimal digit | | | |
| 06 | [a-z] | | | Matches a single char - between a and z | | | | 06 | \D | | NOT digit | | | |
| 07 | [0-9] | | | Matches a single digit - between 0 and 9 | | | | 07 | \w | | Matches any word character | | | |
| 08 | [0-9a-fA-F] | | | Matches a single hexadecimal digit | | | | 08 | \W | | NOT word | | | |
|  |  | | |  | | | |  |  | |  | | | |
|  |  | | **Special Characters** | | | | |  |  | **Quantifiers** | | | | |
| 01 | \ | | | Escape Character | | | | 01 | \* | | 0 or More | | | |
| 02 | \n | | | New Line                         Dec: (10) | | | | 02 | \*? | | 0 or More, Ungreedy | | | |
| 03 | \r | | | Carriage Return              Dec: (13) | | | | 03 | + | | 1 or More | | | |
| 04 | \t | | | Tab                                    Dec: (9) | | | | 04 | +? | | 1 or More,  Ungreedy | | | |
| 05 | \e | | | Escape                              Dec: (27) | | | | 05 | ? | | 0 or 1 | | | |
| 06 | \U | | | Upper case following | | | | 06 | ?? | | 0 or 1,  Ungreedy | | | |
| 07 | \l | | | Lower case next char | | | | 07 | {3} | | Exactly 3 | | | |
| 08 | \L | | | Lower case following | | | | 08 | {3,} | | 3 or More | | | |
| 09 | \u | | | Upper case next char | | | | 09 | {3,5} | | 3, 4 or 5 | | | |
| 10 | # | | | Comment | | | | 10 | {3,5}? | | 3, 4 or 5,  Ungreedy | | | |
|  |  | | |  | | | |  |  | |  | | | |
|  |  | | POSIX Character Classes | | | | |  |  | Metacharacters (must be escaped) | | | | |
| 01 | [:upper:] | | | \u | | Upper case letters | | 01 | ! | Exclamation mark | | 10 | = | Equal sign |
| 02 | [:lower:] | | | \l | | Lower case letters | | 02 | $ | Dollar sign | | 11 | ? | Question mark |
| 03 | [:alpha:] | | | [A-Za-z] | | Alphabetic Characters | | 03 | ( | Open parenthesis | | 12 | [ | Opening bracket |
| 04 | [:alnum:] | | | [A-Za-z0-9] | | Digits and letters | | 04 | ) | Close parenthesis | | 13 | \ | Backslash |
| 05 | [:digit:] | | | [0-9] | | Digits | | 05 | \* | Asterisk | | 14 | ] | Closing bracket |
| 06 | [:punct:] | | | [!”#$%&’] | | Punctuation characters | | 06 | + | Plus sign | | 15 | ^ | Caret |
| 07 | [:blank:] | | | [\s\t] | | Space and tab | | 07 | - | Hyphen | | 16 | { | Opening brace |
| 08 | [:print:] | | | [\x20-\x7E] | | Visible characters and spaces | | 08 | . | Period | | 17 | | | Vertical bar |
| 09 | [:word:] | | | [A-Za-z0-9\_] | | Digits, letters & underscore | | 09 | : | Colon | | 18 | } | Closing brace |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |