| What you want do with regular expression? |  |  |
| :--- | :--- | :--- |
| Regular | Regular | It also helps in |
| expres- | expres- | finding out the |
| sions can | sions | correctness of the |
| be used to | are | data and even |
| check if a | used to | operations such as |
| string | remove | finding, replacing |
| contains | the | and formatting the |
| the | unnece | data is possible |
| specified | ssary | using Regular |
| search | words | Expressions |
| pattern. |  |  |


| Group/Ranges |  |
| :--- | :--- |
|  | any single <br> character |
| (a\|b) | a or b |
| $[\mathrm{abc}]$ | Range (a or b or c) |
| $\left[{ }^{\wedge} \mathrm{abc}\right]$ | Not (a or b or c) |
| $[\mathrm{a}-\mathrm{z}]$ | Lower case letter <br> from a to z |
| $[\mathrm{A}-\mathrm{Z}]$ Upper case | Upper case letter <br> from A to $Z$ |
| letter from A to Z | Digit from 0 to10 |
| $[0-10]$ | Group/subpattern <br> number "x" |
| x |  |


| Escape Sequences |  |
| :--- | :--- |
| I | Escape following character |
| IQ | Begin literal sequence |
| IE | End literal sequence |


| Assertions |  |
| :--- | :--- |
| ?= | Lookahead assertion |
| ?! | Negative lookahead |
| ?<= | Lookbehind assertion |
| ?!= or ?<! | Negative lookbehind |
| ?> | Once-only Subexpression |
| $?()$ | Condition [if then] |
| ?()\| | Condition [if then else] |
| ?\# | Comment |
|  |  |
| USE |  |
| import re |  |
| string = """I am Sourabh and my mobile no |  |
| is $9479864026^{\prime \prime \prime "}$ |  |
| regex = 'ld+' |  |
| match = re.findall(regex, string) |  |
| print(match) |  |

## Anchors

^ Start of string, or start of line in multiline pattern
1A Start of string
\$ End of string, or end of line in multi-line pattern

IZ End of string
lb Word boundary
lB Not word boundary
< Start of word
1> End of word

| Characters |  |
| :--- | :--- |
| Ic | Control character |
| Is | White space |
| IS | Not white space |
| Id | Digit |
| ID | Not digit |
| Iw | Word |
| IW | Not word |
| Ix | Hexadecimal digit |
| IO | Octal digit |


| Pattern Modifiers |  |
| :--- | :--- |
| g | Global match |
| i * $^{*}$ | Case-insensitive |
| m | Multiple lines |
| * |  |
| s * $^{*}$ | Treat string as single line |
| x* | Allow comments and whitespace in |
|  | pattern |
| e * | Evaluate replacement |
| U | Ungreedy pattern |
| * |  |


| USE |
| :--- |
| import re |
| string = 'hello 12 hi 89. Its me 343' |
| pattern = 'ld+' |
| result = re.findall(pattern, string) |
| print(result) |
| output\#1289343 |
| USE |
| import re |
| phone = "MY phone is +91-94 - |
| $79-86-40-26 r$ " |
| \# Remove anything other than |
| digits |
| num = re.sub (r'\D' , " ", phone) |
| print ("Phone Num : ", num) |

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Page 1 of 2.

\begin{tabular}{|c|c|c|c|}
\hline \multicolumn{4}{|l|}{USE (cont)} <br>
\hline \multicolumn{4}{|l|}{> output Phone num : 9479864026} <br>
\hline \multicolumn{4}{|l|}{Quantifiers} <br>
\hline \& 0 or more \& \{5\} \& exactly 5 <br>
\hline \& 1 or more \& \{5, \} \& 5 or more <br>
\hline ? \& 0 or 1 \& \{1,5\} \& 1,2,3,4 or 5 <br>
\hline \multicolumn{4}{|l|}{Special Characters} <br>
\hline \multicolumn{4}{|l|}{In New line} <br>
\hline \multicolumn{4}{|l|}{Ir Carriage return} <br>
\hline \multicolumn{4}{|l|}{It Tab} <br>
\hline \multicolumn{4}{|l|}{Iv Vertical tab} <br>
\hline \multicolumn{4}{|l|}{If Form feed} <br>
\hline \multicolumn{4}{|l|}{lxxx Octal character xxx} <br>
\hline \multicolumn{4}{|l|}{lxhh Hex character hh} <br>
\hline \multicolumn{4}{|l|}{String Manipulation} <br>
\hline \multicolumn{4}{|l|}{\$` Before matched string} <br>
\hline \multicolumn{4}{|l|}{\$' After matched string} <br>
\hline \multicolumn{4}{|l|}{+ Last matched string} <br>
\hline \multicolumn{4}{|l|}{\$\& Entire matched string} <br>

\hline \multicolumn{4}{|l|}{| import repattern = '^a...s\$' test_string = |
| :--- |
| 'abyss' result = re.match(pattern, test_string) |
| if result: print("Search successful.") else: |
| print("Search unsuccessful.") |} <br>

\hline \multicolumn{4}{|l|}{String Manipulation} <br>
\hline \$ \& \multicolumn{3}{|l|}{Before matched string} <br>
\hline \$' \& \multicolumn{3}{|l|}{After matched string} <br>
\hline + \& \multicolumn{3}{|l|}{Last matched string} <br>
\hline \$\& \& \multicolumn{3}{|l|}{Entire matched string} <br>
\hline
\end{tabular}

| posix |  |  |
| :---: | :---: | :---: |
| [:upper:] | Upper case letters | [A-Z] |
| [:lower:] | lower case letter | [a-z] |
| [:alpha:] | alphabets | [a-zA-Z] |
| [:alnum:] | alphan- <br> umeric | [a-zA-z0-9] |
| [:digit:] | Digits | [0-9] |
| [:xdigit:] | Hexadecimal | [A-Fa-f0-9] |
| [:punct:] | Punctuation |  |
| [:blank:] | Space and tab |  |
| [:space:] | Blank characters |  |
| [:cntrl:] | Control characters |  |
| [:graph:] | Printed characters |  |
| [:print:] | Printed characters and spaces |  |
| [:word:] | Digits, letters and underscore |  |



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