REGULAR EXPRESSIONS IN PYTHON

Function	Description
findall	Returns a list containing all matches
search	Returns a Match object if there is a match anywhere in the string
split	Returns a list where the string has been split at each match
sub	Replaces one or many matches with a string

METACHARACTERS - Metacharacters are characters with a special meaning

Character	Description	Example
[]	A set of characters	"[a-m]"
\	Signals a special sequence (can also be used to escape special characters)	"\d"
.	Any character (except newline character)	"he..o"
^	Starts with	"^hello"
$	Ends with	"planet$"
*	Zero or more occurrences	"he.*o"
+	One or more occurrences	"he.+o"
?	Zero or one occurrences	"he.?o"
{}	Exactly the specified number of occurrences	"he.{2}o"
|	Either or	"falls|stays"
()	Capture and group	

Reference: Python RegEx (w3schools.com)

SPECIAL SEQUENCES A special sequence is a \ followed by one of the characters in the list below, and has a special meaning:

Character	Description	Example
\A	Returns a match if the specified characters are at the beginning of the string	"\AThe"
\b	Returns a match where the specified characters are at the beginning or at the end of a word (the "r" in the beginning is making sure that the string is being treated as a "raw string")	r"\bain" r"ain\b"
\B	Returns a match where the specified characters are present, but NOT at the beginning (or at the end) of a word	r"\Bain" r"ain\B"
\d	Returns a match where the string contains digits (numbers from 0-9)	"\d"
\D	Returns a match where the string DOES NOT contain digits	"\D"
\s	Returns a match where the string contains a white space character	"\s"
\S	Returns a match where the string DOES NOT contain a white space character	"\S"
\w	Returns a match where the string contains any word characters (characters from a to Z, digits from 0-9, and the underscore _ character)	"\w"
\W	Returns a match where the string DOES NOT contain any word characters	"\W"
\Z	Returns a match if the specified characters are at the end of the string	"Spain\Z"

Reference: Python RegEx (w3schools.com)

SETS - A set is a set of characters inside a pair of square brackets [] with a special meaning:

Set	Description
[arn]	Returns a match where one of the specified characters (a, r, or n) is present
[a-n]	Returns a match for any lower case character, alphabetically between a and n
[^arn]	Returns a match for any character EXCEPT a, r, and n
[0123]	Returns a match where any of the specified digits (0, 1, 2, or 3) are present
[0-9]	Returns a match for any digit between 0 and 9
[0-5][0-9]	Returns a match for any two-digit numbers from 00 and 59
[a-zA-Z]	Returns a match for any character alphabetically between a and z, lower case OR upper case
[+]	In sets, +, *, ., |, (), $,{} has no special meaning, so [+] means: return a match for any + character in the string

findall()

- The `findall()` function returns a list containing all matches.
- The list contains the matches in the order they are found.
- If no matches are found, an empty list is returned

search()

- The `search()` function searches the string for a match, and returns a Match object if there is a match.
- If there is more than one match, only the first occurrence of the match will be returned
- If no matches are found, the value None is returned

split()

- The `split()` function returns a list where the string has been split at each match
- You can control the number of occurrences by specifying the maxsplit parameter

Reference: Python RegEx (w3schools.com)

sub()

- The `sub()` function replaces the matches with the text of your choice
- You can control the number of replacements by specifying the count parameter

Match Object

- A `Match Object` is an object containing information about the search and the result.
- If there is no match, the value None will be returned, instead of the Match Object.

The Match object has properties and methods used to retrieve information about the search, and the result:

- span() returns a tuple containing the start-, and end positions of the match.
- string returns the string passed into the function
- group() returns the part of the string where there was a match

Reference: Python RegEx (w3schools.com)