Strings and Regex

- Focus: Basics of strings and regex in Python + Simple problem solving.
- Prereq: Basic knowledge of Strings and Regex in Python + previous code-sessions.
- Reference for basics:
    - https://docs.python.org/3/howto/regex.html
    - https://docs.python.org/3/library/re.html
    - https://www.w3schools.com/python/python_strings.asp
    - https://www.geeksforgeeks.org/python-strings/

A **regular expression** matches a broad or specific text pattern, and is strictly read left-to-right. It is input as a text string itself, and will compile into a mini program built specifically to identify that pattern. That pattern can be used to match, search, substring, or split text.

Here's a complete list of the metacharacters; their meanings will be discussed in the rest of this HOWTO.

. ^ $ * + ? { } [ ] \ | ( )

The first metacharacters we'll look at are [and]. They're used for specifying a character class, which is a set of characters that you wish to match. Characters can be listed individually, or a range of characters can be indicated by giving two characters and separating them by a '-'. For example, [abc] will match any of the characters a, b, or c; this is the same as [a-c], which uses a range to express the same set of characters. If you wanted to match only lowercase letters, your RE would be [a-z].
Metacharacters are not active inside classes. For example, [akm$] will match any of the characters 'a', 'k', 'm', or '$'; '$' is usually a metacharacter, but inside a character class it's stripped of its special nature.
You can match the characters not listed within the class by complementing the set. This is indicated by including a '^' as the first character of the class. For example, [^5] will match any character except '5'. If the caret appears elsewhere in a character class, it does not have special meaning. For example: [5^] will match either a '5' or a '^'.

- A RegEx, or Regular Expression, is a sequence of characters that forms a search pattern.
- RegEx can be used to check if a string contains the specified search pattern.
- Python has a built-in package called re, which can be used to work with Regular Expressions.
- The re module offers a set of functions that allows us to search a string for a match: