

8. ADVANCED FEATURES**Assertions and Capturing Groups****Assertions**

These are like IF-THEN statements in programming languages.

Lookahead Assertion**`x (?=y)`**

Matches “x” but only if it is followed by “y”, so for example, `Hello (?=World)` means we will match “Hello” only if followed by “World”. And the RegEx `Hello (?=World|You)` matches “Hello” if followed by “World” or “You”.

Negative Lookahead Assertion**`x (?!y)`**

Matches “x” but only if it is not followed by “y”, so for example, the RegEx `Hello (?!World)` means we will match “Hello” if not followed by “World”.

Lookbehind Assertion**`(?<=y) x`**

Matches “x” but only if it is preceded by “y”, so for example, the RegEx `(?<=John|Tom) Smith` means we will match “Smith” but only if it is preceded by either “John” or “Tom”.

Negative Lookbehind Assertion**`(?<!y) x`**

Matches “x” but only if it is not preceded by “y”, so for example, the RegEx `(?<!John|Tom) Smith` means we will match “Smith” but only if it is not preceded by either “John” or “Tom”.

Capturing Groups and Backreferences

These are way of remembering (or forgetting) previous searches,

Capturing Groups**`(x)`**

Matches “x” and remembers all the matches to “x” in a given String, so for example, if we say `(aB)` with the String “aBa” it will match and print out [‘aB’]

Non-capturing Groups**`(?:x)`**

Matches “x”, but will not remember the matches to “x” in a given String, so for example, if we say `(a) (?:B)` to the String “aBa” then it will look to match with an “a” followed by “B”, but prints out the “a” and not the “B”, so we get [‘a’]

Named Capturing Groups**`(?<Name>x)`**

Matches “x” and remembers all the matches to “x” in a given String, and labels those matches with the label Name, so for example, if we say `(?<MySearch>aB)` with the String “aBa” it will match and it will save [‘aB’] with the label MySearch

Backreferences**`\k<Name>`**

Identifies the last String that matched to the Label Name, so for example, the RegEx `\k<MySearch>` will match to [‘aB’] assuming we have just run the example from the previous section on “Named Capturing Groups”.