Course code : CSE - 3212

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Date of submission : 02/10/2024

Regex

A regular expression - or regex for short - is a syntax that allows to match strings with specific patterns. Regex can be used any time one need to query string-based data, such as: parsing user input, analysing command line output, searching and refactoring code.

Key components of Regex:

1. Literals: characters want to match exactly.

Example: cat matches the string "cat"

2. Meta characters: special characters that represent patterns.

Example:

⇒ ^: start of a string

⇒ $: end of a string

⇒ *: 0 or more occurrences of the previous element.

⇒ +: one or more occurrences of the previous element.

⇒ ?: Zero or one occurrence of the previous element.

⇒ |: Logical OR.

⇒ \: Escape character for special characters.

3. Character classes:

⇒ [abc]: Matches any single character in the set "a", "b" or "c".

⇒ [^abc]: Matches any single character not in the set.

⇒ [a-z]: Matches any lowercase letter.

⇒ \d: Matches any digit

⇒ \w: Matches any word character (alphanumeric + underscore)

⇒ \s: Matches any whitespace character.

4. Quantifiers:

⇒ {n}: Exactly n occurrences

⇒ {n,}: At least n occurrences

⇒ {n,m}: Between n and m occurrences

5. Grouping:

⇒ (...): Groups patterns, useful for applying quantifiers to part of the pattern or for extracting matched groups.

Examples:

Matching a phone number:

^\d{3}-\d{3}-\d{4}$

Email validation: cse_018221001210187 @ ius.ac.bd

Regex: ^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$

Finding occurrence of string: If two strings are "cat" or "dog", then regex is: (cat || dog)

Regex for matching names: Sadia Jannat

Regex: ^[A-Z][a-zA-Z]*\s[A-Z][a-zA-Z]*$

Regex for password: ^[A-Za-z\d]{6,}$