**What is Regex?**

**Regular Expressions** are sequences of characters that form **search patterns**, often used for:

* Validating input (emails, phone numbers)
* Searching or replacing text
* Extracting data from strings

Python provides the **re module** to work with regex.

## Importing Regex Module

# import re

## Common Functions in re Module

|  |  |
| --- | --- |
| **Function** | **Description** |
| re.search() | Search for a match anywhere in string |
| re.match() | Match only at the beginning |
| re.findall() | Find all matches and return a list |
| re.sub() | Replace text using a pattern |
| re.split() | Split string by the pattern |

## 1. re.search() – Search for a pattern

import re

text = "I love Python"

match = re.search("Python", text)

if match:

print("Found:", match.group())

## 2. re.match() – Match at the start of the string

import re

result = re.match("I", "I love Python")

print(result.group()) # Output: I

## 3. re.findall() – Return all matching patterns

text = "My number is 123, and his is 456."

numbers = re.findall(r"\d+", text)

print(numbers) # ['123', '456']

## 4. re.sub() – Replace using regex

text = "Hello 123 world 456"

clean = re.sub(r"\d+", "#", text)

print(clean) # Hello # world #

## 5. re.split() – Split text

text = "apple,banana;orange"

parts = re.split(r"[;,]", text)

print(parts) # ['apple', 'banana', 'orange']

## Common Regex Patterns

|  |  |
| --- | --- |
| Pattern | Matches |
| \d | Digit (0–9) |
| \D | Non-digit |
| \w | Word character (a-z, A-Z, 0–9, \_) |
| \W | Non-word character |
| \s | Whitespace |
| . | Any character except newline |
| ^ | Start of string |
| $ | End of string |
| [...] | Set of characters |
| `a | b` |
| \* | 0 or more |
| + | 1 or more |
| ? | 0 or 1 |