In C#, Regular Expression is a pattern which is used to parse and check whether the given input value is matching with the given pattern or not.

In C#, Regular Expressions are generally termed as C# Regex.

The [.Net Framework](https://www.geeksforgeeks.org/introduction-to-net-framework/) provides a regular expression engine that allows the pattern matching.

Patterns may consist of any character literals, operators or constructors.

C# provides a class termed as **Regex** which can be found in **[System.Text.RegularExpression](https://docs.microsoft.com/en-us/dotnet/api/system.text.regularexpressions?view=netframework-4.8" \t "_blank)** namespace. This class will perform two things:

* Parsing the inputing text for the regular expression pattern.
* Identify the regular expression pattern in the given text.

**Regex Syntax**

There are many basic syntaxes like Quantifiers, Special Characters, Character Classes, Grouping & Alternatives are used for regular expressions.

| Sub-expression | Matches |
| --- | --- |
| \* | Used to match the preceding character zero or more times. |
| + | Used to match the preceding character one or more times. |
| ? | Used to match the preceding character zero or one time. |
| {n} | Used to match the preceding character exactly n times. |
| {n, } | Used to match the preceding character at least n times. |
| {n, m} | Used to match the preceding character from n to m times. |
| ^ | Word after this element matches at the beginning of the string or line. |
| $ | Word before this element matches at the end of the line or string. |
| .(Dot) | Matches any character only once except \n(new line). |
| \d | It is use to match the digit character. |
| \D | It is use to match the non-digit character. |
| \w | It is use to match any alphanumeric and underscore character. |
| \W | It is use to match the any non-word character. |
| \s | It is use to match the white-space characters. |
| \S | It is use to match the non white-space characters. |
| \n | It is use to match a newline character. |
| [] | It is used to match the range of character |
| [a-z] | It is used to match any character in the range of a-z. |
| [^a-z] | It is used to match any character not in the range of a-z. |
| \ | It is used to match Escaped special character. |
| () | It is used for group expression |
| (a|b) | | Operator is used for alternative either a or b. |
| (?(exp) yes|no) | If expression is matched it gives yes otherwise it gives no. |

## **The Regex Class**

The Regex class is used for representing a regular expression. It has the following commonly used methods −

|  |  |
| --- | --- |
| **Sr.No.** | **Methods & Description** |
| 1 | **public bool IsMatch(string input)**  Indicates whether the regular expression specified in the Regex constructor finds a match in a specified input string. |
| 2 | **public bool IsMatch(string input, int startat)**  Indicates whether the regular expression specified in the Regex constructor finds a match in the specified input string, beginning at the specified starting position in the string. |
| 3 | **public static bool IsMatch(string input, string pattern)**  Indicates whether the specified regular expression finds a match in the specified input string. |
| 4 | **public MatchCollection Matches(string input)**  Searches the specified input string for all occurrences of a regular expression. |
| 5 | **public string Replace(string input, string replacement)**  In a specified input string, replaces all strings that match a regular expression pattern with a specified replacement string. |
| 6 | **public string[] Split(string input)**  Splits an input string into an array of substrings at the positions defined by a regular expression pattern specified in the Regex constructor. |