WSA | Forward looking IT finishing school

Type Conversion & Regular Expressions

JavaScript

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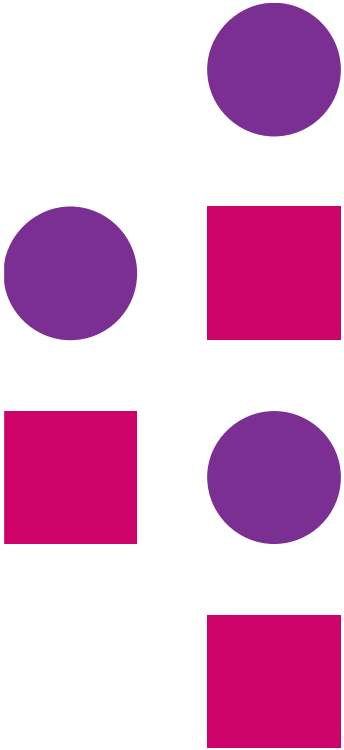
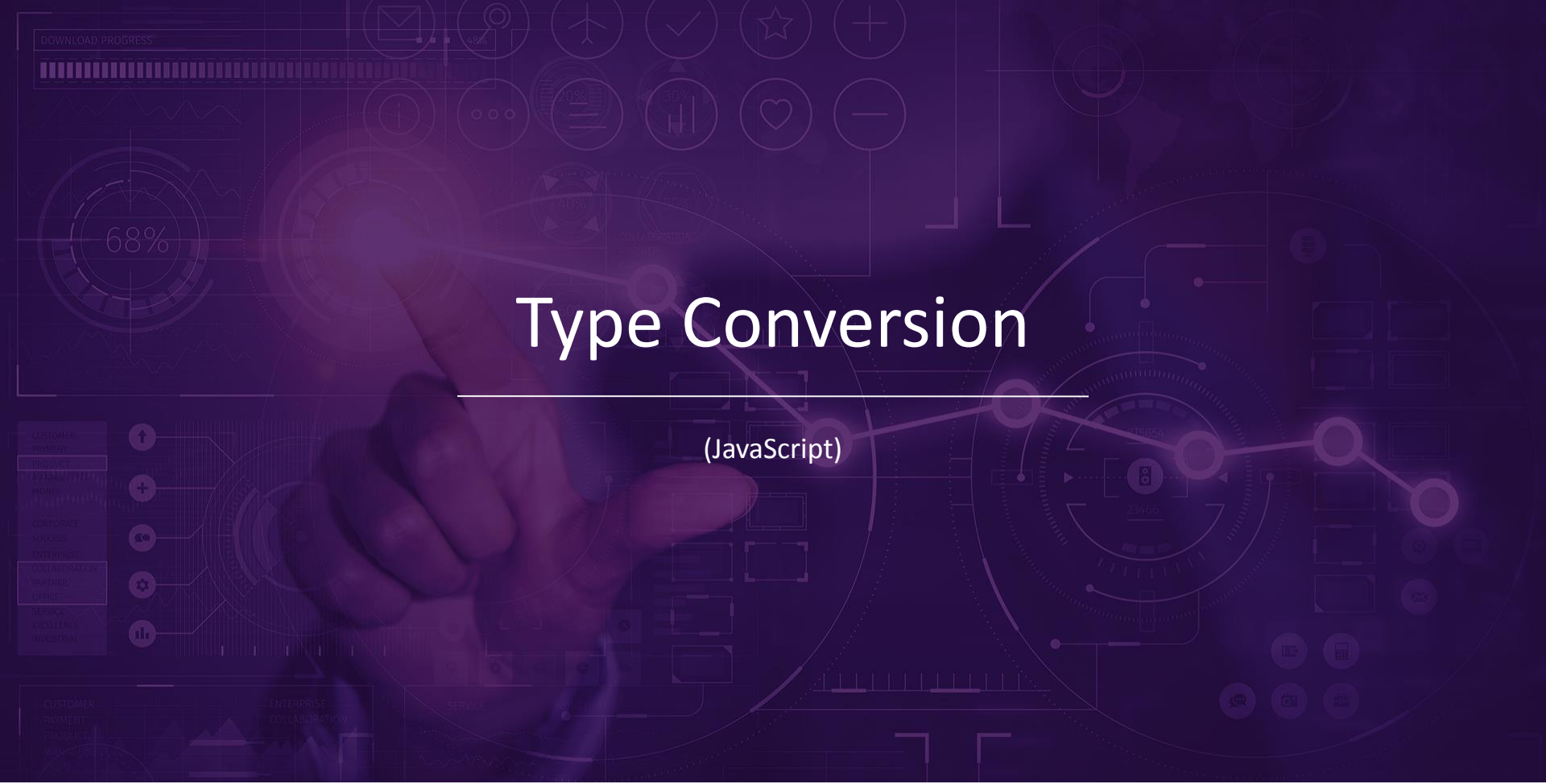




Type Conversion

(JavaScript)

Type Conversion

JavaScript variables can be converted to a new variable and another data type:

- By the use of a JavaScript function
- Automatically by JavaScript itself

Converting Number to String

- The String() and toString() can convert number to strings

```
String(234);  //234

var n=45;

var x=n.toString(); // Result x is 45
```

Converting Booleans to String

The String() and toString() can convert boolean to string.

```
String(false);     // return false

false.toString(); // return false
```

Converting Date to String

The String() and toString() can convert date to string.

```
String(Date());

// or

Date().toString();
```

Converting String to Numbers

Option	Description
`Number()`	Convert Strings to numbers
`parseFloat()`	Parses a string and returns a floating point number
`parseInt()`	Parses a string and returns an Integer

Unary +Operator

The unary + operator can be used to convert a variable to a number.

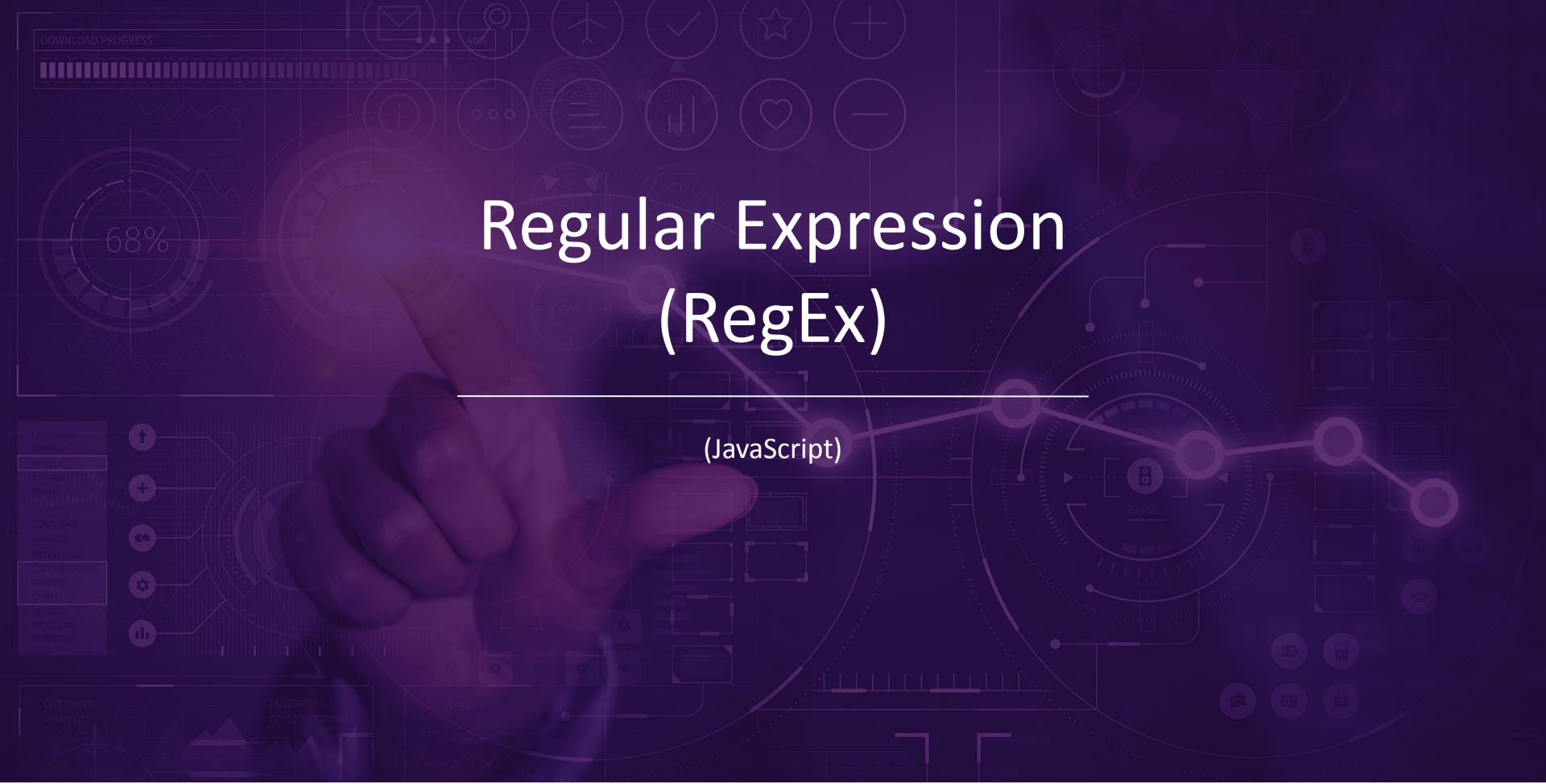
```
<body>
<button onclick="checkType()">Click this button</button>
<p id="ex"></p>
<script>
function checkType() {
    var y = "5";
    var x = + y;
    document.getElementById("ex").innerHTML = typeof y + "<br>" + typeof x;
}
</script>
```

Automatic Type Conversion

```
<script>

    document.write((3 + null )+ "<br>");  //returns 3

    document.write(("3" + null) + "<br>");//returns 3null

    document.write("3" + 2 + "<br>");//returns 32

    document.write(("3" - 2) + "<br>"); //returns 1

    document.write(("5" * "2") + "<br>"); // returns 10

</script>
```

Exercise

- Revisit the rectangle program (area & perimeter). Check the output with and without converting the input values.
- Write a JavaScript program to convert current date into string.



Regular Expression (RegEx)

(JavaScript)

Regular Expression

- Regular expressions are used for defining String patterns that can be used for searching, manipulating and editing a text.
- A regular expression, regex or regexp, in theoretical computer science.
- The process of searching text to identify matches—strings that match a regex's pattern—is pattern matching.
- In JavaScript, regular expressions are also objects.
- Regular expressions can be used to perform text search and text replace operations.

Regular Expression

```
Syntax:
var match = new RegExp(pattern, modifiers) (or)
var match = /pattern/modifiers
```

- Pattern:
  - Pattern specifications consist of a series of characters
  - These characters have a special meaning
  - They are also known as meta characters

Regular Expression

- Modifiers are a series of characters indicating various options
- They are optional in a regular expression
- This syntax is borrowed from Perl, supports some of them
- Perl was originally designed for pattern matching

Option	Description
`g`	Global matching. When using the replace() method, specify this modifier to replace all matches, rather than only the first one.
`i`	Case insensitive matching
`m`	Multi-line mode. In this mode, the caret and dollar match before and after newlines in the subject string

Regular Expression

```
var pattern = /Fruit/i;
```

Option	Description
`/Fruit/i`	Regular Expression
`Fruit`	Search pattern
`i`	The search should be case insensitive

Regular Expression patterns

Character	Meaning
`\`	Indicates that the next character is special and not to be interpreted literally
`^`	Matches the beginning of the string or line.
`$`	Matches the end of the string or line.
`*`	Matches the previous character 0 or more times.
`+`	Matches the previous character 1 or more times.
`\n`	Matches a New line
`?`	Matches the previous character 0 or 1 time.
`.`	Find a single character, except newline or line terminator

Regular Expression Pattern

Brackets are used to find range of characters.

Expression	Description
`[abc]`	Find any of the characters between the bracket
`[^abc]`	Find any character NOT between the brackets
`[0-9]`	Find any of the digits between the brackets
`[^0-9]`	Find any character NOT between the brackets (any non-digit)
`(x|y)`	Find any of the alternatives separated with |

Regular Expression Example

```
<script>
function upper_case(str)
{
   var regexp = /^[A-Z]/;
   if (regexp.test(str))
    {
      console.log("String's first character is uppercase");
    }
    else
    {
      console.log("String's first character is not uppercase");
    }
}
upper_case('Webstack Academy');
upper_case('webstack academy');
</script>
```

Metacharacters

Meta character	Description
`\d`	Find a digit
`\D`	Find a non digit character
`\w`	Find a word character
`\W`	Find a non word character
`\s`	Find a whitespace character
`\S`	Find a non-whitespace character
`\b`	Find a match at the beginning or end of the word
`\B`	Find a match not at the beginning or end of the word
`\0`	Find a Null character
`\uxxxx`	Find a uni-code character specified by the hexadecimal number xxxx

Examples

```
var pattern =/^abc/;
```

Matches only those string beginning with abc.

```
var pattern = /xy{3,5}z/;
```

Matches a single “x” followed by y characters between three and five and then the letter z

```
var pattern =/[a-z]/;
```

Matches any lowercase alphabetic character

```
var pattern = /abc.d/;
```

Matches any character except a newline

Exercise

- Write a JavaScript program that will match any string containing “world”.
- Write a JavaScript program that will check whether string containing alphanumeric character.
- Write a regular expression to match the pattern like 1234-567.

Regular Expression Methods

(JavaScript)

The Exec() Method

The exec() method of the RegExp object is used to execute the search for a match in a specified string.

Syntax:

```
Regexp.exec(str);
```

Example:

```
/c/.exec("In JavaScript, regular expressions are also objects.");
```

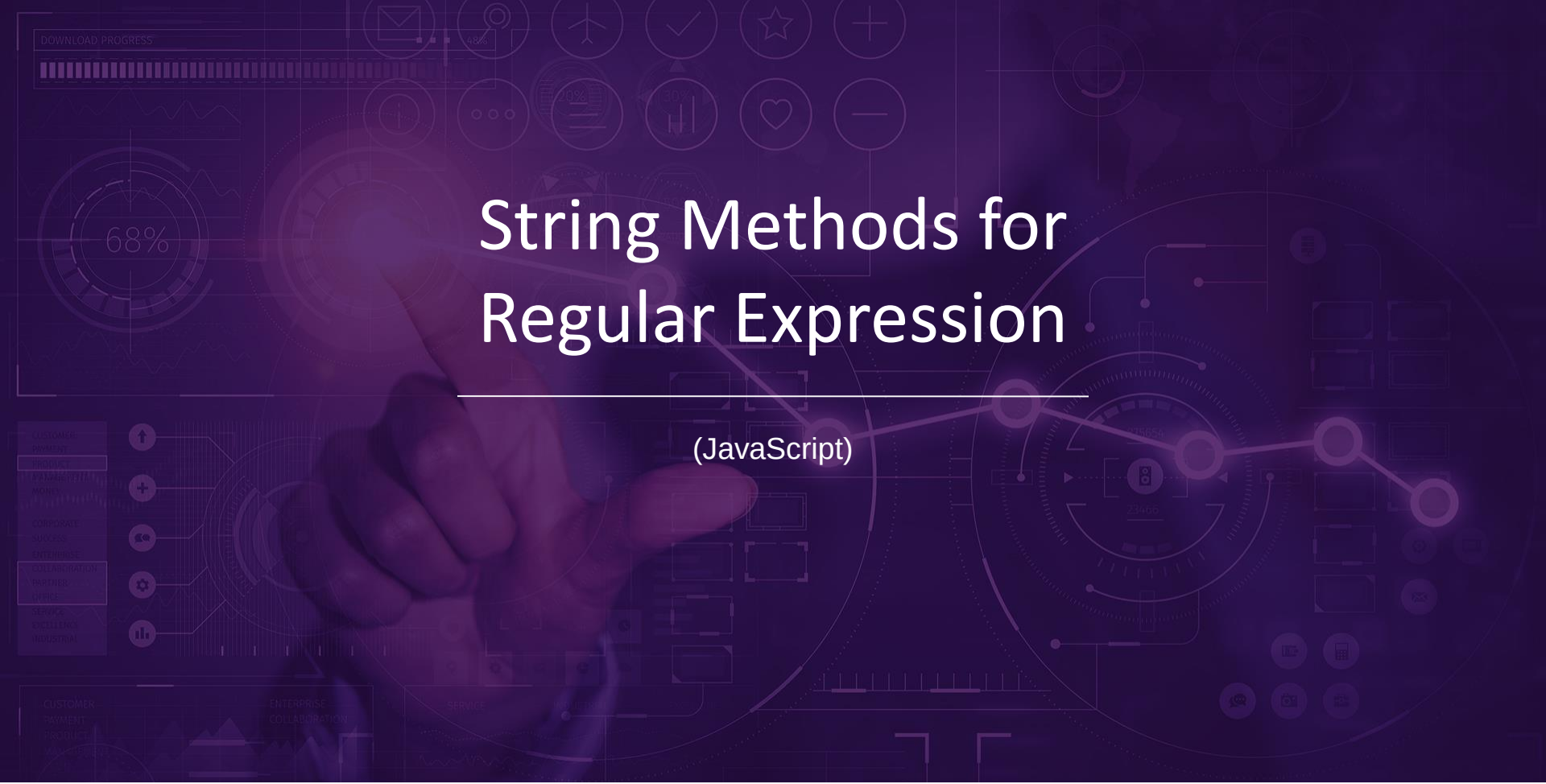
The test() Method

- The test() method of the RegExp executes a search for a match between a regular expression and a specified string.
- It will return true or false.

```
Syntax:
Regexp.test(str);
```

Example

```
<script>
regExpr = new RegExp('like','g')
// Define a string.
str1 = 'Happiness radiates like the fragrance from a flower';
// Check whether regular expression exists in the string.
if (regExpr.test(str1))
{
    document.write("'like' is found in " + str1);
}
</script>
```



String Methods for Regular Expression

(JavaScript)

String Methods for Regular Expressions

```
Syntax:
str.search(pattern);
```

It will return the index of character at which the first matching substrings begins.

```
<script>
var str = "I like apple";
var n = str.search(/Apple/i);
document.write(n);
</script>
```

Output : 7

The split()

```
Syntax:
str.split(separator,limit);
```

- The split() method splits a string into sub strings and return them in an array
- Separator is used to split the string
- Limit specifies the number of splits

```
<script>

var str   = "10/3/5/6/5";

var split = str.split(/[\/]+/);

document.write(split);

</script>
```

The replace()

```
Syntax:
str.search(searchvalue,newvalue);
```

- The search() method searches for the given String / RegExp, replaces new value
- In case of RegExp the first match is replaced. For all replacements use ‘g’ modifier

```
var str = "Hello.How are You?";


// Replace first dot with exclamation mark (!)
var res = str.replace(/\./, "!");
alert(res);
```

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