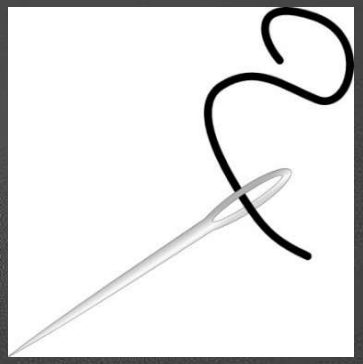
Telerik Academy



Strings

Working with strings in JavaScript

Javascript Fundamentals

Telerik Software Academy

https://telerikacademy.com

Telerik Academy

Table of Contents

Telerik Academy

String in JavaScript

```
'This is a String'
```

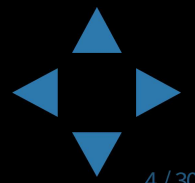

Telerik Academy

String in JavaScript

- A string is a sequence of characters
  - Text enclosed in single (' ') or double quotes (" ")

```
var str1 = "Some text saved in a string variable";
var str2 = 'text enclosed in single quotes';
```

- String is a primitive type
  - It is copied / passed by value
- String is also immutable
  - Every time a string is changed, a new string is created



Telerik Academy

String in JavaScript

Demo

Telerik Academy

String Wrapper

new String

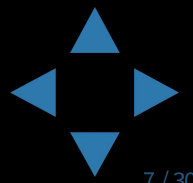
Telerik Academy

String Wrapper

- As string is a primitive type, it has an object wrapper type
- Primitive types keep only their value
  - When a property is called, the JS engine converts the primitive into its corresponding object type and calls the property
- Since primitive type wrappers are of type object, properties can be attached to them

```
let str = 'sample';
str.length;
```

```
let str = 'sample';
let tempStr = new String(str);
tempStr.length;
```

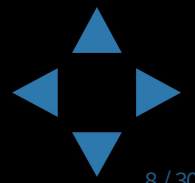


Telerik Academy

From Object to Primitive Type

- JavaScript have a simple parsing
  - From `string` to `number`
- Conversion from primitive to object type is introduced
  - `new String('…')` - creates a string object
  - `String(strObject)` - creates a primitive string

```
let base = 'string';
let strObj = new String(base);
let str = String(strObj);
```



Telerik Academy

String Wrapper

Demo

Telerik Academy

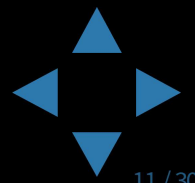
String Methods

Operations with strings

Telerik Academy

String Methods

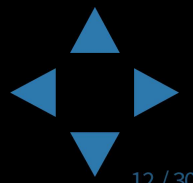
- `string.length`
  - Returns the number of characters in the string
- Indexer (`string[index]`)
  - Gets a single-character string at location `index`
  - If `index` is outside the range of string characters, the indexer returns `undefined`
    - `string[-1]` or `string[string.length]`
- `charAt(index)`
  - Gets a single-character string at location `index`
  - Much like the indexer



Telerik Academy

String Methods

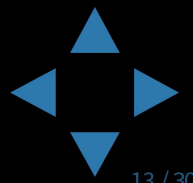
- `string.concat(string2)`
  - Returns a new string – the concatenation of the two strings
- `string.replace(str1, str2)`
  - Replaces first occurrence of `str1` with `str2`
- `string.search(regex)`
  - Searches for a substring based on regular expression



Telerik Academy

String Methods

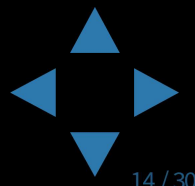
- `string.indexOf(substring [,position])`
  - Returns the left-most occurrence of `substring` in a string, that is after `position`
    - Position is optional and has default value of `0`
  - If string doesn't contain `substring`, returns `-1`
- `string.lastIndexOf(substring [,position])`
  - Returns the right-most occurrence of `substring` in a string, that is before `position`
    - Position is optional, default value is `string.length`
  - If string doesn't contain `substring`, returns `-1`



Telerik Academy

String Methods

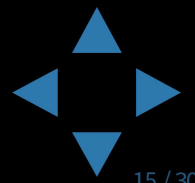
- `string.split(separator)`
  - Splits the string by `separator` and returns an array of strings, containing the separated parts
  - Separator can be a regular expression
- `string.trim()`
  - Removes whitespace from the beginning and end of the string
- `str.trimLeft()`, `str.trimRight()`
  - Remove whitespace from the left/right side of the string



Telerik Academy

String Methods

- `string.substr(start, length)`
  - Returns a substring, starting from `start` and counting `length` characters
  - `length` is optional
- `string.substring(start, end)`
  - Returns a substring, starting from `start` and ending at `end`
- `string.valueOf()`
  - Returns the primitive value of the object string



Telerik Academy

String Methods

Demo

Telerik Academy

String Concatenation

```
'Firstname' + ' ' + 'Lastname'
```

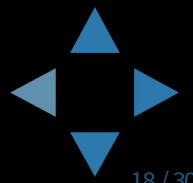

Telerik Academy

String Concatenation

- String is an immutable type
  - A value cannot be changed
  - Instead a new string is created
- There are a few ways to concatenate strings

```
var strConcat1 = str1 + str2;
var strConcat2 = str.concat(str2);
```

- Concatenating strings is a slow operation
  - Each concatenation allocates new memory

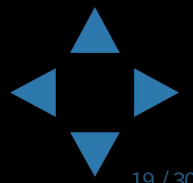


Telerik Academy

String Concatenation

- String concatenation is one of the most used operations with strings
  - Yet it is hard to optimize it
  - Each browser makes optimizations of its own
  - Old browsers concatenate very slow with +
- If you support older browsers, use `array.join("")` for concatenation
- Works like string builder
  - Slower in modern browsers

```
[].push(srt1, str2, str3, …).join('');
```

Telerik Academy

String Concatenation

Demo

Telerik Academy

String Escape

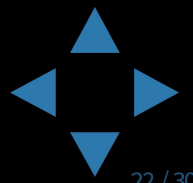
Preventing injection

Telerik Academy

String Escape

- What is escaping?
  - Replacing reserved characters with their escape sequence
  - Prevents JavaScript injection
- When using JavaScript client-side reserved characters are <, >, &, ' and "

```
var script = document.createElement('script');
script.innerHTML =
        'document.location = \'http://bad_place.com\'';
document.body.appendChild(script);
```

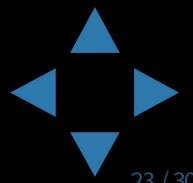



Telerik Academy

String Escape

- Escaping is done by just replacing the reserved characters with their escape sequence
  - Can be attached to the string prototype

```
String.prototype.htmlEscape = function () {
  let escapedStr = String(this)
      .replace(/&/g, '&amp;');
      .replace(/</g, '&lt;');
      .replace(/>/g, '&gt;');
      .replace(/"/g, '&quot;');
      .replace(/'/g, '&#39');
  return escapedStr;
}
```

Telerik Academy

String Escape

Demo

Telerik Academy

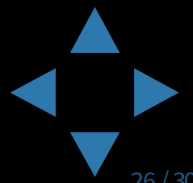
String Extensions

Writing useful methods

Telerik Academy

String Extensions - Trim

- `string.trim()`, `string.trimLeft()`, `string.trimRight()`
  - Supported in all modern browsers
  - For older browsers use shim
- `string.trimChars(chars)`, `string.trimLeftChars(chars)`, `string.trimRightChars(chars)`
  - Trim no-whitespace characters
  - No native implementation



Telerik Academy

String Extensions - Padding

- `str.padLeft(count [,char])`, `str.padRight(count [,char])`
  - Pads a string to the left/right
  - Fills the padding with whitespace or character
  - No native implementation

```
String.prototype.padLeft = function (count, char) {
  char = char || ' ';
  if(char.length > 1) return String(this);
  if(str.length >= count) return String(this);
  var s = String(this);
  for (var i = 0, len = this.len; i < count - len; i++) {
    s = char + s;
  }
  return s;
}
```

Telerik Academy

String Extensions

Demo