1.- Cн14: HTML5 APIs

HTML5 is the latest version of the Hypertext Markup Language used to create web pages.

- o HTML5 was for **HTML** what **ES6** was for **JavaScript**

HTML 5

The HTML5 specification is separated into modules, which:

- ♥ Allows different features to be developed at different paces
- ♥ When a previously unforeseen development occurs, a new module can be created to cater for it.
- ♥ Modules can be at different stages of maturity

The -data Attribute

The data- attribute is a way of embedding data in a web page, it uses custom attributes that are ignored by the browser.

♥ They are also private to a page

(Which means that they are not intended to be used by any external service)

♥ Perfect for adding data!

(Can be used as a hook to access information about a particular element on the page)

Note: The names of these attributes can be decided by the developer, but they must have the following format:

♥ Start with "-data"
♥ Contain only lowercase letters, numbers, hyphens, dots, colons, or underscores.
♥ Include an optional string value.

EXAMPLES:

```
data-powers = 'flight superSpeed'
data-rating = '5'
data-dropdown
data-user = 'DAZ'
data-max-length = '32'
```

- The information contained in the attributes can be used to identify elements
- All the elements with an attribute of data-dropdown could be identified as dropdown menu.
- The values of the attributes can also be used to filter different elements

We could find all the elements that have a data-rating value of 3 or more.

Each element has a dataset property that can be used to access any data- attributes it contains.

```
<div id='hero' data-powers='flight superSpeed'>
    Superman
</div>
```

The data-powers attribute can be accessed using the following code:

```
const superman = document.getElementById('hero');
const powers = superman.dataset.powers;
<< 'flight superSpeed'
```

-Notice that the data- prefix is dropped.

- To access the attribute, powers is used as if it's a property of the dataset object.

-If a data- attribute's name contains hyphens, they are replaced with camel-case notation

- data-max-length would be accessed using dataset.maxLength.

data-max-length will return a string, but can easily be converted into a number using the following code:

```
const maxLength = Number(element.dataset.maxLength);
```

HTML5 APIs

The HTML5 specification contains a number of APIs that help to gain access to hardware, such as cameras, batteries, geolocation, and the graphics card.

Popular ones:

- ♥ HTML 5 Web Storage
- ♥ Geolocation
- ♥ Web workers
- ♥ Service Workers
- ♥ Websockets
- ♥ Notifications
- ♥ Multimedia
- ♥ Drawing with canvas
- ♥ Shims and Polyfills

2.- CH12: CANVAS, SVG, AND DRAG AND DROP

With HTML5's Canvas API, we can draw anything we can imagine, all through JavaScript.

- ♥ This can improve the performance of our websites by avoiding the need to download images off the network.
- ♥ We can draw shapes and lines, arcs and text, gradients and patterns.

- ♥ Canvas gives us the power to manipulate pixels in images and even video

A BIT OF CANVAS HISTORY

Canvas was first developed by Apple.

It was then adopted by Mozilla and Opera, and then standardized by the WHATWG (and subsequently picked up by the W3C, along with the rest of HTML5).

Creating a canvas element

The first step to using canvas is to add a canvas element to the page:

```
<canvas>
    Sorry! Your browser doesn't support Canvas.
</canvas>
```

The text in between the canvas tags will only be shown if the canvas element is not supported by the visitor's browser.

Since drawing on the canvas is done using JavaScript, we'll need a way to grab the element from the DOM. We'll do so by giving our canvas an ID:

```
<canvas id="myCanvas" class="myCanvas">
    Sorry! Your browser doesn't support Canvas.
</canvas>
```

Note: The canvas element takes both a width and height attribute, which must also be set.

SVG

First, a quick refresher: SVG stands for Scalable Vector Graphics, a specific file format that allows you to describe vector graphics using XML.

- ♥ Unlike bitmap images (such as GIF, JPEG, PNG, and TIFF), vector images preserve their quality even as you blow them up or shrink them down! :D

What is XML?

- ♥ XML stands for eXtensible Markup Language. Like HTML, it's a markup metalanguage. In plain English, it's a system meant to annotate text.