

Ch 14: HTML5 APIs

- Data can be privately embedded into a webpage by using the data- attribute. There are three rules that must be followed:
 - Start with data-
 - Contain only lowercase letters, numbers, hyphens, dots, colons or underscores
 - Include an optional string value after an =
- There are quite a few useful APIs that have been included within HTML5 they include:
 - LocalStorage
 - A good alternative to cookies, for storage that should *not* expire after a set time.
 - Geolocation
 - Used to find the user's location, completing tasks such as speed measurement or linking them to nearby places
 - Note that the user must grant permission before allowing the use of this API
 - Web Workers
 - Allows processes to run in the background, adding a sense of concurrency to an otherwise singular threaded language
 - Workers are created using: `const worker = new Worker('task.js');`
 - This is definitely something to remember, I could see a lot of applications where this would be useful
 - Notifications
 - Used to alert the user to something happening on the webpage, even if it isn't the current tab
 - Requires user permissions – consider the popup that appears whenever I load Slack on a new machine
 - Media
 - `<audio>` and `<video>` tags, which greatly simplify a previously complex process
 - For example:

```
<video src='http://movie.mp4' controls>
  Your browser does not support the video element.
</video>
```
 - Note that text within the `<video>` tags won't display unless there *is* an issue
- Shims and polyfills can be used to bring support for these APIs to older versions of browser that might not support them, by filling in the necessary code

Ch 12: Canvas, SVG, and Drag and Drop

- Canvas is used to draw elements on the webpage using JavaScript, which can be more efficient than trying to load them all in from another location
 - It can also be used to edit things such as videos that are embedded on the page, modifying features such as their color
 - Must be included within <canvas> tags, as shown below:


```
<canvas id="myCanvas" class="myCanvas" width="200" height="200">
  Sorry! Your browser doesn't support Canvas.
</canvas>
```
 - We then reference these tags in a JavaScript file:


```
var canvas = document.getElementById("myCanvas");
var context = canvas.getContext("2d");
```
 - Within Canvas, the top right corner represents coordinate (0,0)
 - Complex shapes are drawing with paths – consult the following JavaScript for drawing a circle:


```
function drawCircle(canvas) {
  var context = canvas.getContext("2d");
  context.beginPath();
  context.arc(100, 100, 50, 0, Math.PI*2, true);
  context.closePath();
}
```
 - Currently, Canvas does not provide accessibility options
- SVG is a file format that allows the description of vector graphics while using XML
 - These images preserve their quality when scaled up/down, which is one of their primary selling points
 - [Inkscape](#) is a website that helps to convert images into an SVG format, given how dense the code can become otherwise
 - Raphaël is a library used to draw/animate SVG objects
- Drag and Drop has two main components – dragging files from a computer onto the webpage, and dragging elements from the same webpage into one another

An Introduction to Functions, Execution Context, and the Call Stack

- A thread is a piece of software that traverses a piece of code line-by-line
- Unless a function is called, the thread will never traverse the lines of code contained within it
- Functions are a way of wrapping up a related group of instructions
- The stack is an array that essentially stores the order of commands within an application

How to Understand Callbacks & Higher Order Functions

- If you have a bunch of functions that are all doing the same thing with slightly different variables, it might be a good idea to condense all of them into a single generic function

- Passing in functions to function parameters is a great way to create more generic methods
- Callbacks and higher order functions are used to keep code simple, avoiding excessing repetition throughout
 - They can also eventually be used to run code asynchronously, though that was not covered within the scope of this video