

Week 09

Monday, June 14, 2021 1:18 PM

The Window Object

Every JavaScript environment has a global object. Any variables that are created in the global scope are actually properties of this object, and any functions are methods of it. In a browser environment the global object is the window object, which represents the browser window that contains a web page.

The Browser Object Model

The Browser Object Model (or BOM for short) is a collection of properties and methods that contain information about the browser and computer screen. For example, we can find out which browser is being used to view a page (though, this method is unreliable). We can also find out the dimensions of the screen it is viewed on, and which pages have been visited before the current page. It can also be used for the rather dubious practice of creating pop-up windows, if you're into annoying your users.

Browser Information

The window object has a navigator property that returns a reference to the Navigator object. The Navigator object contains information about the browser being used. Its userAgent property will return information about the browser and operating system being used.

```
window.navigator.userAgent
```

The Browser History

The window.history property can be used to access information about any previously visited pages in the current browser session.

The window.history.length property shows how many pages have been visited before arriving at the current page.

The window.history.go() method can be used to go to a specific page, where 0 is the current page:

```
window.history.go(1); // goes forward 1 page  
window.history.go(0); // reloads the current page  
window.history.go(-1); // goes back 1 page
```

There are also the window.history.forward() and window.history.back() methods that can be used to navigate forwards and backwards by one page respectively, just like using the browser's forward and back buttons.

Cookies

Cookies are small files that are saved locally on a user's computer. They were invented by Netscape as a way of getting round HTTP being a stateless protocol. This means that a browser does not remember anything from one request to another. So every time a user visits a page,

nothing about any previous visits is remembered. Cookies can be used to sidestep this problem by storing information that can then be retrieved between requests.

The data- Attribute

The data- attribute is a way of embedding data in a web page using custom attributes that are ignored by the browser. They're also private to a page, so are not intended to be used by an external service – their sole purpose is to be used by a JavaScript program. This means they're perfect for adding data that can be used as a hook that the program utilizes to access information about a particular element on the page.

Geolocation

The Geolocation API is used to obtain the geographical position of the device. This means it can be used to find the user's exact location, then link to nearby places or measure the speed at which the user is moving. This information can then be used to filter data based on the user's location or speed and direction of travel. An example of this might be a search function that returns results based on your location. Because of privacy concerns, permission to use this has to be granted by the user first.

Web Workers

We saw in earlier chapters that JavaScript is a single-threaded language, meaning that only one process can run at one time. Web workers allow processes to be run in the background, adding support for concurrency in JavaScript. The idea is that any processes that could take a long time are carried out in the background, so a website will continue to function without fear of the dreaded 'script has become unresponsive' message that occurs when a script runs for too long, shown below.

Web workers allow computationally complex operations to be performed in a separate thread, meaning that the flow of a program won't suffer interruptions, and an application will not freeze or hang. They are a useful feature that help to keep sites responsive, even when complicated operations are being carried out.

Websockets

Websocket is a new protocol that allows two-way communication with a server – also known as push messaging. This means that a connection is kept open and responses are 'pushed' to the client as soon as they are received.

