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Web 231

Assignment 9.4

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**Client-Side Debugging**

The Firefox developer tools are an incredibly handy toolset for the modern web developer. A quick press of F12 in the Firefox browser allows developers to examine their code in multiple ways. This can be used to step through and debug Javascript code, examine and make style changes to html elements, and review network traffic to and from the server.

Debugging is the process of finding and eliminating errors in code. In web development this process is almost universally applied to Javascript code. This is done by running the code in a controlled fashion to examine it as it proceeds through its logical flow. Developers can set breakpoints in a Javascript file which will stop the execution of the code at the designated step. A step is a single action in the logical structure of the code and ‘stepping through’ code is the act of moving through the code one step at a time. Breakpoints can also be set on certain conditions like a variable having a null or specific value, or exceptions being thrown. Because of the frequent use of third party Javascript libraries, developers can also ‘black box’, or skip over this third-party code during debugging (“Ignore a Source”, 2020).

Firefox also allows developers to quickly examine html elements and styles. Right clicking on an element in the page gives the user the Inspect Element option, which opens the developer tools with the chosen element focused. In this view developers can see the element’s place in the html of the page and view its CSS style attributes. This is handy for examination, but also allows a quick development workflow by testing new styles directly on the page. One way to experiment with element sizing in this tool is to set a 1px red border on an element, then play with the element’s sizing attributes (“How To Debug Web Applications With Firefox”,n.d.). Positive results from this live experimentation can then be copied and pasted into the page’s stylesheet for ongoing use.

Since web applications rely on a server to process requests and return responses, developers often need to examine what is being sent and returned between client and server. The Network tab is very handy for diagnosing issues of request accuracy, performance, and data returned from the server. Here, every HTTP request is recorded from the start of the page load. Every request lists the HTTP method (GET, POST etc.), the domain the request is being sent to, which file initiated the request and so on. Selecting a request will display such information as the request headers, response, timing, and security of the connection. For developers with an eye on load time improvements, the timings tab is especially useful.

Utilizing these tools web developers can discover Javascript bugs, examine HTML elements, experiment live with varied styles, and examine the communications between the client and server in detail. The Firefox developer tools are a highly useful tool set, but it takes familiarization and practice to learn and make use of them. The modern web developer would be well advised to consider browser development tools an equally valid skill set to coding skills themselves.

**Citations**

*Ignore a source*. (2020, July 13). Mozilla. <https://developer.mozilla.org/en-US/docs/Tools/Debugger/How_to/Ignore_a_source>

*How To Debug Web Applications With Firefox*. (n.d.). Better Explained. Retrieved July 23, 2020, from <https://betterexplained.com/articles/how-to-debug-web-applications-with-firefox/>