

For Aptech Centre Use Only

Session 8

JavaScript Developer Tools

Objectives

By the end of this session, students will learn to:

- ▶ Describe what are developer tools
- ▶ Explain the use of various browser developer tools with JavaScript

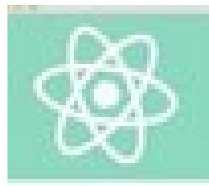
Developer Tools: Overview

- Are a collection of different software that offer varied capabilities
- Are in-built in all latest browsers
- Have runtime execution functionality

Different Debugging Tools



Chrome developer
tools



React developer
tools for Chrome



Firefox developer
tools



Internet Explorer
developer tools

Chrome Developer Tools

- ▶ Web tools built-in directly within the Chrome browser
- ▶ DevTools help to:

Edit Web pages instantly

Modify CSS

Profile page load
performance

Monitor network
requests

Chrome Developer Tools - Source Panel

- ▶ The Source panel is used to debug JavaScript.
- ▶ This panel is divided into three sections:

File Navigator Pane

- Lists all the files that are requested by a Web page.

Code Editor Pane

- Displays the contents of the file that is selected in the File Navigator pane.

JavaScript Debugging Pane

- Provides various tools to review the Web page's JavaScript.

Chrome Developer Tools - Debugging with Breakpoints or Console.log

Breakpoints	Console.log
Added in codes while debugging to add pauses.	Part of the Console object, which allows accessing the debugging console of a browser.
Pause the required code and use line-of-code breakpoints.	Manually open the source code, find the required code, insert the console.log statements, and then reload the code to view the messages.
Display all the values during a pause.	Explicitly mention all values that require verification.

Chrome Developer Tools - Debugging

- ▶ Walk through the code's execution, one line at a time and find out where the code is executing differently
- ▶ Check variable values using either of the three methods:

Method 1: Using Scope pane

- View the defined local and global variables.
- View the values of each variable and the closure variables.

Method 2: Using Watch Expressions tab

- Monitor the variable values over time.
- Store any valid expression.

Method 3: Using Console

- Analyze the JavaScript statements.
- View the `console.log()` messages.

React Developer Tools

- ▶ Are an extension for browsers and enable working with React-specific components
- ▶ Are used to:

Select the React elements from next to the HTML elements.

View the real-time view of the selected React element's state and properties.

View the path from the top of the tree to the selected element from tabs at the bottom.

Firefox Developer Tools

- ▶ Are used to inspect pages, execute random JavaScript code, and view HTTP requests and other messages
- ▶ Include different set of tools for different functionalities:

Code Execution

- Scratchpad

CSS

- Style Editor

Debugging

- Web Console
- Page Inspector
- JavaScript Debugger
- Network Monitor
- Storage Inspector

Firefox Developer Tools - Scratchpad

- ▶ Includes syntax highlighting
- ▶ Writes and executes multiple lines of code at once



Firefox Developer Tools - Style Editor

- ▶ Used to view and edit the CSS properties applied to any element
- ▶ Is divided into three main sections:

Style Sheet Panel

View the CSS properties applicable to the selected element.

Media Panel

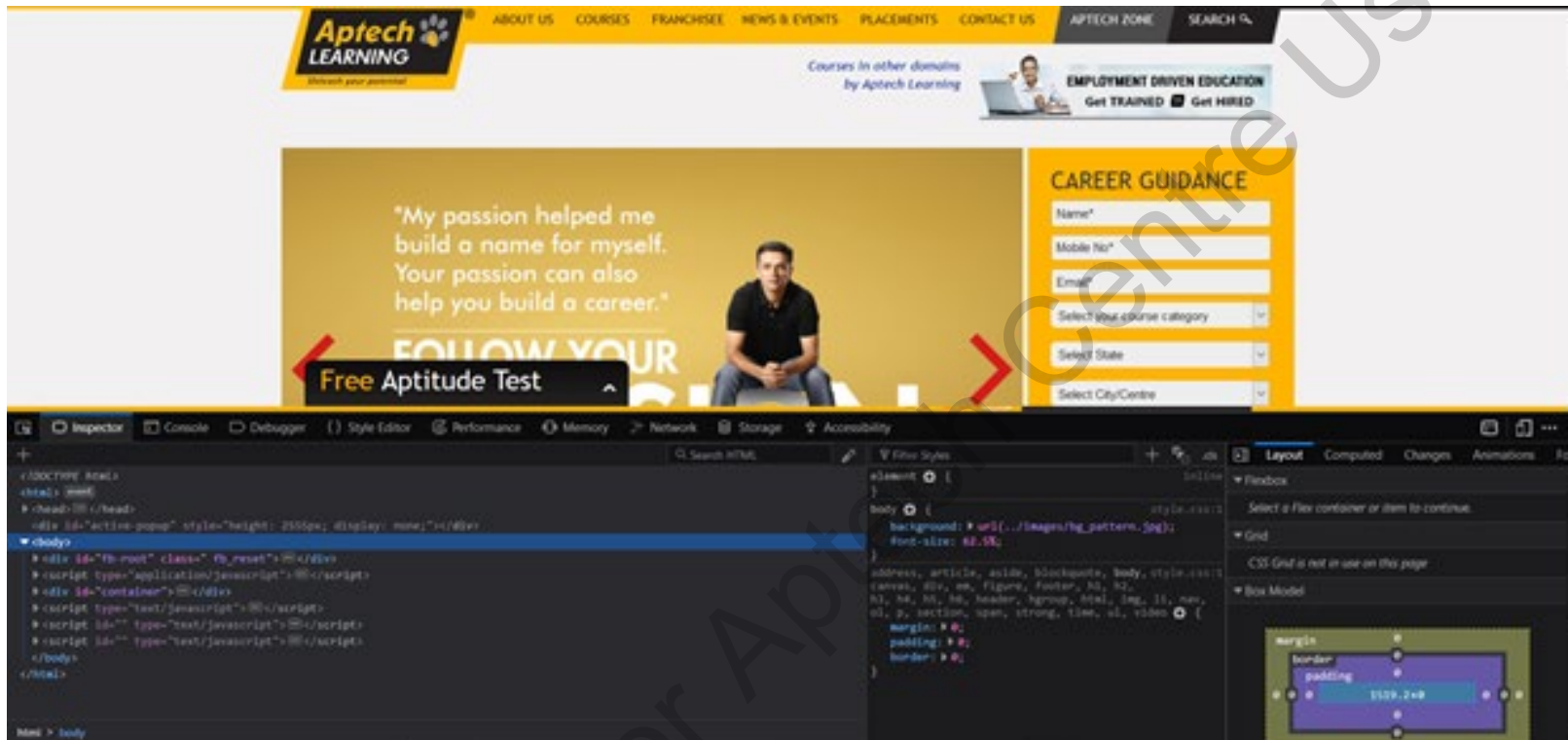
Find specific media rules applicable to any element.

Editor Panel

Edit an element's CSS property on the go.

Firefox Developer Tools - Page Inspector

Allows to inspect a specific element on the Web pages.



Firefox Developer Tools - Web Console

- ▶ Used to view messages that are printed to the `window.console` object
- ▶ Information conveyed by the messages may include the following:

Network Requests

JavaScript and CSS
Error Messages

Security Errors and
Warnings

- ▶ Are integrated into the JavaScript code to aid in debugging the code

Internet Explorer Developer Tools: Overview

- ▶ Embedded in Windows Internet Explorer to debug JavaScript codes quickly
- ▶ Have the following properties:

Are integrated
and simple to use

Provide a visual
interface

Enable fast
experimentation

Optimize
application
performance

Internet Explorer Developer Tools: Function

Controlling the Execution

- Debug the code by pausing the code execution at any specified location through breakpoints.
- Breakpoints can be set within inline functions or event handlers and even Conditional Breakpoints.

Checking Variables

- Verify the value of local and customized variables while stepping through the code using the Script tab.

Using the Debugger Console

- Execute JavaScript code instead of editing the source to test a statement.
- Log the script error messages using the `console.log` method.

Session Summary

- ▶ Developer tools are a collection of different software offering different capabilities.
- ▶ Developer tools help to edit the Web pages, modify CSS, profile page load performance, and monitor the network requests.
- ▶ Chrome developer tools are Web tools built directly within the Chrome browser.
- ▶ React developer tools are an extension for Chrome and Firefox browsers and provide React-specific inspection widgets.
- ▶ Firefox's Web developer menu contains tools to inspect pages, execute random JavaScript code, and view the HTTP requests and other messages.
- ▶ Internet Explorer Developer Tools are embedded in the Windows IE.