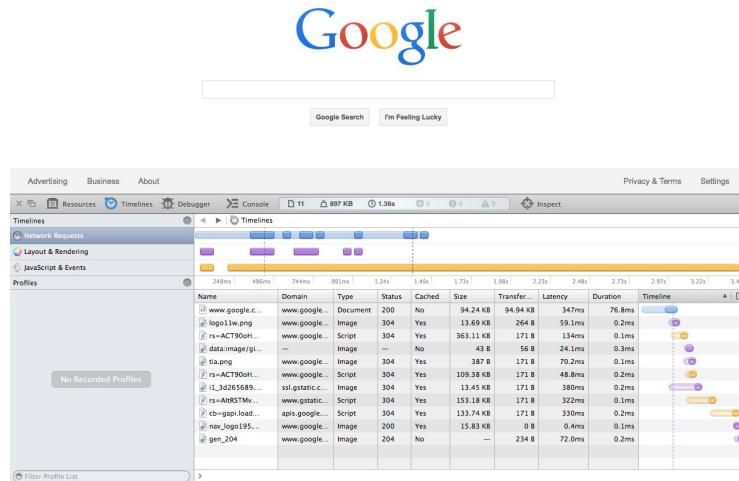


# Chapter 1



## Platforms



### Express 2013 for Web

Visual Studio Express for Web has the tools to create standards-based, responsive websites, web APIs, or real-time online experiences using ASP.NET. Publish your web application directly to Windows Azure from the IDE. Create web services consumed by connected devices.

#### Download

#### System Requirements:

##### Supported operating systems

- Windows 7 SP1 (x86 and x64)
- Windows 8 (x86 and x64)
- Windows 8.1 (x86 and x64)
- Windows Server 2008 R2 SP1 (x64)
- Windows Server 2012 (x64)
- Windows Server 2012 R2 (x64)

##### Hardware requirements

- 1.6 GHz or faster processor

The screenshot shows the official website for WebStorm. At the top, there's a navigation bar with links for Products, Support, Community, and Company. Below the header, the main content area features the WebStorm logo and a banner with the text "WebStorm — The smartest JavaScript IDE". To the left, there's a screenshot of the WebStorm interface displaying code in a file named "index.html". To the right, a box highlights "WebStorm 8 Released!" with a list of features: Advanced AngularJS support, Spy.js (a new JavaScript tracing tool), Multiple cursors and selections, Grunt and Bower integration, and a link to "Learn more and try WebStorm 8". Below this box is a "Get WebStorm 8" button and a note about a 30-day trial for Mac OS X. Further down, there's a section titled "Why you want to try WebStorm" which includes a brief description and links to other JetBrains IDEs.

The screenshot shows the official website for IntelliJ IDEA. The layout is similar to the WebStorm site, with a header, main content area, and sidebar. The main content features the IntelliJ IDEA logo and the text "IntelliJ IDEA 13.1 Work Miracles in Java and Beyond". Below this is a large image of the IntelliJ IDEA interface, showing a Java code editor with syntax highlighting and various toolbars. At the bottom of the page, there are several cards highlighting specific features: "Java 8 & Java EE 7 Support", "Straightforward User Interface", "Editor New Features", "New Tools for Android Developers", "Refined Gradle Integration", and "New Tools for Database Access".

The screenshot shows the official website for Coda 2. At the top, there's a navigation bar with icons for back, forward, search, and a menu. The URL in the address bar is [panic.com/coda/](http://panic.com/coda/). The main header features a large green leaf with water droplets. Below the header, there are three buttons: "Get it Now" (with a download icon), "Help support and faq" (with a question mark icon), and "Plug-Ins extend coda" (with a cube icon). A central text block reads: "We made Coda 2 better at everything. So it can make you better at everything." Below this, a comparison section highlights improvements from the previous version. A "Coda Tour" button is prominently displayed, followed by a screenshot showing multiple tabs of the Coda interface, including sections for PHP, HTML, and CSS.

The screenshot shows the official website for WebMatrix 3. The top navigation bar includes icons for back, forward, search, and a menu. The URL in the address bar is [www.microsoft.com/web/webmatrix/](http://www.microsoft.com/web/webmatrix/). The page features several sections: "Designed for Top Languages" (with icons for ASP.NET, PHP, Node.js, and HTML5), "Optimized for Open Source" (with a GitHub icon), "Your Companion for the Cloud" (with a Windows Azure icon), "Designed for Mobile" (with a smartphone icon), "Source Control with Git" (with a GitHub icon), "Source Control with TFS" (with a Team Foundation Service icon), "Remote Site Editing" (with a globe icon), "Extended by the Community" (with a user icon), and an "All-in-one" section (with a database icon). Each section includes a brief description and a "LEARN MORE" button. A sidebar on the right lists "EXPLORE" categories: STANDARDS, PRODUCTIVITY, ASP.NET, NODE.JS, and PHP.

Sublime Text: The text editor

Home Download Buy Blog Forum Support

# Sublime Text

Sublime Text is a sophisticated text editor for code, markup and prose. You'll love the slick user interface, extraordinary features and amazing performance.

Demonstration

```
base64.cc
31 void base64_encode(const uint8_t * data, size_t length, char * dst)
32 {
33     size_t src_idx = 0;
34     size_t dst_idx = 0;
35     for (; (src_idx + 2) < length; src_idx += 3, dst_idx += 4)
36     {
37         uint8_t s0 = data[src_idx];
38         uint8_t s1 = data[src_idx + 1];
39         uint8_t s2 = data[src_idx + 2];
40
41         dst[dst_idx + 0] = charset[((s0 & 0xfc) >> 2)];
42         dst[dst_idx + 1] = charset[((s0 & 0x03) << 4) | ((s1 & 0xf0) >> 4)];
43         dst[dst_idx + 2] = charset[((s1 & 0x0f) << 2) | (s2 & 0xc0) >> 6];
44         dst[dst_idx + 3] = charset[((s2 & 0x3f)];
45     }
46
47     if (src_idx < length)
48     {
49         uint8_t s0 = data[src_idx];
50         uint8_t s1 = (src_idx + 1 < length) ? data[src_idx + 1] : 0;
51
52         dst[dst_idx++] = charset[((s0 & 0xfc) >> 2)];
53         dst[dst_idx++] = charset[((s0 & 0x03) << 4) | ((s1 & 0xf0) >> 4)];
54         if (src_idx + 1 < length)
55             dst[dst_idx++] = charset[((s1 & 0x0f) << 2)];
56     }
57 }
```

Line 31, Column 55      Spaces: 4      C++      ▶ 1 / 6 ▶

Use Multiple Selections to rename variables quickly.  
Here **⌘D** is used to select the next occurrence of the current word.

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Current Version: 6.6.9

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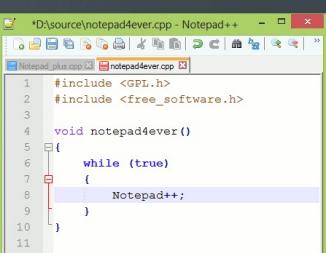
**News**

- Notepad++ 6.6.9 released
- Notepad++ 6.6.8 released Jul 27 2014
- Notepad++ 6.6.7 released Jun 24 2014
- Notepad++ 6.6 Friday the 13th edition Jun 12 2014
- Response and Apology for Sextist Jokes Jun 07 2014
- Notepad++ 6.6.4 Tianamen June Fourth Incident Edition Jun 04 2014
- Notepad++ 6.6.3 released May 18 2014
- Notepad++ 6.6.2 released May 08 2014
- v6.6.1 - May the 4th be with you May 04 2014
- Notepad++ Workers' Day Edition (v6.6) May 01 2014

**About**

Notepad++ is a free (as in "free speech" and also as in "free beer") source code editor and Notepad replacement that supports several languages. Running in the MS Windows environment, its use is governed by [GPL License](#).

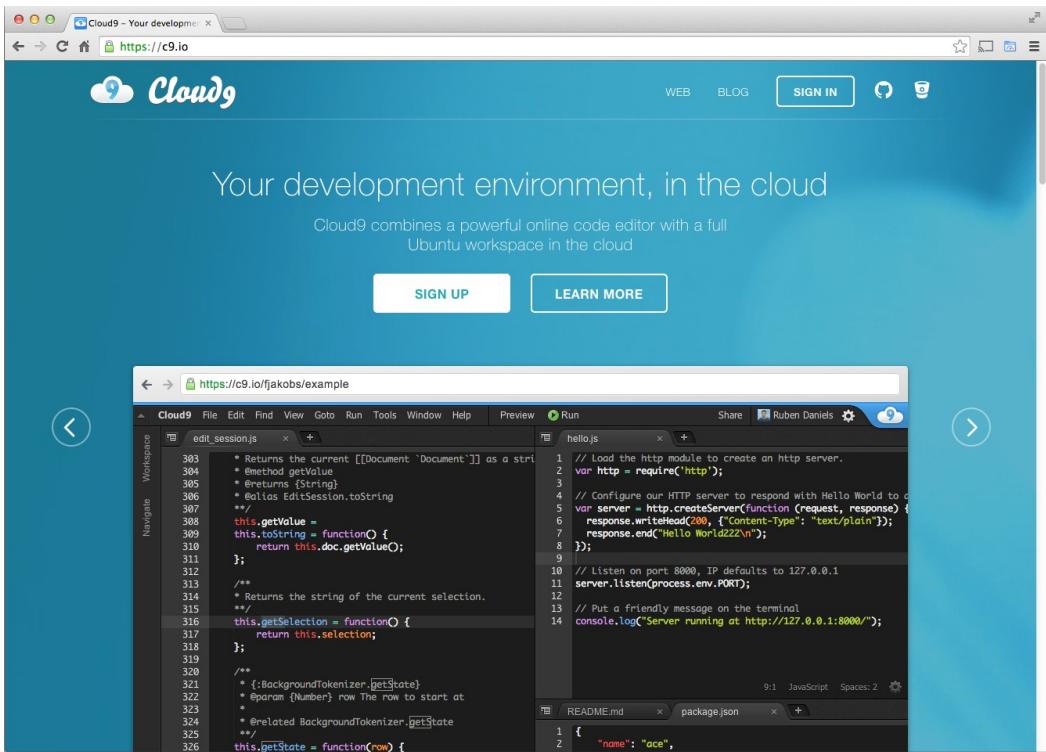
Based on the powerful editing component [Scintilla](#), Notepad++ is written in C++ and uses pure Win32 API and STL which ensures a higher execution speed and smaller program size. By optimizing as many routines as possible without losing user friendliness, Notepad++ is trying to reduce the world carbon dioxide emissions. When using less CPU power, the PC can throttle down and reduce power consumption, resulting in a greener environment.



You're encouraged to [translate Notepad++](#) into your native language if there's not already a translation present in the [Binary Translations page](#).

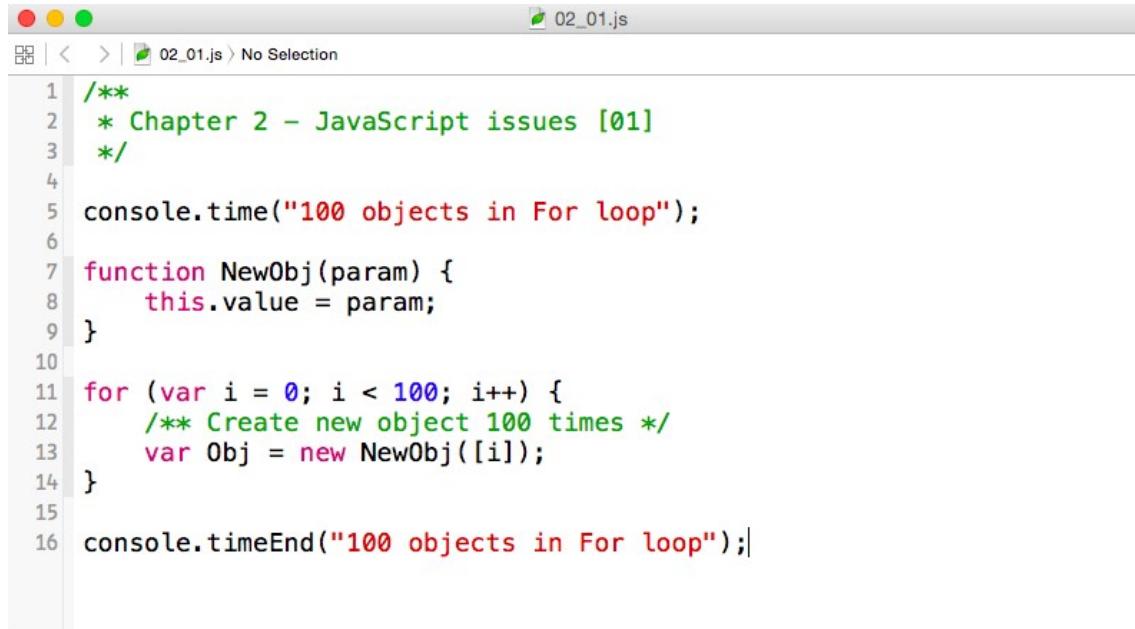
I hope you enjoy Notepad++ as much as I enjoy coding it.

Copyright © Don Ho 2014



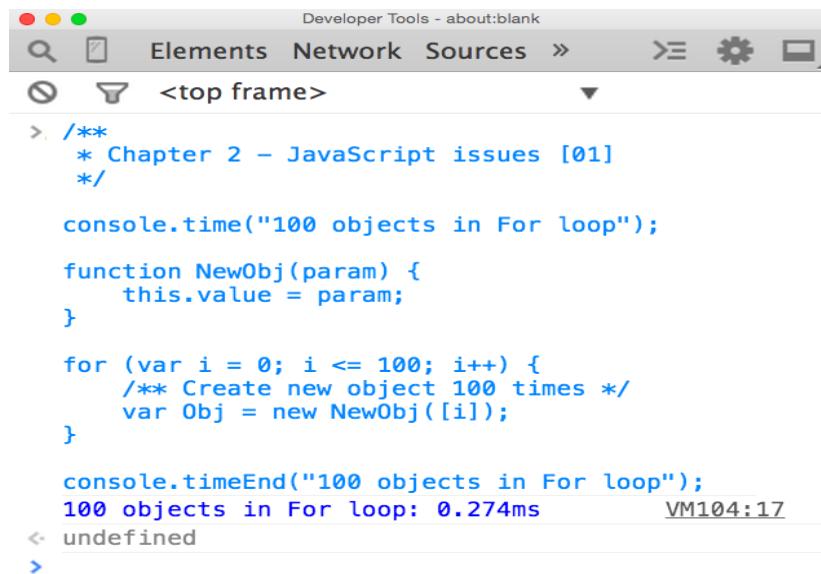
A screenshot of the Codenvy SaaS developer environments homepage. The page has a dark background with white and light blue text. At the top, there's a navigation bar with links for PRODUCTS, EXPLORE, BLOG, and PRICING, along with buttons for FREE SIGN UP and LOGIN. Below the navigation, there are four main sections: "DEVELOP WITH THE CODENVY CLOUD", "ON-DEMAND WORKSPACES", "FACTORIES, PLUG-INS, AND APIS", and "ENTERPRISE ON-PREMISES CLOUD". Each section includes a brief description and a "Code" button. To the right, there's a section titled "INSTANTLY SaaS DEVELOPER ENVIRONMENTS" featuring a "Click to Develop" callout and icons for various technologies: Android, Angular, Bootstrap 3, Java, Node.js, PHP, Python, and Spring. At the bottom, there's a note about agreeing to terms and privacy policies, and a "SIGN UP FOR A FREE ACCOUNT TO PRESERVE YOUR WORK &gt;" button.

## Chapter 2

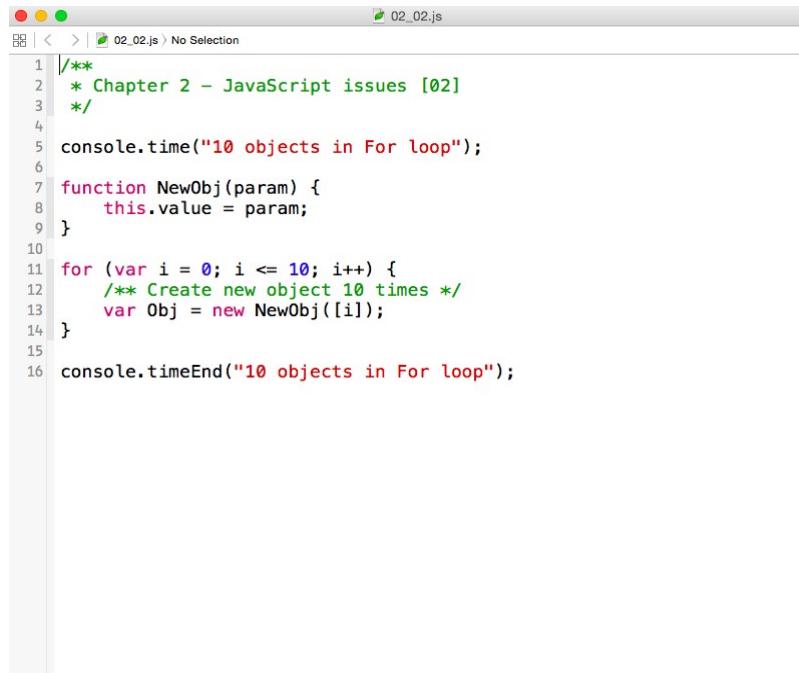


```
02_01.js
No Selection

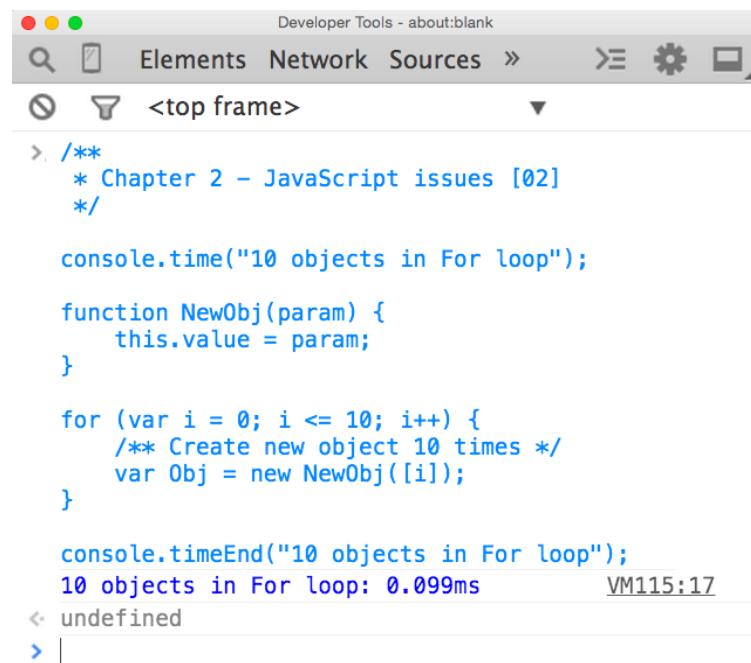
1 /**
2  * Chapter 2 - JavaScript issues [01]
3 */
4
5 console.time("100 objects in For loop");
6
7 function NewObj(param) {
8     this.value = param;
9 }
10
11 for (var i = 0; i < 100; i++) {
12     /** Create new object 100 times */
13     var Obj = new NewObj([i]);
14 }
15
16 console.timeEnd("100 objects in For loop");
```



```
Developer Tools - about:blank
Elements Network Sources >
<top frame>
> /**
 * Chapter 2 - JavaScript issues [01]
 */
console.time("100 objects in For loop");
function NewObj(param) {
    this.value = param;
}
for (var i = 0; i <= 100; i++) {
    /** Create new object 100 times */
    var Obj = new NewObj([i]);
}
console.timeEnd("100 objects in For loop");
100 objects in For loop: 0.274ms
VM104:17
<- undefined
>
```



```
02_02.js
1 /**
2  * Chapter 2 - JavaScript issues [02]
3 */
4
5 console.time("10 objects in For loop");
6
7 function NewObj(param) {
8     this.value = param;
9 }
10
11 for (var i = 0; i <= 10; i++) {
12     /** Create new object 10 times */
13     var Obj = new NewObj([i]);
14 }
15
16 console.timeEnd("10 objects in For loop");
```



```
Developer Tools - about:blank
Elements Network Sources >
< top frame >
> /**
 * Chapter 2 - JavaScript issues [02]
 */
console.time("10 objects in For loop");

function NewObj(param) {
    this.value = param;
}

for (var i = 0; i <= 10; i++) {
    /** Create new object 10 times */
    var Obj = new NewObj([i]);
}

console.timeEnd("10 objects in For loop");
10 objects in For loop: 0.099ms VM115:17
< undefined
> |
```

The screenshot shows the JSOnline website with the JSLint tool. At the top, there's a banner with a pixelated background and the text "JSLint" in large letters. To the right of the banner, there's a link to "Read the instructions." and other links like "Set the options.", "Enjoy The Good Parts.", and "Donate.". Below the banner, it says "The JavaScript Code Quality Tool" and "Edition 2014-07-08". There are two tabs: "Source" (which is selected) and "clear". Below the tabs is a text input area with the placeholder text "/\* Paste quality code here". At the bottom of the page, there's a "JSOnline" button and a "Options" section with three columns: "Assume...", "Tolerate...", and "Tolerate...".

Assume...	Tolerate...	Tolerate...
default a browser	default assignment expressions	default unfiltered for in
default CouchDB	default bitwise operators	default uncapsilized constructors
default console,alert, ...	default continue	default dangling _ in identifiers
default Node.js	default debugger statements	default ++ and --
default Rhino	default == and !=	default and [...] in /RegExp/
default Stop on first error	default eval	default unused parameters

The screenshot shows a code editor window titled "02\_03.js". The code in the editor is:

```
1 /**
2  * Chapter 2 - JavaScript issues [03]
3 */
4
5 my_count;
6
7 (function(params){
8   // TODO: Test this code.
9   console.log("Log message")
10
11   var number1 = 40;
12   var number2 = 2;
13   my_count = number1 + number2;
14
15
16   if (my_count == "42") console.log("my_count: is 42");
17
18
19 })();
```

At the bottom of the editor, there are status bars showing "Line 19 | Column 10 | JavaScript | LF (Unix) | Unicode (UTF-8) | console |".

The screenshot shows the JSLink website interface. At the top, there's a banner with a pixelated background and the text "JSLink" in large letters. Below the banner, it says "The JavaScript Code Quality Tool" and "0.007 seconds." On the right side of the banner, there are links: "Read the instructions.", "Set the options.", "Enjoy The Good Parts.", and "Donate.". Below the banner is a "Source" tab and a "clear" button. A blue-bordered text area contains the following JavaScript code:

```
/**  
 * Chapter 2 - JavaScript issues [03-01]  
 */  
  
var my_count;  
  
(function(){  
    // TODO: Test this code.  
    console.log("Log message")  
  
    var number1 = 40;  
    var number2 = 2;  
    my_count = number1 + number2;  
  
    if (my_count == "42") console.log("my_count: is 42");  
  
})();|
```

Below this is a "JSLint" button. The bottom section is titled "Errors" and has a "clear" button. It lists four errors:

- Unexpected character '(space)'. line 4 character 1
- Unexpected character '(space)'. line 6 character 1
- Expected exactly one space between 'function' and '('. line 7 character 10
- Expected exactly one space between ')' and '{'. line 7 character 12

Screenshot of the JSLint interface showing code analysis results and configuration options.

### Code Analysis Results

```
(function(){
    Use spaces, not tabs.                                     line 8 character 2
    // TODO: Test this code.

    Unexpected TODO comment.                                line 8 character 5
    // TODO: Test this code.

    Use spaces, not tabs.                                     line 9 character 2
    console.log("Log message")

    Missing 'use strict' statement.                          line 9 character 3
    console.log("Log message")

    Use spaces, not tabs.                                     line 10 character 2

    Unexpected character '''.                             line 10 character 2

    Stopping. (52% scanned).                            line 10 character 2
```

### Function Report

global	my_count	clear
'anonymous'		line 7

### Options Configuration

Assume...	Tolerate...	Tolerate...
<input type="checkbox"/> default a browser	<input type="checkbox"/> default assignment expressions	<input type="checkbox"/> default unfiltered for in
<input type="checkbox"/> default CouchDB	<input type="checkbox"/> default bitwise operators	<input type="checkbox"/> default uncapitalized constructors
<input type="checkbox"/> default console,alert, ...	<input type="checkbox"/> default continue	<input type="checkbox"/> default dangling _ in identifiers
<input type="checkbox"/> default Node.js	<input type="checkbox"/> default debugger statements	<input type="checkbox"/> default ++ and --
<input type="checkbox"/> default Rhino	<input type="checkbox"/> default == and !=	<input type="checkbox"/> default . and [...] in /RegExp/
<input type="checkbox"/> default Stop on first error	<input type="checkbox"/> default eval	<input type="checkbox"/> default unused parameters

**Tolerate** **clear options**

**Options**

[clear options](#)

Assume...		Tolerate...			
<input type="checkbox"/>	<i>default</i>	a browser	<input type="checkbox"/>	<i>default</i>	assignment expressions
<input type="checkbox"/>	<i>default</i>	CouchDB	<input type="checkbox"/>	<i>default</i>	bitwise operators
<input type="checkbox"/>	<i>default</i>	console,alert, ...	<input type="checkbox"/>	<i>default</i>	continue
<input type="checkbox"/>	<i>default</i>	Node.js	<input type="checkbox"/>	<i>default</i>	debugger statements
<input type="checkbox"/>	<i>default</i>	Rhino	<input type="checkbox"/>	<i>default</i>	$==$ and $!=$
<input type="checkbox"/>	<i>default</i>	Stop on first error	<input type="checkbox"/>	<i>default</i>	eval

Tolerate...		
<input type="checkbox"/>	<i>default</i>	<u>unfiltered</u> for in
<input type="checkbox"/>	<i>default</i>	uncapitalized constructors
<input type="checkbox"/>	<i>default</i>	dangling _ in identifiers
<input type="checkbox"/>	<i>default</i>	$++$ and $--$
<input type="checkbox"/>	<i>default</i>	. and [^...] in /RegExp/
<input type="checkbox"/>	<i>default</i>	unused parameters

Tolerate...		Indentation		
<input type="checkbox"/>	<i>default</i>	missing 'use strict' pragma	<input type="checkbox"/>	Maximum line length
<input type="checkbox"/>	<i>default</i>	stupidity	<input type="checkbox"/>	Maximum number of errors
<input type="checkbox"/>	<i>default</i>	inefficient subscripting		
<input type="checkbox"/>	<i>default</i>	TODO comments		
<input type="checkbox"/>	<i>default</i>	many var statements per function		
<input type="checkbox"/>	<i>true</i>	messy white space		

predefine global variables here

**JSLint Directive**

[select](#)

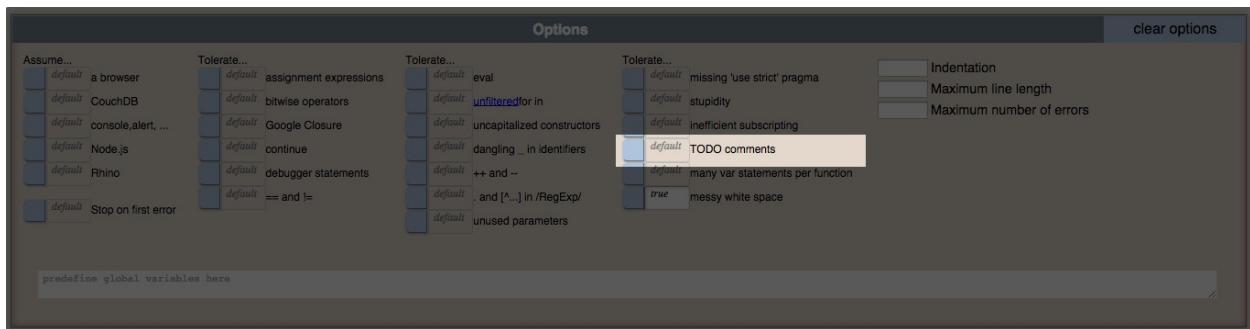
```
/*jslint white: true */
```

```
'my_count' was used before it was defined.  
my_count;  
Unexpected TODO comment.  
    // TODO: Test this code.  
Missing 'use strict' statement.  
    console.log("Log message")  
Expected ';' and instead saw 'var'.  
    console.log("Log message")  
Combine this with the previous 'var' statement.  
    var number2 = 2;  
'my_count' was used before it was defined.  
    my_count = number1 + number2;  
'my_count' was used before it was defined.  
    if (my_count == "42") console.log("my_count: is 42");  
Expected '===' and instead saw '=='.  
    if (my_count == "42") console.log("my_count: is 42");  
Expected '{' and instead saw 'console'.  
    if (my_count == "42") console.log("my_count: is 42");  
Stopping. (84% scanned).
```

02\_03\_01

02\_03\_01.js > No Selection

```
1  /**
2  * Chapter 2 - JavaScript issues [03-01]
3  */
4
5  var my_count;
6
7  (function(){
8      // TODO: Test this code.
9      console.log("Log message")
10
11     var number1 = 40;
12     var number2 = 2;
13     my_count = number1 + number2;
14
15
16     if (my_count == "42") console.log("my_count: is 42");
17
18
19 })();
```



```
Missing 'use strict' statement.

    console.log("Log message")

Expected ';' and instead saw 'var'.

    console.log("Log message")

Combine this with the previous 'var' statement.

    var number2 = 2;

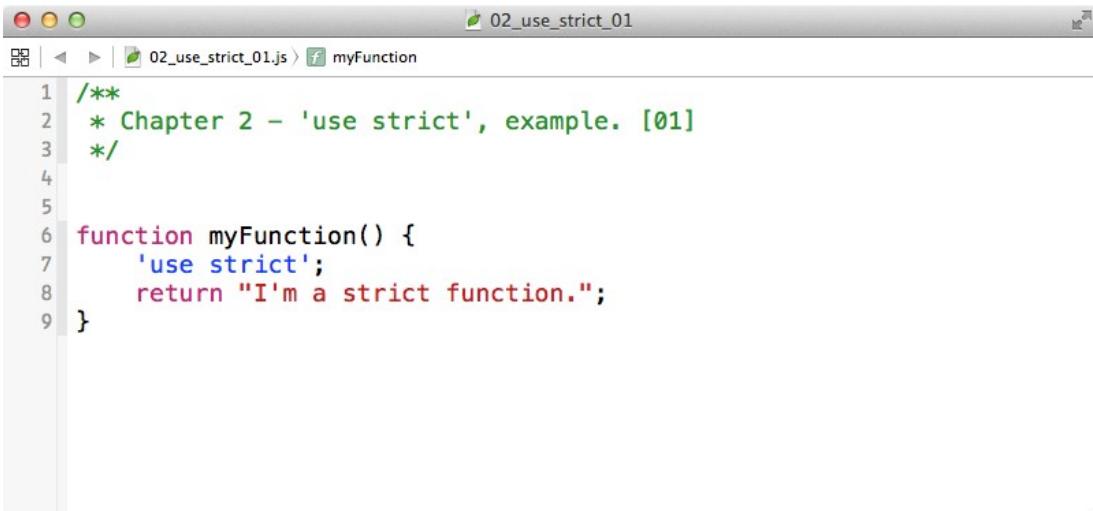
Expected '===' and instead saw '=='.

    if (my_count == "42") console.log("my_count: is 42");

Expected '{' and instead saw 'console'.

    if (my_count == "42") console.log("my_count: is 42");

Stopping. (84% scanned).
```



```
02_use_strict_01
02_use_strict_01.js myFunction

1 /**
2  * Chapter 2 – 'use strict', example. [01]
3  */
4
5
6 function myFunction() {
7     'use strict';
8     return "I'm a strict function.";
9 }
```

The screenshot shows a Mac OS X application window titled "02\_use\_strict\_02". The window contains a single line of code:

```
1  /**  
2   * Chapter 2 - 'use strict', global example. [02]  
3   */  
4  
5 "use strict";  
6 var i_am = "I'm strict globally to this JS file.;"
```

The screenshot shows a Mac OS X application window titled "02\_03\_02". The window contains a multi-line JavaScript file with several syntax errors, indicated by red highlighting:

```
1  /**  
2   * Chapter 2 - JavaScript issues [03-02]  
3   */  
4  
5 var my_count;  
6  
7 (function(){  
8     // TODO: Test this code.  
9     "use strict";  
10    console.log("Log message");  
11  
12    var number1 = 40;  
13    var number2 = 2;  
14    my_count = number1 + number2;  
15  
16    if (my_count == "42") console.log("my_count: is 42");  
17  
18  
19 }());
```



The code editor window shows a file named `02_03_03.js`. The code contains the following content:

```
1  /**
2   * Chapter 2 – JavaScript issues [03–03]
3   */
4
5 var my_count;
6
7 (function(){
8 // TODO: Test this code.
9 "use strict";
10 console.log("Log message");
11
12 my_count = 42;
13
14 if (my_count === "42") {
15 console.log("my_count: is 42");
16 }
17
18 })();

```

The screenshot shows the JS Lint interface. At the top, there's a decorative background image of a brown and tan textured surface. The title "JS Lint" is prominently displayed in large white letters. Below the title, the subtitle "The JavaScript Code Quality Tool" is shown in smaller white text. To the right of the title, there's a call-to-action area with links: "Read the instructions.", "Set the options.", "Enjoy *The Good Parts.*", and "Donate.".

Below the title area, a status message "0 seconds." is displayed. The main workspace is divided into two tabs: "Source" (selected) and "clear". The "Source" tab contains the following JavaScript code:

```
/**  
 * Chapter 2 - JavaScript issues [03-04]  
 */  
  
var my_count;  
  
(function(){  
    // TODO: Test this code.  
    "use strict";  
    console.log("Log message");  
  
    my_count = 42;  
  
    if (my_count === "42") {  
        console.log("my_count: is 42");  
    }  
})();
```

Below the "Source" tab is a blue button labeled "JSLint".

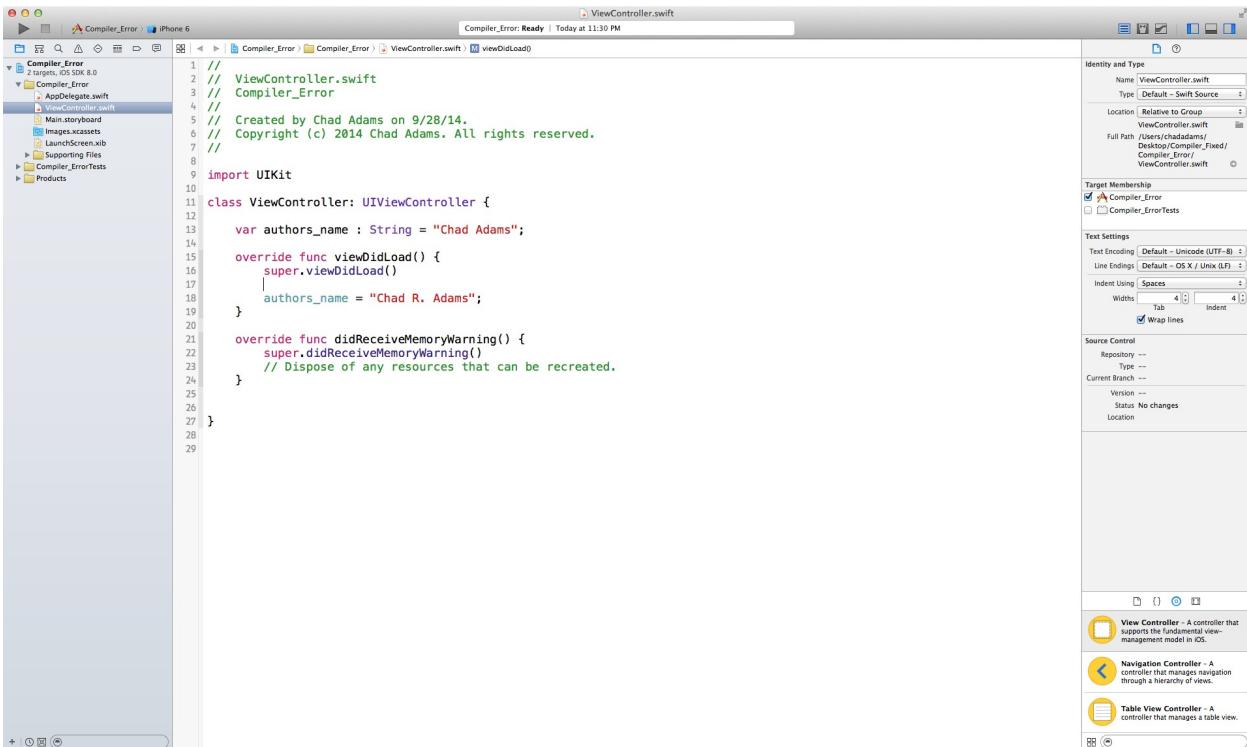
The "Function Report" tab is also present, showing the following output:

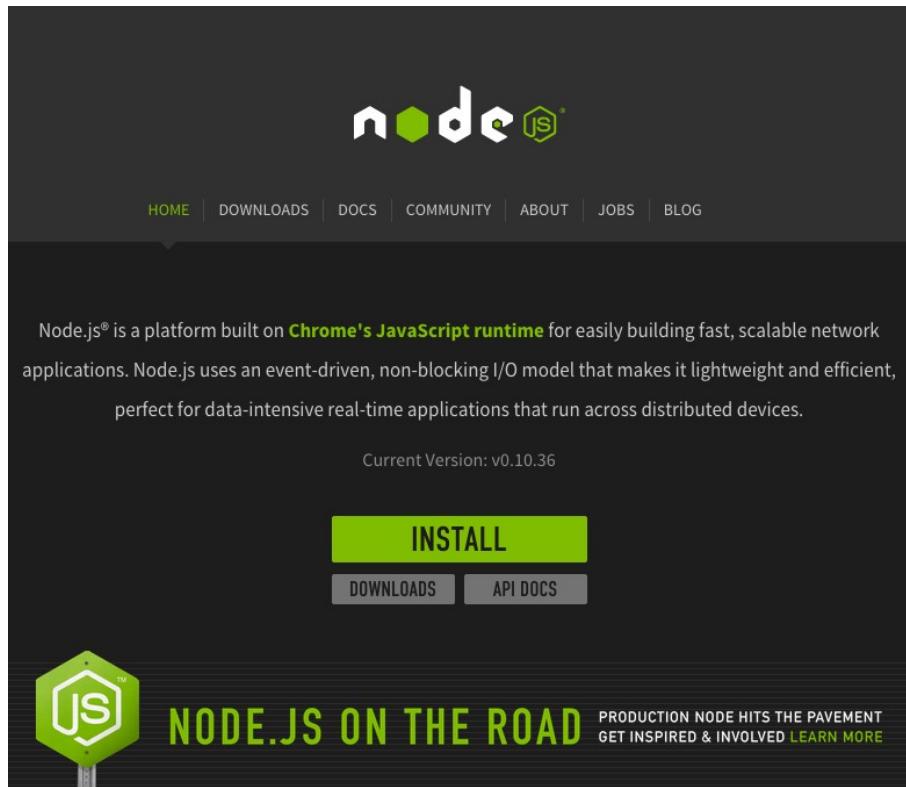
```
global  
    console, my_count  
  
'anonymous'  
    global  
        console, my_count
```

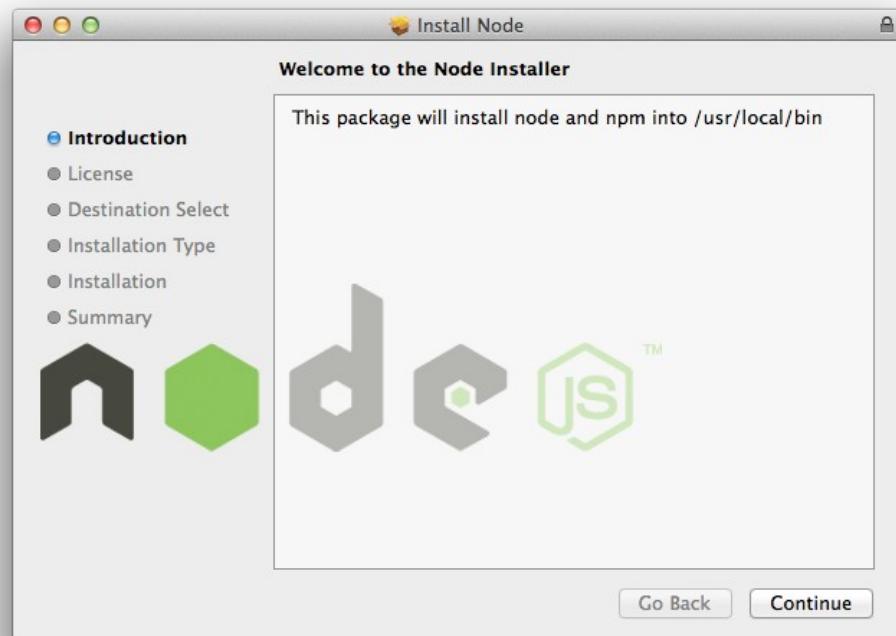
A yellow highlight covers the line "global  
 console, my\_count" under the anonymous function, with the text "line 7" to its right.

# Chapter 3

```
1 // ViewController.swift
2 // Compiler_Error
3 //
4 //
5 // Created by Chad Adams on 9/28/14.
6 // Copyright (c) 2014 Chad Adams. All rights reserved.
7 //
8
9 import UIKit
10
11 class ViewController: UIViewController {
12
13     //Assign a name to a constant variable, (which cannot be changed).
14     let authors_name : String = "Chad Adams";
15
16     override func viewDidLoad() {
17         super.viewDidLoad()
18
19         //Here we have an error, our compiler complains that we can't change the name of "authors_name"
20         authors_name = "Chad R. Adams"; Cannot assign to 'authors_name' in 'self'
21     }
22
23     override func didReceiveMemoryWarning() {
24         super.didReceiveMemoryWarning()
25         // Dispose of any resources that can be recreated.
26     }
27
28
29 }
30
31 }
```







The screenshot shows a terminal window titled 'Desktop – bash – 80x24'. The window title bar includes the text 'Chads-Air-2:Desktop chad\$'. Inside the terminal, the command 'node --version' is entered and its output is displayed: 'v0.10.24'. The terminal window has the standard OS X look with red, yellow, and green close buttons at the top left.

```
Chads-Air-2:Desktop chad$ node --version
v0.10.24
```

```
Chads-Air-2:Desktop chad$ node --version
v0.10.32
Chads-Air-2:Desktop chad$
```

npm HOME

API

BLOG

NODEJS

JOB

WHO'S HIRING

UBER

+ 13 MORE...

npm Enterprise

Try the on-premises solution for private npm.

# Node Packaged Modules

Total Packages: 97 191

8 935 745 downloads in the last day  
129 991 895 downloads in the last week  
493 606 828 downloads in the last month

Patches welcome!

Any package can be installed by using `npm install`.

Add your programs to this index by using `npm publish`.

## Recently Updated

- 3m `data-collection`
- 3m `cli-system`
- 6m `wamp-tessel`
- 7m `author-regex`
- 9m `docker-stream-cleanser`
- 9m `cli-mid-logger`
- 10m `gulp-sharp`

## Most Depended Upon

- 7178 `underscore`
- 6618 `async`
- 5757 `request`
- 5179 `lodash`
- 3726 `commander`
- 3639 `express`
- 2724 `optimist`

```
Desktop - bash - 80x47
star, stars, start, stop, submodule, t, tag, test, tst, un,
uninstall, unlink, unpublish, unstar, up, update, v,
version, view, whoami

npm <cmd> -h      quick help on <cmd>
npm -l           display full usage info
npm faq         commonly asked questions
npm help <term>  search for help on <term>
npm help npm    involved overview

Specify configs in the ini-formatted file:
  /Users/chad/.npmrc
or on the command line via: npm <command> --key value
Config info can be viewed via: npm help config

npm@1.4.28 /usr/local/lib/node_modules/npm
Chads-Air-2:Desktop chad$ clear

Chads-Air-2:Desktop chad$ npm

Usage: npm <command>

where <command> is one of:
  add-user, adduser, apihelp, author, bin, bugs, c, cache,
  completion, config, ddp, dedupe, deprecate, docs, edit,
  explore, faq, find, find-dupes, get, help, help-search,
  home, i, info, init, install, isntall, issues, la, link,
  list, ll, ln, login, ls, outdated, owner, pack, prefix,
  prune, publish, r, rb, rebuild, remove, repo, restart, rm,
  root, run-script, s, se, search, set, show, shrinkwrap,
  star, stars, start, stop, submodule, t, tag, test, tst, un,
  uninstall, unlink, unpublish, unstar, up, update, v,
  version, view, whoami

npm <cmd> -h      quick help on <cmd>
npm -l           display full usage info
npm faq         commonly asked questions
npm help <term>  search for help on <term>
npm help npm    involved overview

Specify configs in the ini-formatted file:
  /Users/chad/.npmrc
or on the command line via: npm <command> --key value
Config info can be viewed via: npm help config

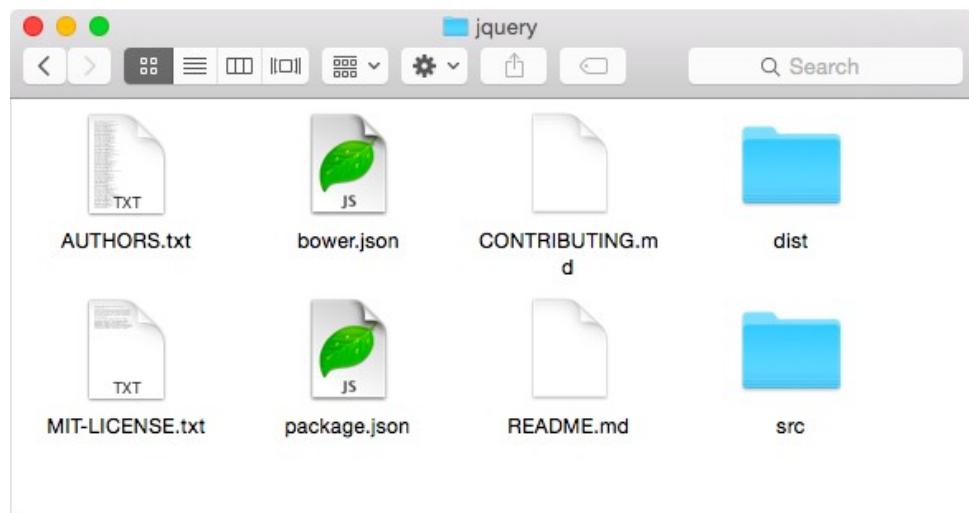
npm@1.4.28 /usr/local/lib/node_modules/npm
Chads-Air-2:Desktop chad$
```

The screenshot shows the npmjs.org website with the URL <https://www.npmjs.org/package/jquery>. The page displays the jQuery package details. On the left, there's a sidebar with links to HOME, API, BLOG, NODEJS, and JOBS. The main content area features the npm logo, a search bar, and a 'Create Account | Login' button. The package name 'jquery' is prominently displayed with a star icon. Below it, a brief description states 'JavaScript library for DOM operations'. A command line interface (CLI) section shows the command '\$ npm install jquery'. A note encourages users to 'Want to see pretty graphs? Log in now!'. Below this, download statistics are listed: 4 158 downloads in the last day, 24 171 downloads in the last week, and 101 521 downloads in the last month. The 'Last Published By' section shows a profile picture of dmethvin. The 'Maintainers' section lists four profiles: dmethvin, scott.gonzalez, m\_gol, and timmywil. At the bottom, the 'Version' is listed as 2.1.1, with a note indicating it was last updated 5 months ago.

The screenshot shows a macOS terminal window titled 'npm\_01 – bash – 80x10'. The session starts with the user 'chad\$' at the prompt. The user runs 'clear' to clear the screen. Then, they navigate to their Downloads directory with 'cd /Users/chad/Downloads/Chapter\_03\_72960S/Exercise\_Files/03/npm\_01'. Finally, they run the command 'npm install jquery', which installs the package. The output shows the package being added to the node\_modules directory: 'jquery@2.1.1 node\_modules/jquery'. The user then exits the terminal with 'chad\$'.

```
Chads-Air-2:Desktop chad$ [Restored]
Last login: Mon Sep 29 19:50:57 on ttys000
Chads-Air-2:Desktop chad$ clear

Chads-Air-2:Desktop chad$ cd /Users/chad/Downloads/Chapter_03_72960S/Exercise_Files/03/npm_01
Chads-Air-2:npm_01 chad$ npm install jquery
jquery@2.1.1 node_modules/jquery
Chads-Air-2:npm_01 chad$
```



A screenshot of a web browser displaying the 'Plugins' section of the Grunt.js website ([gruntjs.com/plugins](http://gruntjs.com/plugins)). The page features a large Grunt logo (a yellow bull's head) and the word 'GRUNT' in bold capital letters. The main heading is 'Plugins'.

This plugin listing is automatically generated from the npm module database. Officially maintained "contrib" plugins are marked with a star ★ icon.

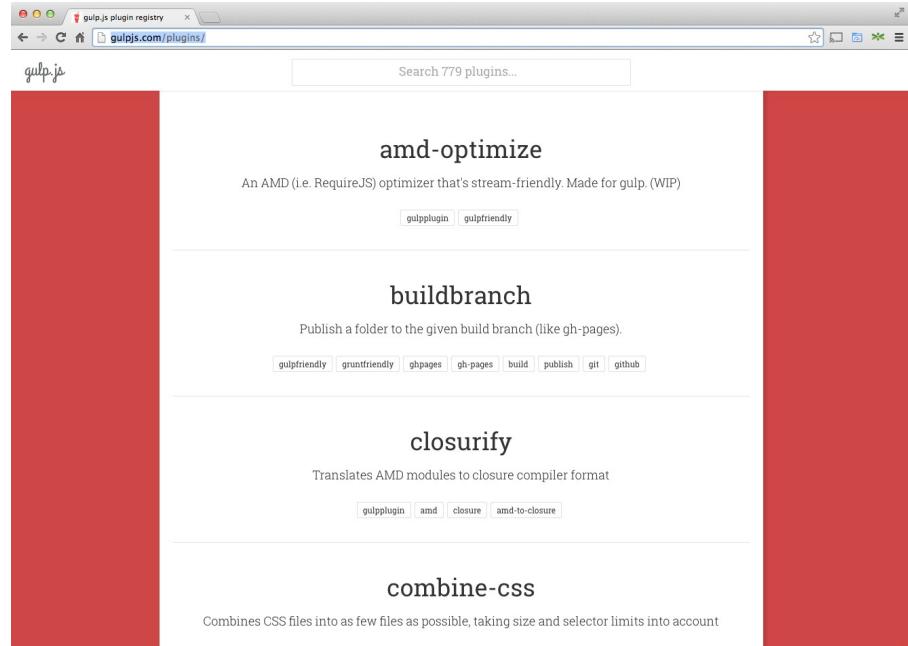
In order for a Grunt plugin to be listed here, it must be published on [npm](#) with the `gruntplugin` keyword. Additionally, we recommend that you use the `gruntplugin grunt-init template` when creating a Grunt plugin.

Showing 1 to 100 of 3,453 entries

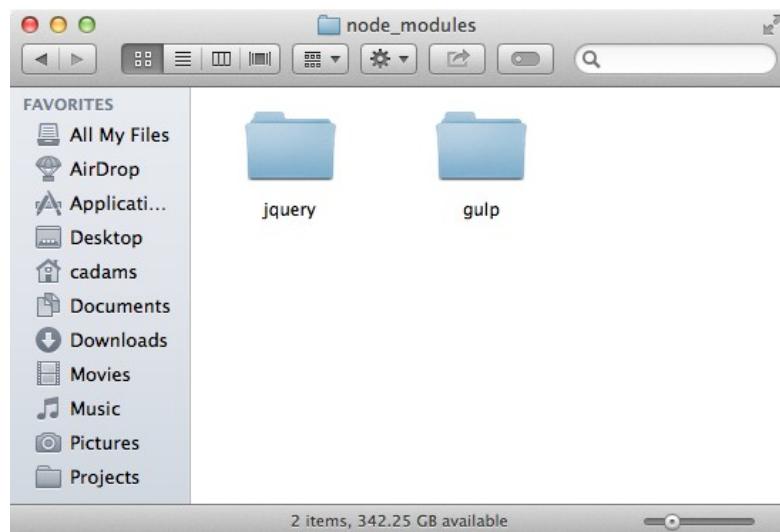
Plugin	Updated	Grunt Version	Downloads
★ <a href="#">contrib-jshint</a> by Grunt Team Validate files with JSHint.	6 months ago	~0.4.0	517947
★ <a href="#">contrib-watch</a> by Grunt Team Run predefined tasks whenever watched file patterns are added, changed or deleted.	3 months ago	~0.4.0	499286
★ <a href="#">contrib-uglify</a> by Grunt Team Minify files with UglifyJS.	2 months ago	~0.4.0	436622

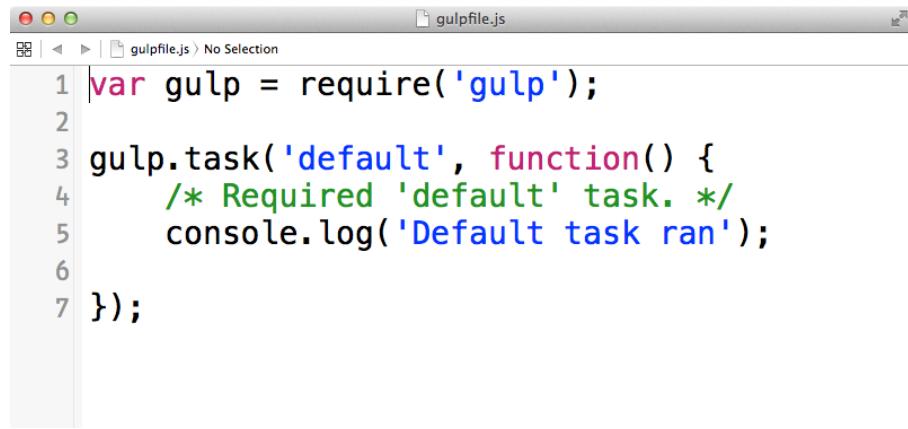
Ads by [Bocoup](#).

BackboneConf: The conference for cross-browser JavaScript applications, Dec. 15 & 16 in Cambridge, MA. Unlimited Popcorn!



```
cadams — bash — 94x45
npm http 304 https://registry.npmjs.org/lodash._escapehtmlchar
npm http 304 https://registry.npmjs.org/lodash._reunescapehtml
npm http 304 https://registry.npmjs.org/lodash.isobject
npm http 304 https://registry.npmjs.org/lodash._isnative
npm http GET https://registry.npmjs.org/string_decoder
npm http GET https://registry.npmjs.org/core-util-is
npm http GET https://registry.npmjs.org/isarray/0.0.1
npm http GET https://registry.npmjs.org/inherits
npm http 304 https://registry.npmjs.org/lodash._objecttypes
npm http 304 https://registry.npmjs.org/globule
npm http 304 https://registry.npmjs.org/lodash._shimkeys
npm http 304 https://registry.npmjs.org/inherits
npm http GET https://registry.npmjs.org/lru-cache
npm http GET https://registry.npmjs.org/sigmund
npm http GET https://registry.npmjs.org/lodash._htmlescapes
npm http 304 https://registry.npmjs.org/string_decoder
npm http 304 https://registry.npmjs.org/core-util-is
npm http 304 https://registry.npmjs.org/lru-cache
npm http 304 https://registry.npmjs.org/lodash._htmlescapes
npm http 304 https://registry.npmjs.org/sigmund
npm http 304 https://registry.npmjs.org/isarray/0.0.1
npm http GET https://registry.npmjs.org/findup-sync
npm http GET https://registry.npmjs.org/resolve
npm http GET https://registry.npmjs.org/extend
npm http 304 https://registry.npmjs.org/findup-sync
npm http 304 https://registry.npmjs.org/extend
npm http 304 https://registry.npmjs.org/resolve
gulp@3.0.8 /usr/local/lib/node_modules/gulp/bin/gulp.js
gulp@3.0.8 /usr/local/lib/node_modules/gulp
  └── interpret@0.3.7
    ├── pretty-hrtime@0.2.1
    ├── deprecated@0.0.1
    ├── archy@0.0.2
    ├── minimist@1.1.0
    ├── semver@3.0.1
    ├── tildify@1.0.0 (user-home@1.0.0)
    ├── chalk@0.5.1 (escape-string-regexp@1.0.2, ansi-styles@1.1.0, supports-color@0.2.0, strip-an
      si@0.3.0, has-ansi@0.1.0)
    ├── orchestrator@0.3.7 (stream-consume@0.1.0, sequencify@0.0.7, end-of-stream@0.1.5)
    ├── gulp-util@3.0.1 (lodash._reinterpolate@2.4.1, dateformat@1.0.8, vinyl@0.4.3, lodash.templa
      te@2.4.1, through2@0.6.2, lodash@2.4.1, multipipe@0.1.1)
    ├── vinyl-fs@0.3.8 (graceful-fs@3.0.2, strip-bom@1.0.0, mkdirp@0.5.0, vinyl@0.4.3, through2@0.
      6.2, glob-watcher@0.0.6, lodash@2.4.1, glob-stream@3.1.15)
    └── liftoff@0.12.1 (extend@1.3.0, minimist@0.2.0, resolve@0.7.4, findup-sync@0.1.3)
chadams:~ cadams$
```





A screenshot of a Mac OS X TextEdit window titled "gulpfile.js". The window contains the following code:

```
1 var gulp = require('gulp');
2
3 gulp.task('default', function() {
4     /* Required 'default' task. */
5     console.log('Default task ran');
6
7});
```



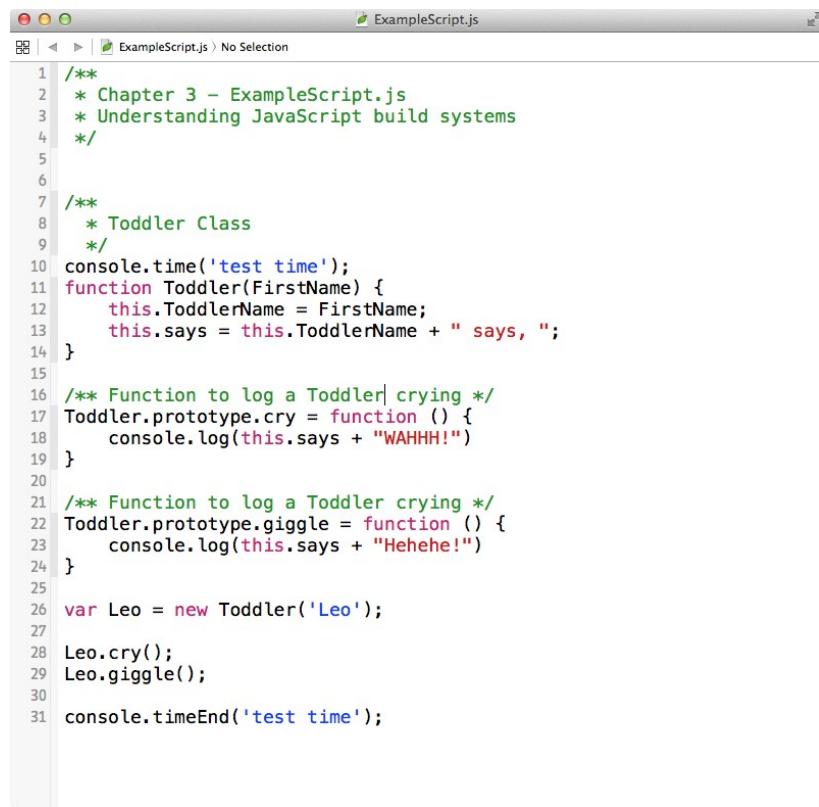
```
chadadams:npm_01 cadams$ gulp
[16:36:18] Using gulpfile ~/Desktop/Chapter_03_72960S/Exercise_Files/03/npm_01/gulpfile.js
[16:36:18] Starting 'default'...
Default task ran
[16:36:18] Finished 'default' after 89 µs
chadadams:npm_01 cadams$
```

The screenshot shows the npmjs.org website with the URL <https://www.npmjs.org/package/gulp-jslint>. The page displays information about the **gulp-jslint** package. Key details include:

- Version:** 0.1.7 (last updated a month ago)
- License:** MIT
- Keywords:** gulp, gulpplugin, jslint, lint, code quality
- Repository:** <git://github.com/karimza/gulp-jslint.git>
- Homepage:** <https://github.com/karimza/gulp-jslint>
- Bugs:** <https://github.com/karimza/gulp-jslint/issues>
- Dependencies:** colors, event-stream, gulp-util, jslint
- Starred by:** lofjuupasli, jcreigno, renatobalbino

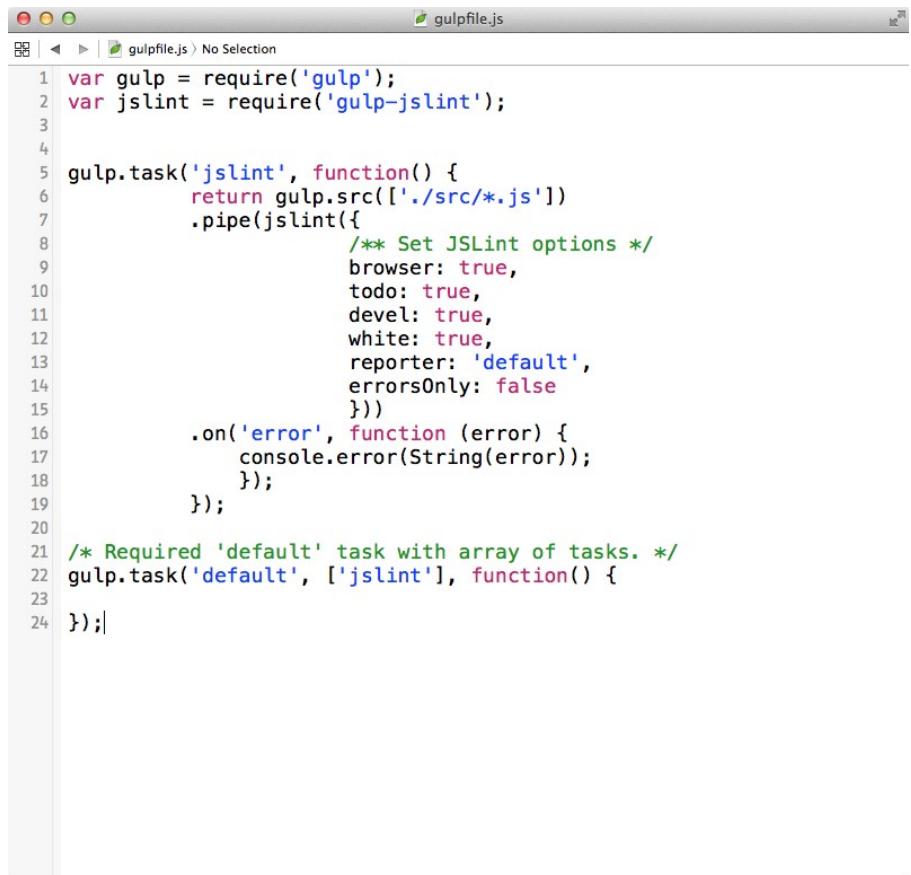
At the bottom, there are links for "Read Me", "Build: passing", "Downloads: 1k/month", "Code Climate: 4.0", and "Coverage: 100%".





A screenshot of a code editor window titled "ExampleScript.js". The window shows a single file with 31 numbered lines of JavaScript code. The code defines a "Toddler" class with methods for crying and giggling, and it uses console.time and console.timeEnd for timing tests.

```
1  /**
2   * Chapter 3 - ExampleScript.js
3   * Understanding JavaScript build systems
4   */
5
6
7  /**
8   * Toddler Class
9   */
10 console.time('test time');
11 function Toddler(FirstName) {
12     this.ToddlerName = FirstName;
13     this.says = this.ToddlerName + " says, ";
14 }
15
16 /** Function to log a Toddler crying */
17 Toddler.prototype.cry = function () {
18     console.log(this.says + "WAHHH!")
19 }
20
21 /** Function to log a Toddler giggling */
22 Toddler.prototype.giggle = function () {
23     console.log(this.says + "Hehehe!")
24 }
25
26 var Leo = new Toddler('Leo');
27
28 Leo.cry();
29 Leo.giggle();
30
31 console.timeEnd('test time');
```



A screenshot of a code editor window titled "gulpfile.js". The window shows a single file named "gulpfile.js" with the content:

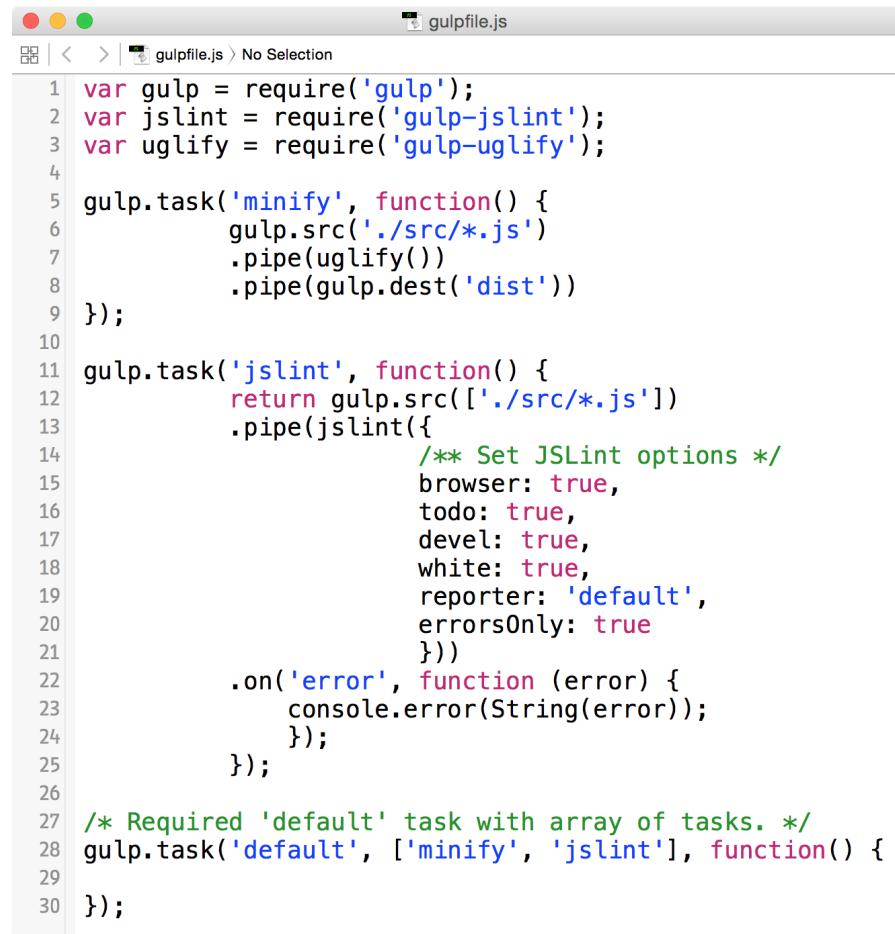
```
1 var gulp = require('gulp');
2 var jslint = require('gulp-jslint');
3
4
5 gulp.task('jslint', function() {
6     return gulp.src(['./src/*.js'])
7         .pipe(jslint({
8             /** Set JSLint options */
9             browser: true,
10            todo: true,
11            devel: true,
12            white: true,
13            reporter: 'default',
14            errorsOnly: false
15        }))
16        .on('error', function (error) {
17            console.error(String(error));
18        });
19    });
20
21 /* Required 'default' task with array of tasks. */
22 gulp.task('default', ['jslint'], function() {
23
24});
```

A screenshot of a code editor window titled "gulpfile.js". The code is written in JavaScript and defines a Gulp task named "jslint". The task uses the "gulp-jshint" plugin to lint files in the "src" directory. It sets JSLint options like browser support, todo, devel, white, reporter, and errorsOnly. An error event listener is attached to the task to log errors to the console. A default task is also defined, which runs the "jslint" task.

```
1 var gulp = require('gulp');
2 var jslint = require('gulp-jslint');
3
4
5 gulp.task('jslint', function() {
6     return gulp.src(['./src/*.js'])
7         .pipe(jslint({
8             /** Set JSLint options */
9             browser: true,
10            todo: true,
11            devel: true,
12            white: true,
13            reporter: 'default',
14            errorsOnly: false
15        }))
16        .on('error', function (error) {
17            console.error(String(error));
18        });
19    });
20
21 /* Required 'default' task with array of tasks. */
22 gulp.task('default', ['jslint'], function() {
23
24});
```

A screenshot of a terminal window titled "npm\_02 — bash — 80x24". The user runs the command "gulp" from the directory "/Users/chadadams/Desktop/Chapter\_03\_72960S/Exercise\_Files/03/npm\_02/gulpfile.js". The output shows the task starting, linting the "src/ExampleScript.js" file, and finding several errors: missing 'use strict' statements at lines 12:2, 18:5, and 18:38, and an unexpected character at line 22:1. An error message is displayed for the "gulp-jshint" plugin. The terminal then exits with a status of 1.

```
chads-imac:npm_02 chadadams$ gulp
[23:26:11] Using gulpfile ~/Desktop/Chapter_03_72960S/Exercise_Files/03/npm_02/gulpfile.js
[23:26:11] Starting 'jslint'...
[23:26:11]     src/ExampleScript.js
12:2: Missing 'use strict' statement.
18:5: Missing 'use strict' statement.
18:38: Expected ';' and instead saw '}'.
22:1: Unexpected 'Toddler'.
22:1: Stopping. (70% scanned).
Error in plugin 'gulp-jshint'
Message:
  failed to lint /Users/chadadams/Desktop/Chapter_03_72960S/Exercise_Files/03/npm_02/src/ExampleScript.js
[23:26:11] 'jslint' errored after 28 ms
[23:26:11] Error in plugin 'gulp-jshint'
Message:
  failed to lint /Users/chadadams/Desktop/Chapter_03_72960S/Exercise_Files/03/npm_02/src/ExampleScript.js
chads-imac:npm_02 chadadams$
```



```
gulpfile.js > No Selection
1 var gulp = require('gulp');
2 var jslint = require('gulp-jslint');
3 var uglify = require('gulp-uglify');
4
5 gulp.task('minify', function() {
6     gulp.src('./src/*.js')
7         .pipe(uglify())
8         .pipe(gulp.dest('dist'))
9 });
10
11 gulp.task('jslint', function() {
12     return gulp.src(['./src/*.js'])
13     .pipe(jslint({
14         /** Set JSLint options */
15         browser: true,
16         todo: true,
17         devel: true,
18         white: true,
19         reporter: 'default',
20         errorsOnly: true
21     }))
22     .on('error', function (error) {
23         console.error(String(error));
24     });
25 });
26
27 /* Required 'default' task with array of tasks. */
28 gulp.task('default', ['minify', 'jslint'], function() {
29 });
30 }
```

```
cadams-mac:npm_03 cadams$ gulp
[22:26:31] Using gulpfile ~/Desktop/03/npm_03/gulpfile.js
[22:26:31] Starting 'minify'...
[22:26:31] Finished 'minify' after 3.94 ms
[22:26:31] Starting 'jslint'...
[22:26:31] Finished 'jslint' after 36 ms
[22:26:31] Starting 'default'...
[22:26:31] Finished 'default' after 3.92 µs
cadams-mac:npm_03 cadams$
```

# Chapter 4

The screenshot shows a Mac desktop with a Safari browser window open to the Apple Developer website's "Safari for Developers" tools page. The browser's title bar reads "Safari for Developers - Tools". The main content area features the heading "Safari for Developers" and the subtext "Leading performance. Great developer tools. And a powerful new way to keep users engaged with your website." Below this are navigation links for "What's New", "Tools", "Features", and "Dev Center". A large section titled "Web Development Tools" discusses how Apple has brought its expertise from OS X and iOS development tools to the web, mentioning the Web Inspector tool. To the right of this text is a screenshot of a Mac desktop showing the "Web Inspector" tool running in the background. On the left, a screenshot of an iPad displays the "Advanced" settings screen, specifically the "Web Inspector" toggle, which is turned on. The Mac desktop also shows a Dock with various application icons.

The screenshot shows the Mozilla Developer Network (MDN) website with a blue header. The title bar says "Firefox Developer Tools | MDN". The URL in the address bar is "Mozilla Corporation [US] https://developer.mozilla.org/en-US/docs/Tools". A banner at the top asks for developer services usage input. The main content area is titled "Firefox Developer Tools" and features a sidebar with sections like "CREATING", "DEBUGGING", and "MOBILE". A large callout box highlights the "DEBUGGING" section with the text: "Examine, edit, and debug HTML, CSS, and JavaScript on the desktop and on mobile". At the bottom left, a message says "Waiting for beacon-3.newrelic.com...".

The screenshot shows the Microsoft Internet Explorer Dev Center website. The title bar says "Using the F12 developer tools" and the URL is "msdn.microsoft.com/en-us/library/ie/bg182326(v=vs.85).aspx". The main content area is titled "Using the F12 developer tools". On the left, there's a sidebar with links like "Using the F12 developer tools in IE11", "DOM Explorer", "Console", "Debugger", "Network", "UI Responsiveness", "Profiler", "Memory", "Emulation", and "Keyboard shortcuts". The main content area includes text about using the F12 tools for debugging and speeding up pages, and lists troubleshooting steps for missing menus and toolbars.

Using the F12 developer tools in IE11

- DOM Explorer
- Console
- Debugger
- Network
- UI Responsiveness
- Profiler
- Memory
- Emulation
- Keyboard shortcuts

Using the F12 developer tools, you can debug, test, and speed up your webpages. Whether you need to fine tune your CSS layout or find a memory leak, you'll find tools to help here.

If you're looking for the **Tools** menu or toolbars in Internet Explorer 11, try:

- ["The menu bar and the toolbar are missing in Internet Explorer."](#)

If you got here by clicking an error message and simply want to avoid error messages in the future, try:

- [What should you do about Internet Explorer script errors?](#)
- [Question: I cannot turn off the automatic script debugger under explorer options.](#)

### The F12 tools at work

We rebuilt the F12 tools from the ground up in IE11. They have a brand new UI and new functionality to make your developing and debugging faster and easier. And we're going to be rolling out more improvements in updates.



chrome

DOWNLOAD ▾

SET UP ▾

CHROMEBOOKS ▾

CHROMECAST ▾

## Get on the bleeding edge of the web

Google Chrome Canary has the newest of the new Chrome features.

Be forewarned: it's designed for developers and early adopters, and can sometimes break down completely.

[Download Chrome Canary](#)

For Mac OS X 10.6 or later

You can also download Chrome for [Windows 32-bit](#), [Windows 64-bit](#).



chrome

DEVTOOLS ▾

MULTI-DEVICE ▾

PLATFORM ▾

Q

## Chrome DevTools Overview

The Chrome Developer Tools (DevTools for short), are a set of web authoring and debugging tools built into Google Chrome. The DevTools provide web developers deep access into the internals of the browser and their web application. Use the DevTools to efficiently track down layout issues, set JavaScript breakpoints, and get insights for code optimization.

**Note:** If you are a web developer and want to get the latest version of DevTools, you should use [Google Chrome Canary](#).

### Accessing the DevTools

To access the DevTools, open a web page or web app in Google Chrome. Either:

- Select the **Chrome menu** ☰ at the top-right of your browser window, then select **Tools > Developer Tools**.
- Right-click on any page element and select **Inspect Element**.

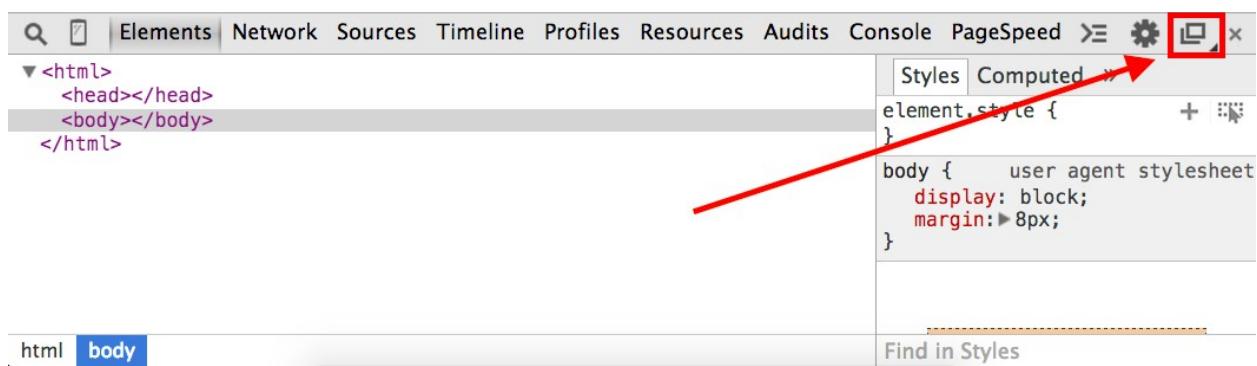
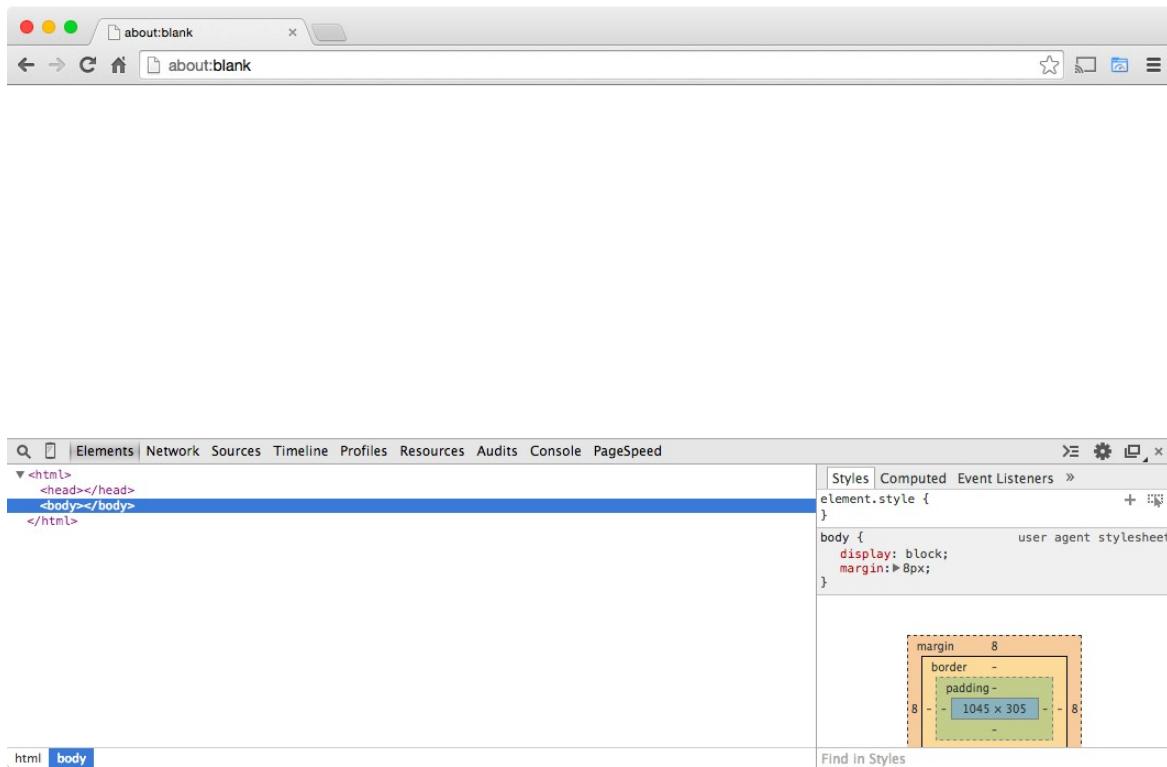
The DevTools window will open at the bottom of your Chrome browser.

#### Contents

- [Accessing the DevTools](#)
- [The DevTools window](#)
- [Inspecting the DOM and styles](#)
- [Working with the Console](#)
- [Debugging JavaScript](#)
- [Improving network performance](#)
- [Audits](#)
- [Improving rendering performance](#)
- [JavaScript CSS performance](#)
- [Inspecting storage](#)
- [Further reading](#)
- [Further resources](#)

+

[Send Feedback](#)



Developer Tools - about:blank

Elements Network Sources Timeline Profiles Resources Audits Console >   

<html>  
  <head></head>  
  <body></body>  
</html>

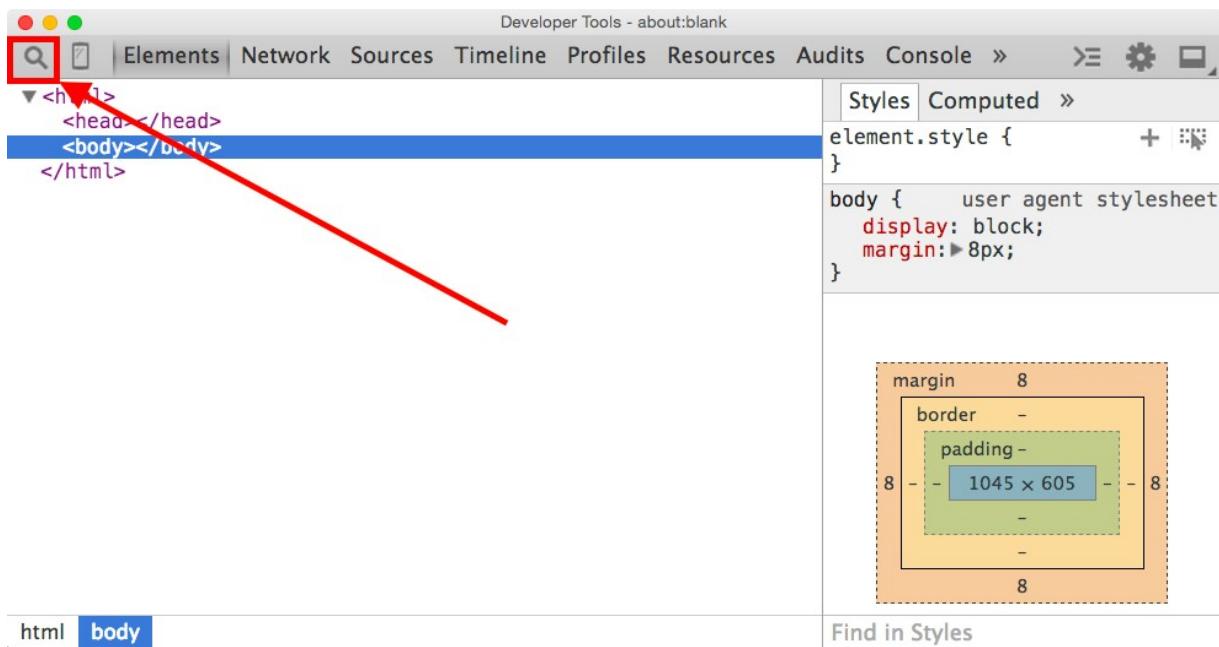
Styles Computed »

```
element.style { }  
body { user agent stylesheet  
display: block;  
margin: 8px; }
```

margin 8  
border -  
padding -  
1045 x 605 -  
-  
-  
-  
8

Find in Styles

html body



Developer Tools - about:blank

Elements Network Sources Timeline Profiles Resources Audits Console PageSpeed

      Preserve log  Disable cache

Name Path	Method	Status Text	Type	Initiator	Size Content	Time Latency	Timeline

⚠ No requests captured. Reload the page to see detailed information on the network activity.



Screenshot of the Packt Publishing website (<https://www.packtpub.com>) showing the PacktLib service. The page features a teal header with the Packt logo, navigation links for Books & Videos, Blog, Packt, Support, and a search bar. Below the header is a promotional section for PacktLib, featuring a laptop displaying a video player interface and a smartphone/iPad showing a book page. The main content area includes links to 'Subscribe to PacktLib', 'Deal of the Day', and 'Explore the Blog'. At the bottom, a screenshot of the Chrome DevTools Network tab shows a list of 41 requests transferred in 15.00 s, with a total load time of 1.47 s and DOMContentLoaded at 1.17 s.

Name	Method	Status	Type	Initiator	Size	Time	Timeline
vRvZYIuagOuHbBTT1SNevvDin...	GET	200	application	6832a7b24bc06...	21.6 KB	286 ms	
sprite-fixed.png	GET	304	image/...	6832a7b24bc06...	286 B	511 ms	
0ihfxUL2emPh0ROjezvraLO3LdcA...	GET	200	application	6832a7b24bc06...	23.5 KB	512 ms	
_ajTyevf54tkV0Ly-dlnLO3LdcAZY...	GET	200	application	6832a7b24bc06...	21.1 KB	512 ms	
kbP_6ONYVgE-bLa9ZRbwnYhjbSp...	GET	200	application	6832a7b24bc06...	21.7 KB	510 ms	
subscribe-bg.png	GET	304	image/...	6832a7b24bc06...	416 B	75 ms	
packt-subscribe-icons-smv4.png	GET	304	image/...	6832a7b24bc06...	418 B	75 ms	
3285OS_MEAN%20Web%20Develo...	GET	304	image/j...	www.packtpub.c...	416 B	82 ms	
0246OS_Practical%20Data%20Sci...	GET	304	image/j...	www.packtpub.c...	416 B	87 ms	
9046OT_Learning%20Example.jpg	GET	304	image/j...	www.packtpub.c...	417 B	85 ms	
9589OT_Delphi%20XE6%20Cookbo...	GET	304	image/j...	www.packtpub.c...	416 B	82 ms	
icon-blog-normal.png	GET	304	image/...	www.packtpub.c...	416 B	77 ms	
icon-blog-overlay.png	GET	304	image/...	www.packtpub.c...	416 B	76 ms	
6924OS_Getting.jpg	GET	304	image/j...	www.packtpub.c...	417 B	81 ms	
6040OS_BeagleBone%20for%20Se...	GET	304	image/j...	www.packtpub.c...	417 B	83 ms	
7164OS_Learning%20Neo4j_Cover...	GET	304	image/j...	www.packtpub.c...	417 B	81 ms	
0086OS_AngularJS%20Essentials...	GET	304	image/j...	www.packtpub.c...	417 B	81 ms	
6270OS_Mastering%20D3.jpg	GET	304	image/j...	www.packtpub.c...	417 B	78 ms	
4818OS_%20python%20Interactive...	GET	304	image/j...	www.packtpub.c...	416 B	75 ms	
dotd-bg2.png	GET	304	image/...	6832a7b24bc06...	416 B	74 ms	
blog_0.png	GET	304	image/...	6832a7b24bc06...	417 B	298 ms	
home-block-dotd.png	GET	304	image/...	6832a7b24bc06...	417 B	297 ms	
homepage-blog-hero-block_0.png	GET	304	image/...	6832a7b24bc06...	417 B	294 ms	
ecommerce.js	GET	304	text/jav...	analytics.js:4	50 B	244 ms	
collect?v=1&v=j29&a=20327151...	GET	200	image/gif	www.packtpub.c...	73 B	239 ms	
collect?v=1&v=j29&a=20327151...	GET	200	image/gif	Other	67 B	53 ms	
Osj2Djd0jqFRVUsto6IfL03LdcAZY...	GET	200	application	6832a7b24bc06...	21.8 KB	306 ms	
hand-dotd_0.png	GET	200	image/...	6832a7b24bc06...	(from ca...)	0 ms	
blog-banner.png	GET	200	image/...	6832a7b24bc06...	(from ca...)	0 ms	

41 requests | 131 KB transferred | 15.00 s (load: 1.47 s, DOMContentLoaded: 1.17 s)

Screenshot of a web browser showing the Packt Publishing website (<https://www.packtpub.com>) with developer tools open.

The browser header includes:

- Packt Publishing logo
- Books & Videos, Blog, Support navigation links
- Search icon
- Cart icon
- Language: US\$, Login, Register buttons

The main content area features a teal banner with the text "PacktLib" and "Enjoy full and instant access to over 2000 books and videos -". Below the banner is a screenshot of a desktop environment with multiple windows open, including a terminal window.

The developer tools Network tab shows the following request details:

**Request URL:** <https://ddsgbyg0mp3h.cloudfront.net/sites/default/files/blog-banner.png>

**Status Code:** 200 OK (from cache)

**Request Headers:**

```

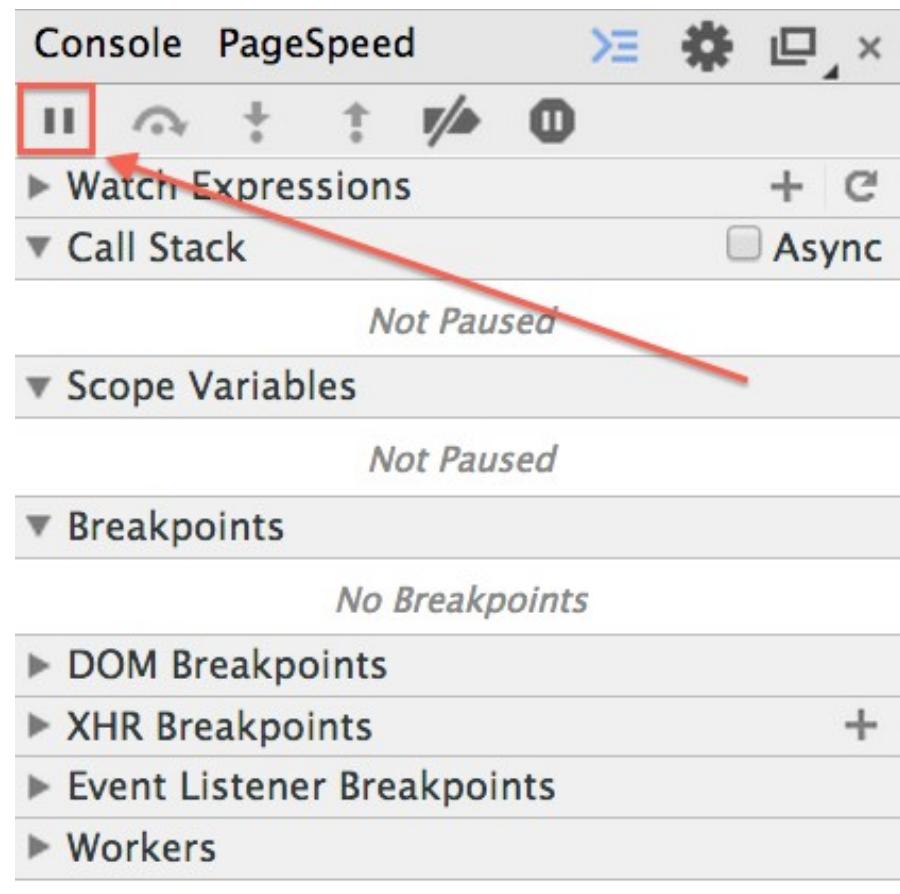
Accept: image/webp,*/*;q=0.8
Accept-Encoding: gzip,deflate,sdch
Accept-Language: en-US,en;q=0.8
Connection: keep-alive
Host: ddsgbyg0mp3h.cloudfront.net
Referer: https://www.packtpub.com/
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/37.0.2062.124
Safari/537.36
  
```

**Response Headers:**

```

Accept-Ranges: bytes
Age: 554428
Cache-Control: public
Cache-Control: max-age=315360000
Connection: keep-alive
Content-Length: 69447
Content-Type: image/png
Date: Tue, 30 Sep 2014 13:00:13 GMT
ETag: "53dfd216-10f47"
Expires: Thu, 31 Dec 2037 23:55:55 GMT
Last-Modified: Mon, 04 Aug 2014 18:33:58 GMT
Server: nginx/1.4.5
Via: 1.1 107edf28374a08a9e88792cfdf1fdd16b.cloudfront.net (CloudFront)
X-Amz-Cf-Id: EfwsjePBp0wyQwzDk5jdhIShG00JSIH0P4Nm7rzdSivu00F101_-Q==
X-Cache: Hit from cloudfront
  
```

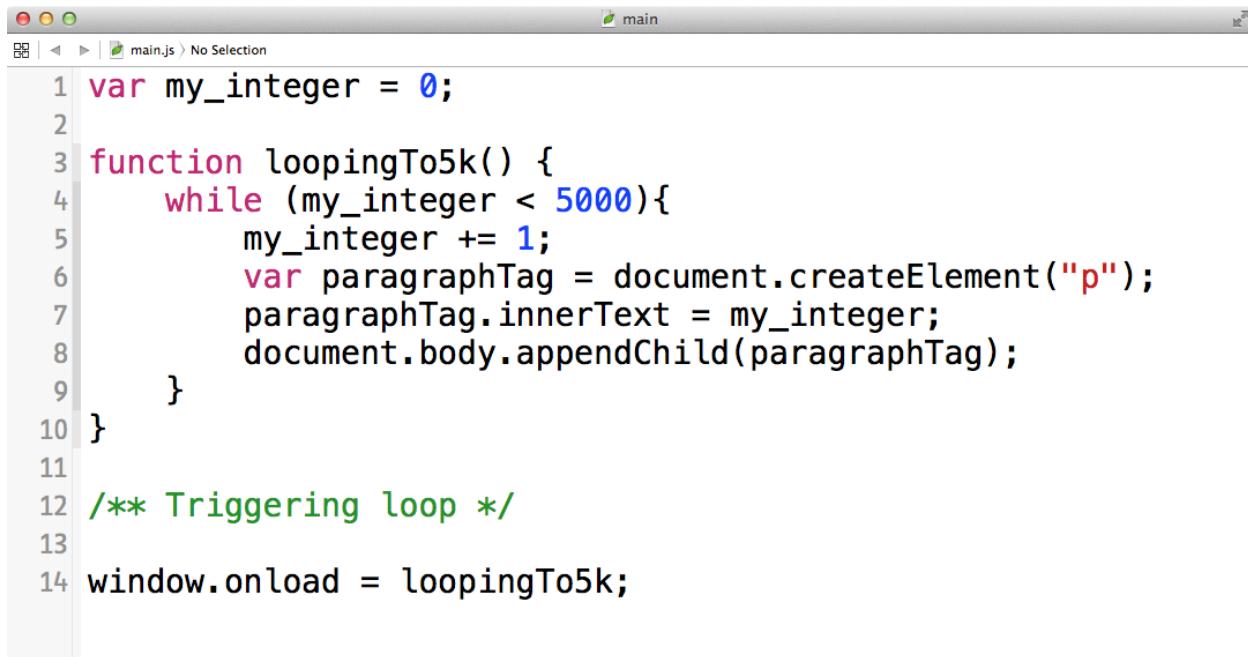
The Network tab lists numerous files loaded by the page, including CSS, JavaScript, and image files such as "ubuntu.css", "subscribe.js", and various "icon-\*" and "sprite-\*" files.



The screenshot shows the Chrome DevTools HTML tab with the file "index.html" open. The code is as follows:

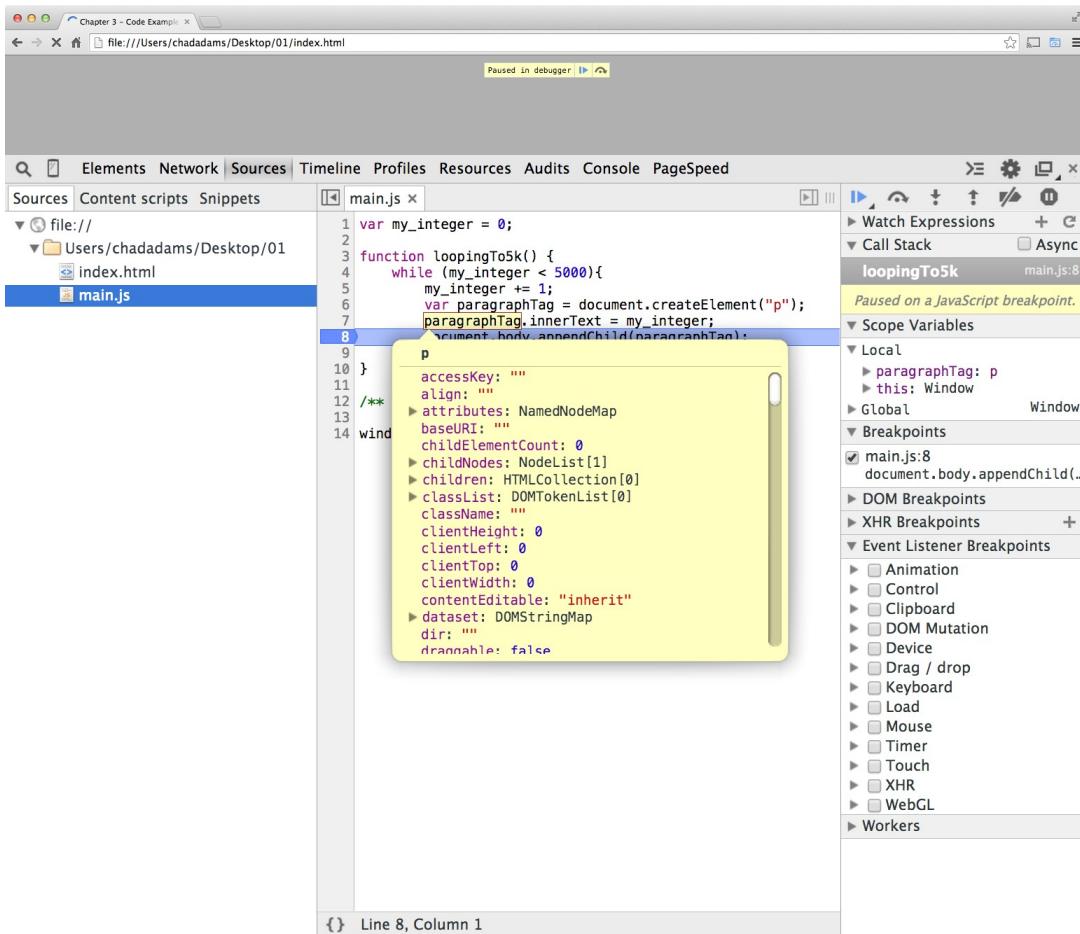
```
<!DOCTYPE HTML>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<title>Chapter 3 – Code Example 01</title>
<style type="text/css">
    body {
        font-family: sans-serif;
        font-size: 2em;
    }
</style>
</head>
<body>

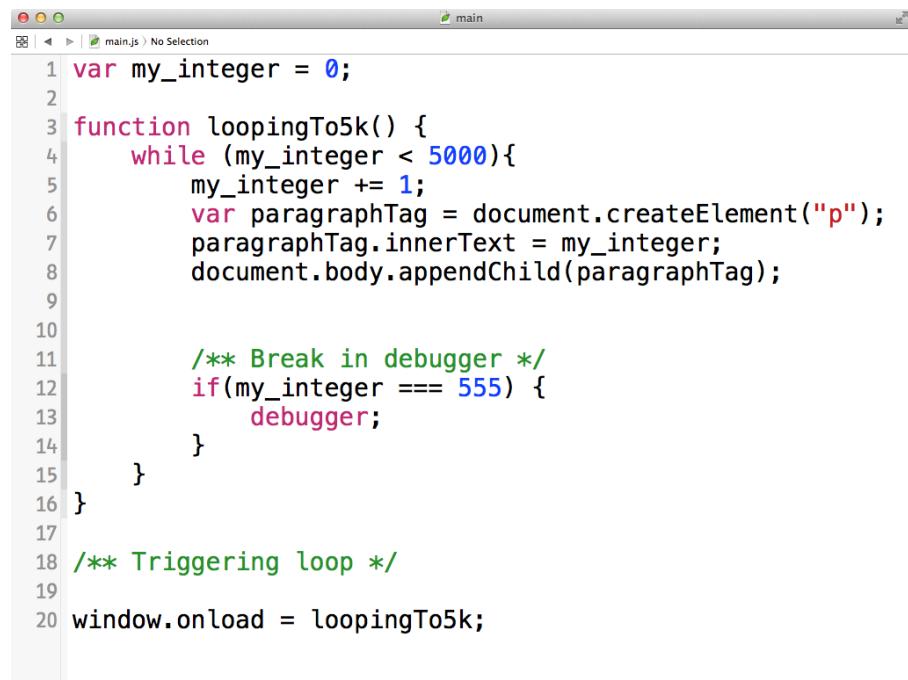
<script src="main.js"></script>
</body>
</html>
```



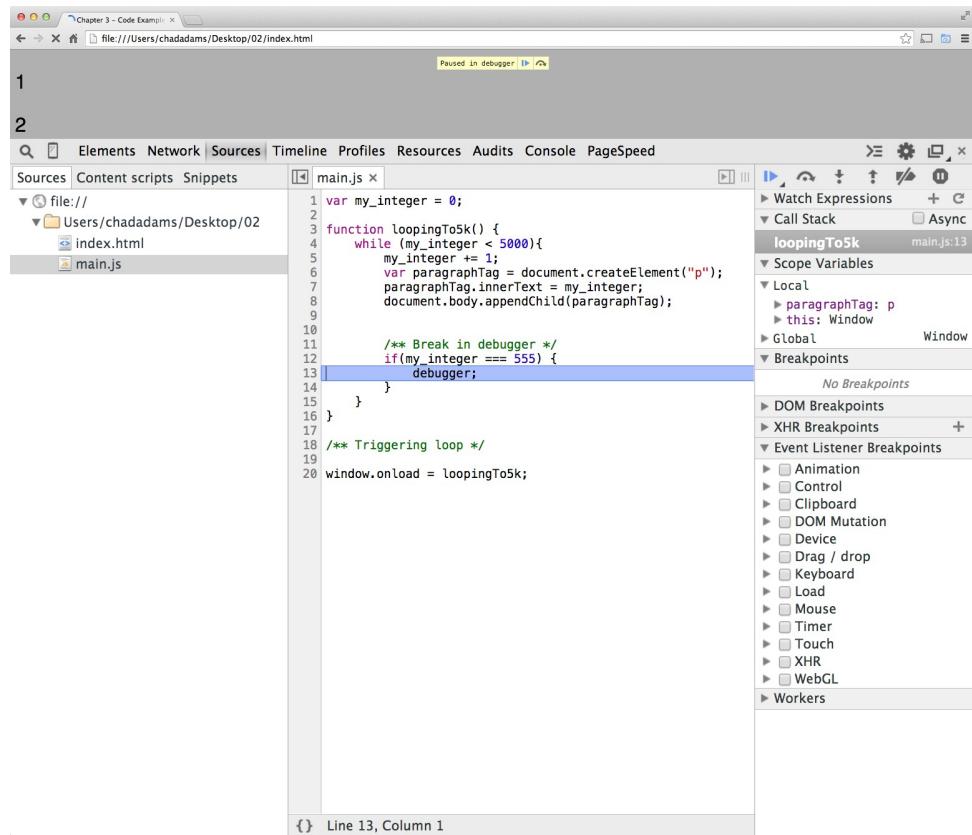
The screenshot shows a web browser window with a blank white page. The title bar is labeled "main". The address bar shows the path "main.js > No Selection". The main content area of the browser is empty, indicating that the JavaScript code has not yet been executed or is still loading.

```
1 var my_integer = 0;
2
3 function loopingTo5k() {
4     while (my_integer < 5000){
5         my_integer += 1;
6         var paragraphTag = document.createElement("p");
7         paragraphTag.innerText = my_integer;
8         document.body.appendChild(paragraphTag);
9     }
10 }
11
12 /* Triggering loop */
13
14 window.onload = loopingTo5k;
```





```
1 var my_integer = 0;
2
3 function loopingTo5k() {
4     while (my_integer < 5000){
5         my_integer += 1;
6         var paragraphTag = document.createElement("p");
7         paragraphTag.innerText = my_integer;
8         document.body.appendChild(paragraphTag);
9
10        /** Break in debugger */
11        if(my_integer === 555) {
12            debugger;
13        }
14    }
15}
16
17 /** Triggering loop */
18
19
20 window.onload = loopingTo5k;
```



Paused in debugger

1

2

Sources Content scripts Snippets main.js x

file:///Users/chadadams/Desktop/02/index.html

Paused in debugger

1 var my\_integer = 0;
2
3 function loopingTo5k() {
4 while (my\_integer < 5000){
5 my\_integer += 1;
6 var paragraphTag = document.createElement("p");
7 paragraphTag.innerText = my\_integer;
8 document.body.appendChild(paragraphTag);
9
10 /\*\* Break in debugger \*/
11 if(my\_integer === 555) {
12 debugger;
13 }
14 }
15}
16
17 /\*\* Triggering loop \*/
18
19
20 window.onload = loopingTo5k;

Watch Expressions + C

Call Stack □ Async

loopingTo5k main.js:13

Scope Variables

Local

paragraphTag: p

this: Window

Global Window

Breakpoints

No Breakpoints

DOM Breakpoints

XHR Breakpoints +

Event Listener Breakpoints

Animation

Control

Clipboard

DOM Mutation

Device

Drag / drop

Keyboard

Load

Mouse

Timer

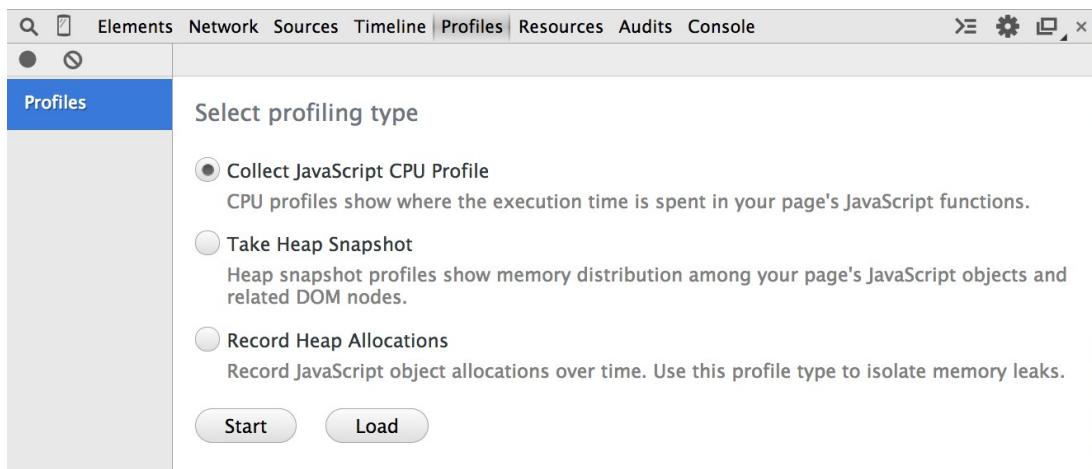
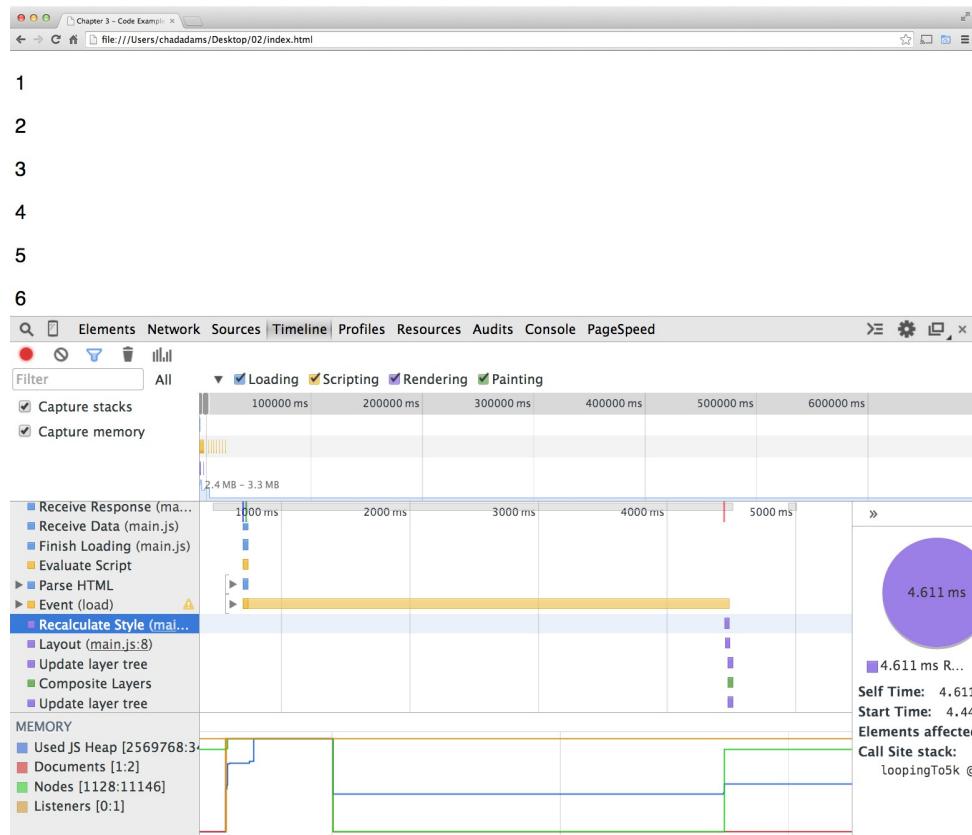
Touch

XHR

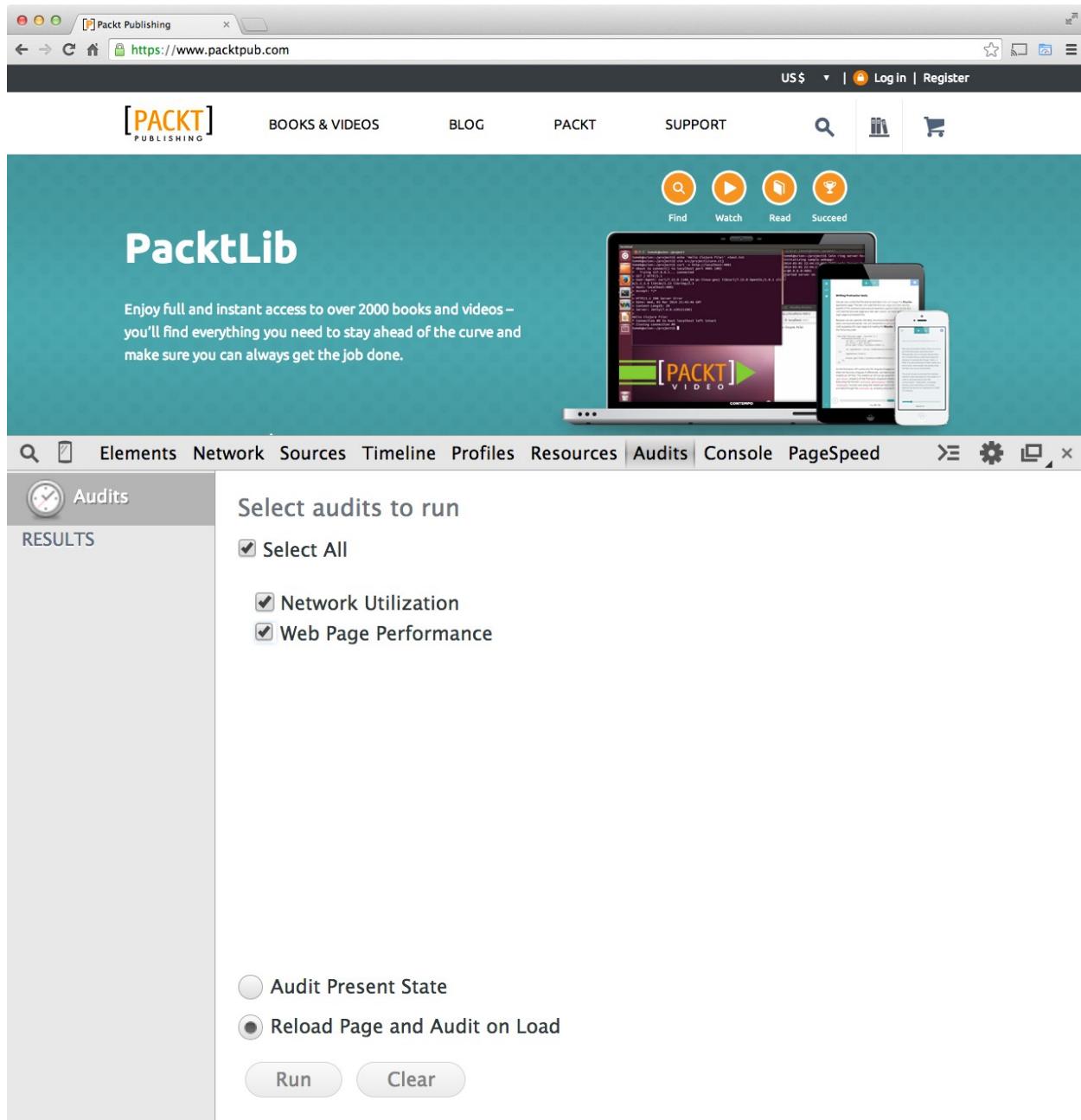
WebGL

Workers

{ } Line 13, Column 1







Screenshot of a web browser showing the Packt Publishing website (<https://www.packtpub.com>) with the "Deal of the Day" section highlighted. The browser's developer tools (Chrome DevTools) are open, specifically the "Audits" panel under "Web Page Performance". The audit results show three issues:

- Optimize the order of styles and scripts (3)**: 3 inline script blocks were found in the head between an external CSS file and another resource. To allow parallel downloading, move the inline script before the external CSS file, or after the next resource.
- Remove unused CSS rules (1477)**: 1477 rules (88%) of CSS not used by the current page.
  - [Oba280bc94594c9c84716f44982ee004.css](#): 88% is not used by the current page.
  - [6e295a6eb8f64cef4e07d9b1f02d46e8.css](#): 71% is not used by the current page.
- Use normal CSS property names instead of vendor-prefixed ones (31)**:
  - [Oba280bc94594c9c84716f44982ee004.css](#)

The screenshot shows a web browser displaying the Packt Publishing website at <https://www.packtpub.com>. The page features a large orange header with the text "Explore the Blog". Below the header, there is a subtext: "Keep ahead of the curve with the latest expert insight, in-depth technical analysis, and Editor's Picks on emerging technologies." To the right of the text is a graphic featuring a white basketball with three circular icons: a blue database icon, an orange alien invaders icon, and a green code icon (</>). Below the header, there are navigation links for "BOOKS & VIDEOS", "BLOG", "PACKT", "SUPPORT", a search bar, and a shopping cart icon. A "Subscribe to PacktLib" button is also present. The main content area displays a grid of four book covers: "MEAN Web Development", "Delphi Cookbook", "Practical Data Science Cookbook", and "Learning Unity 2D Game Development by Example". At the bottom of the page, a developer tools interface is visible, showing the DOM tree with nodes like "document.body.classList" and "['with-logo']".

## Chapter 5

```
1  /**
2   * Chapter 05 - 01
3   */
4
5  var pi = 3.14159265359,
6  another_pi = 3.14159265359,
7  a_string_of_pis = "3.14159265359";
8
9  console.time("Check PI");
10 /* Anonymous Function to evaluate our pi's */
11 (function () {
12     var test = pi == another_pi;
13 })();
14 console.timeEnd("Check PI");
```

The screenshot shows the Chrome DevTools interface with the 'Sources' tab selected. A snippet named '01' is open, displaying the following JavaScript code:

```
1 /**
2  * Chapter 05 - 01
3 */
4
5 var pi = 3.14159265359,
6 another_pi = 3.14159265359,
7 a_string_of_pis = "3.14159265359";
8
9 console.time("Check PI");
10 /* Anonymous Function to evaluate our pi's */
11 (function(){
12     var test = pi == another_pi;
13 })();
14 console.timeEnd("Check PI");
```

The cursor is positioned at Line 12, Column 21. The status bar at the bottom left indicates 'WebStorm-EAP-139....dmg'.

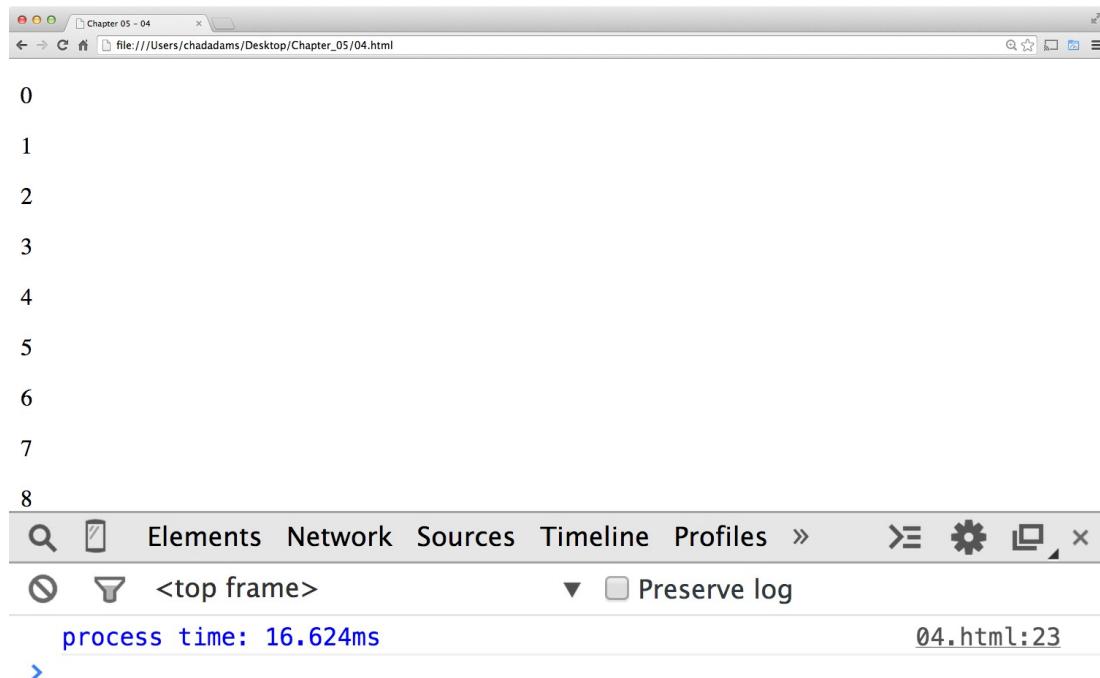
The screenshot shows the Chrome DevTools interface with the 'Sources' tab selected. A snippet named '01' is open, displaying the same JavaScript code as the previous screenshot, but with a small modification in line 5:

```
1 another_pi = 3.14159265359,
2 a_string_of_pis = "3.14159265359";
3
4 console.time("Check PI");
5 /* Anonymous Function to evaluate our pi's */
6 (function(){
7     var test = pi === another_pi;
8 })();
9 console.timeEnd("Check PI");
```

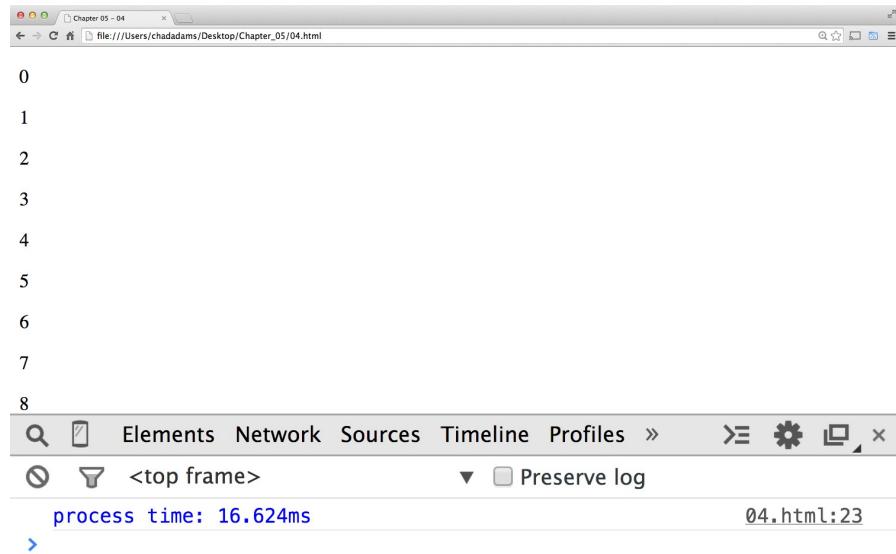
The 'Console' tab is active, showing the following log entries:

Output	Timestamp
Check PI: 0.016ms	01:14
undefined	01:1
Check PI: 0.007ms	01:14
undefined	01:1

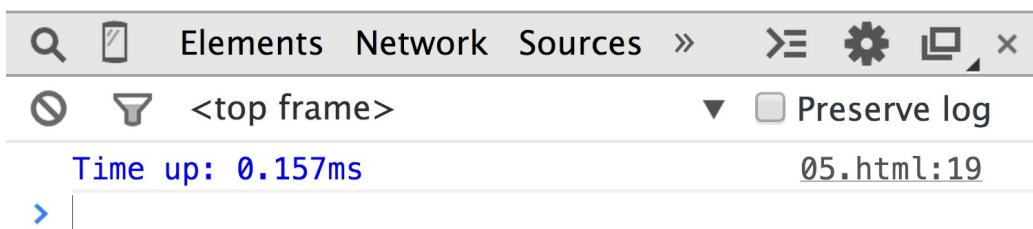
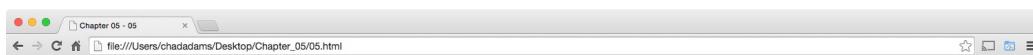
```
03.html
Chapter_05 / 03.html <html>
1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=
      UTF-8" />
5     <title>Chapter 05 - 03</title>
6   </head>
7   <body>
8
9
10  <script type="text/javascript">
11    /**
12     * Chapter 05 - 03
13    */
14
15    console.time("process time");
16    for (var i = 0; i <= 9000; i++) {
17      var ptag = document.createElement("p");
18      ptag.innerText = i;
19      document.body.appendChild(ptag);
20    }
21    console.timeEnd("process time");
22  </script>
23  </body>
24</html>
```



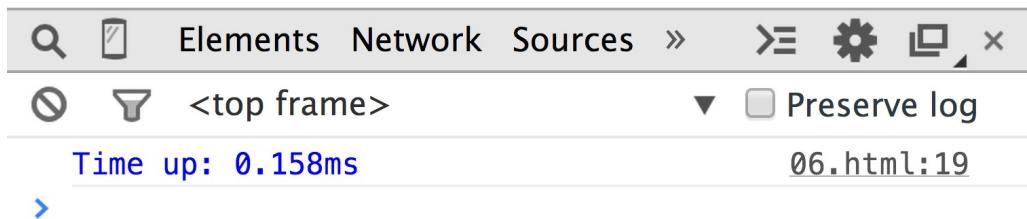
```
04.html
1 <!DOCTYPE HTML>
2 <html>
3     <head>
4         <meta http-equiv="Content-Type" content="text/html; charset=
5             UTF-8" />
6         <title>Chapter 05 - 04</title>
7     </head>
8     <body>
9
10    <script type="text/javascript">
11        /**
12         * Chapter 05 - 04
13         */
14
15
16    var i, ptag;
17    console.time("process time");
18    for (i = 0; i <= 9000; i++) {
19        ptag = document.createElement("p");
20        ptag.innerText = i;
21        document.body.appendChild(ptag);
22    }
23    console.timeEnd("process time");
24    </script>
25    </body>
26 </html>
```



```
05.html
1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5     <title>Chapter 05 - 05</title>
6   </head>
7   <body>
8
9     <script type="text/javascript">
10    /**
11     * Chapter 05 - 05
12     */
13    var result = 0;
14    console.time("Time up");
15    for (var i = 0; i <= 9000; i++) {
16      result++;
17      /**
18       * Trigger a timeEnd, when the loop hit's 9000. *
19       */
20      if (result === 9000) {
21        console.timeEnd("Time up");
22      }
23    }
24  </script>
25 </body>
26 </html>
```



```
06.html
1 <!DOCTYPE HTML>
2 <html>
3     <head>
4         <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5         <title>Chapter 05 - 06</title>
6     </head>
7     <body>
8
9         <script type="text/javascript">
10        /**
11         * Chapter 05 - 06
12         */
13        var result = 0;
14        console.time("Time up");
15        for (var i = 9000; i > 0; i--) {
16            /**
17             * Trigger a timeEnd, when the loop hit's 0. */
18            result++;
19            if (result === 9000) {
20                console.timeEnd("Time up");
21            }
22        }
23    </script>
24 </body>
25 </html>
```

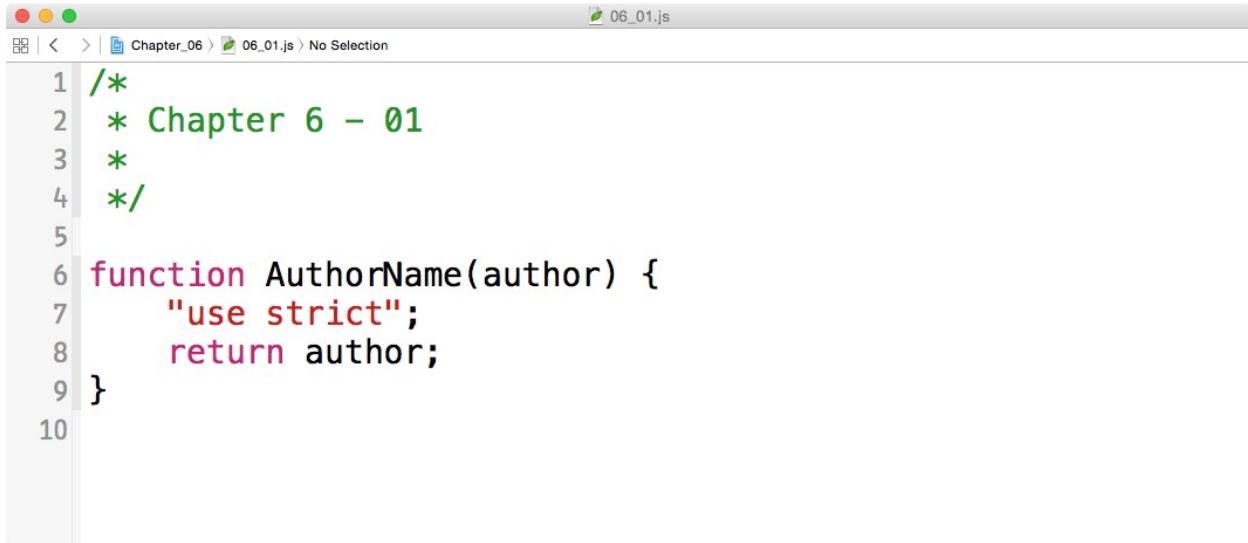


```
07.html
1 <!DOCTYPE HTML>
2 <html>
3     <head>
4         <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5         <title>Chapter 05 - 07</title>
6     </head>
7     <body>
8
9         <script type="text/javascript">
10            /**
11             * Chapter 05 - 07
12             */
13            function delay300000() {
14                console.log("delay300000()");
15                for(var i = 0; i < 300000; i++) {
16                    console.info("Writing i to the console." + [i]);
17                }
18            }
19
20            function delay3000() {
21                console.log("delay3000()");
22                for(var i = 0; i < 3000; i++) {
23                    console.info("Writing i to the console." + [i]);
24                }
25            }
26
27            window.onload = function() {
28                setTimeout(delay300000(), 50);
29                setTimeout(delay3000(), 150);
30            }
31        </script>
32    </body>
33 </html>
```



	Elements	Network	Sources	»	>≡	⚙️	🖨️	x
🚫	✖️	<top frame>			▼	<input type="checkbox"/>	Preserve log	
ℹ️	Writing i to the console.299996						07.html:16	
ℹ️	Writing i to the console.299997						07.html:16	
ℹ️	Writing i to the console.299998						07.html:16	
ℹ️	Writing i to the console.299999						07.html:16	
	delay3000()						07.html:21	
ℹ️	Writing i to the console.0						07.html:23	
ℹ️	Writing i to the console.1						07.html:23	
ℹ️	Writing i to the console.2						07.html:23	
ℹ️	Writing i to the console.3						07.html:23	
ℹ️	Writing i to the console.4						07.html:23	

# Chapter 6



A screenshot of a Mac OS X application window titled "06\_01.js". The window has a standard OS X title bar with red, yellow, and green buttons. Below the title bar is a toolbar with icons for file operations like New, Open, Save, and Print. The main area of the window is a code editor with a light gray background. The code is as follows:

```
1 /*  
2  * Chapter 6 - 01  
3  *  
4 */  
5  
6 function AuthorName(author) {  
7     "use strict";  
8     return author;  
9 }  
10
```



A screenshot of a Mac OS X application window titled "06\_02.js". The window has a standard OS X title bar with red, yellow, and green buttons. Below the title bar is a toolbar with icons for file operations like New, Open, Save, and Print. The main area of the window is a code editor with a light gray background. The code is as follows:

```
1 /*  
2  * Chapter 6 - 02  
3  *  
4 */  
5  
6 function AuthorName(author) {  
7     "use strict";  
8     return author;  
9 }  
10  
11 console.log(AuthorName('Chad Adams'));
```

The screenshot shows the JSbeautifier interface with the following sections:

- Code Editor:** Displays the following JavaScript code:

```
/*
 * Chapter 6 - 02
 *
 */
function AuthorName(author) {
    "use strict";
    return author;
}
console.log(AuthorName('Chad Adams'));
```
- JSLint:** A blue bar indicating the tool being used.
- Errors:** A red bar showing one error: "Missing 'new'." located at "line 11 character 13".
- Function Report:** A grey bar showing global functions: "AuthorName, console". Below it, under "parameter", is "author" at "line 6".
- Properties Directive:** A grey bar showing properties: "log".

The screenshot shows a Mac OS X Finder window titled "06\_03.js" in the "Chapter\_06" folder. The file content is:

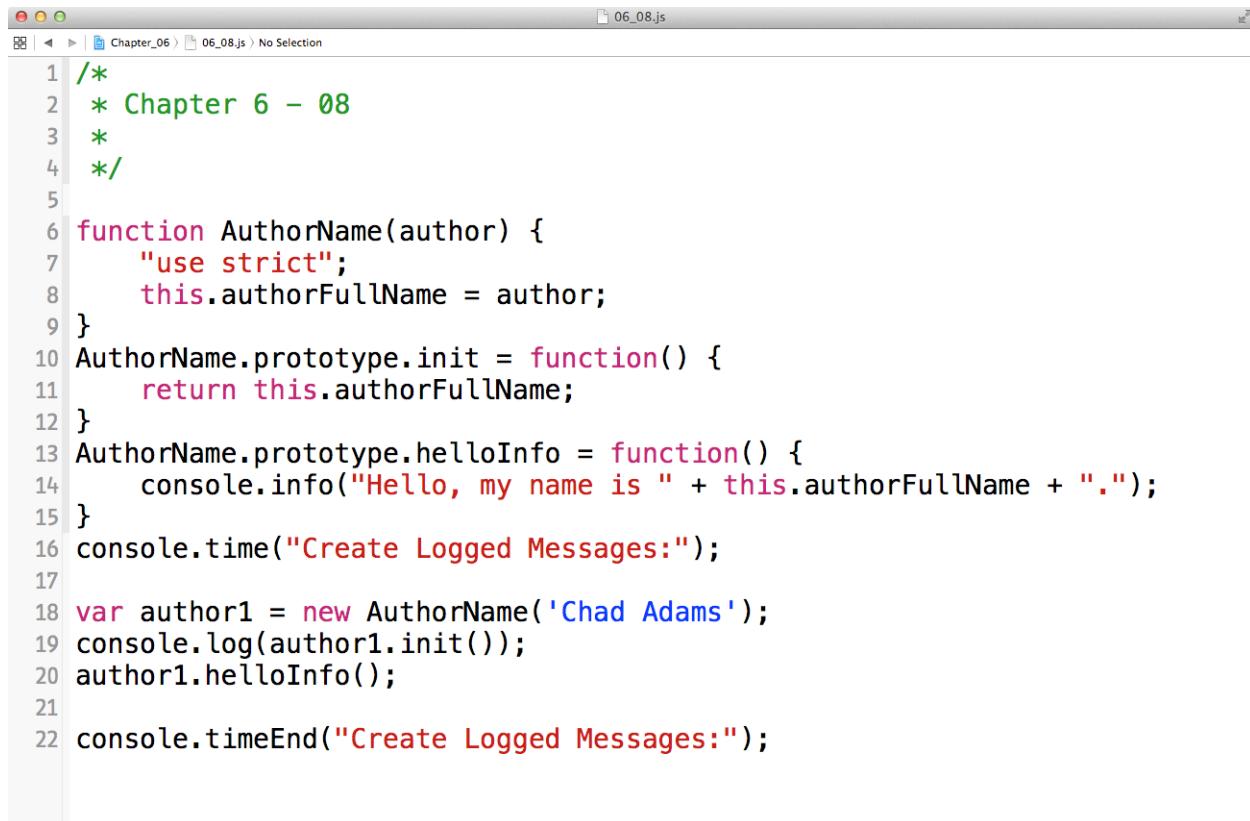
```
/*
 * Chapter 6 - 03
 *
*/
function AuthorName(author) {
    "use strict";
    return author;
}
console.log(new AuthorName('Chad Adams'));
```

```
/*  
 * Chapter 6 - 04  
 *  
 */  
  
function AuthorName(author) {  
    "use strict";  
    this.init = function() {  
        return author;  
    }  
}  
  
var author1 = new AuthorName('Chad Adams');  
  
console.log(author1.init());
```

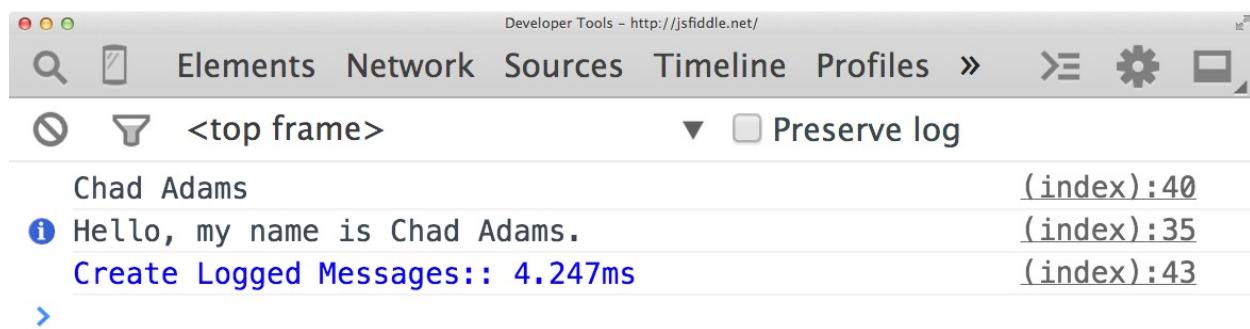
```
/*  
 * Chapter 6 - 05  
 *  
 */  
  
function AuthorName(author) {  
    "use strict";  
    this.init = function() {  
        return author;  
    }  
    this.helloInfo = function() {  
        console.info("Hello, my name is " + author + ".");  
    }  
}  
  
var author1 = new AuthorName('Chad Adams');  
  
console.log(author1.init());  
  
author1.helloInfo();
```

```
06_06.js
/*
 * Chapter 6 - 06
 */
5
6 function AuthorName(author) {
7     "use strict";
8     this.init = function() {
9         return author;
10    }
11    this.helloInfo = function() {
12        console.info("Hello, my name is " + author + ".");
13    }
14}
15 console.time("Create Logged Messages:");
16
17 var author1 = new AuthorName('Chad Adams');
18 console.log(author1.init());
19 author1.helloInfo();
20
21 console.timeEnd("Create Logged Messages:");
Developer Tools - http://jsfiddle.net/
Elements Network Sources Timeline Profiles Resources > ▾ Preset log
<top frame> ▾ Preserve log
Chad Adams (index):39
Hello, my name is Chad Adams. (index):33
Create Logged Messages:: 2.598ms (index):42
>
```

```
06_07.js
/*
 * Chapter 6 - 07
 */
5
6 function authorName(author) {
7     "use strict";
8     return author;
9 }
10 function helloInfo() {
11     console.info("Hello, my name is " + authorName('Chad Adams') + ".");
12 }
13 console.time("Create Logged Messages:");
14
15 console.log(authorName('Chad Adams'));
16 helloInfo();
17
18 console.timeEnd("Create Logged Messages:");
Developer Tools - http://jsfiddle.net/
Elements Network Sources Timeline Profiles Resources > ▾ Preset log
<top frame> ▾ Preserve log
Chad Adams (index):37
Hello, my name is Chad Adams. (index):33
Create Logged Messages:: 4.245ms (index):40
>
```



```
/*  
 * Chapter 6 - 08  
 */  
  
function AuthorName(author) {  
    "use strict";  
    this.authorFullName = author;  
}  
AuthorName.prototype.init = function() {  
    return this.authorFullName;  
}  
AuthorName.prototype.helloInfo = function() {  
    console.info("Hello, my name is " + this.authorFullName + ".");  
}  
console.time("Create Logged Messages:");  
  
var author1 = new AuthorName('Chad Adams');  
console.log(author1.init());  
author1.helloInfo();  
  
console.timeEnd("Create Logged Messages:");
```



Message	Location
Chad Adams	(index):40
① Hello, my name is Chad Adams.	(index):35
Create Logged Messages:: 4.247ms	(index):43

```
06_09.js

/*
 * Chapter 6 - 09
 *
 */
var myArray = ["key0", "key1", "key2", "key3", "key4", "key5", "key6", "key7",
    "key8", "key9", "key10", "key11", "key12", "key13", "key14", "key15", "key16",
    "key17", "key18", "key19", "key20", "key21", "key22", "key23", "key24", "key25",
    "key26", "key27", "key28", "key29", "key30", "key31", "key32", "key33", "key34",
    "key35", "key36", "key37", "key38", "key39", "key40", "key41", "key42", "key43",
    "key44", "key45", "key46", "key47", "key48", "key49", "key50", "key51", "key52",
    "key53", "key54", "key55", "key56", "key57", "key58", "key59", "key60", "key61",
    "key62", "key63", "key64", "key65", "key66", "key67", "key68", "key69", "key70",
    "key71", "key72", "key73", "key74", "key75", "key76", "key77", "key78", "key79",
    "key80", "key81", "key82", "key83", "key84", "key85", "key86", "key87", "key88",
    "key89", "key90", "key91", "key92", "key93", "key94", "key95", "key96", "key97",
    "key98", "key99", "key100", "key101", "key102", "key103", "key104", "key105",
    "key106", "key107", "key108", "key109", "key110", "key111", "key112", "key113",
    "key114", "key115", "key116", "key117", "key118", "key119", "key120", "key121",
    "key122", "key123", "key124", "key125", "key126", "key127", "key128", "key129",
    "key130", "key131", "key132", "key133", "key134", "key135", "key136", "key137",
    "key138", "key139", "key140", "key141", "key142", "key143", "key144", "key145",
    "key146", "key147", "key148", "key149", "key150", "key151", "key152", "key153",
    "key154", "key155", "key156", "key157", "key158", "key159", "key160", "key161",
    "key162", "key163", "key164", "key165", "key166", "key167", "key168", "key169",
    "key170", "key171", "key172", "key173", "key174", "key175", "key176", "key177",
    "key178", "key179", "key180", "key181", "key182", "key183", "key184", "key185",
    "key186", "key187", "key188", "key189", "key190", "key191", "key192", "key193",
    "key194", "key195", "key196", "key197", "key198", "key199", "key200", "key201"]
```

```
06_10.js
Chapter_06 > 06_10.js > No Selection
  "key981", "key982", "key983", "key984", "key985",
  "key986", "key987", "key988", "key989", "key990",
  "key991", "key992", "key993", "key994", "key995",
  "key996", "key997", "key998", "key999", "key1000"];
7
8 /* End of array.*/
9 //Start console timer.
10 console.time("Find Key");
11
12 //Log index of 'key541'.
13 var indexFound = myArray.indexOf("key541");
14 console.log(myArray[indexFound]);
15
16 //Stop console timer.
17 console.timeEnd("Find Key");
18
19
20
Developer Tools - http://jsfiddle.net/
Elements Network Sources > ▾ Preset Preset
Preserve log
<top frame>
key541 (index):35
Find Key: 5.887ms (index):38
>
```

```
06_11.js
Chapter_06 > 06_11.js > No Selection
  "key971", "key972", "key973", "key974", "key975",
  "key976", "key977", "key978", "key979", "key980",
  "key981", "key982", "key983", "key984", "key985",
  "key986", "key987", "key988", "key989", "key990",
  "key991", "key992", "key993", "key994", "key995",
  "key996", "key997", "key998", "key999", "key1000"];
7
8 /* End of array.*/
9 //Start console timer.
10 console.time("Find Key");
11
12 //Log index of '541'.
13 var indexFound = myArray[541];
14 console.log(indexFound);
15
16 //Stop console timer.
17 console.timeEnd("Find Key");
18
19
20
Developer Tools - file:///Users/chad/Downloads/Chapter_06_7296OS/Chapter_06/(index)
Elements Network Sources »

▼ Preserve log
key541 (index):22
Find Key: 4.809ms (index):25
>
```

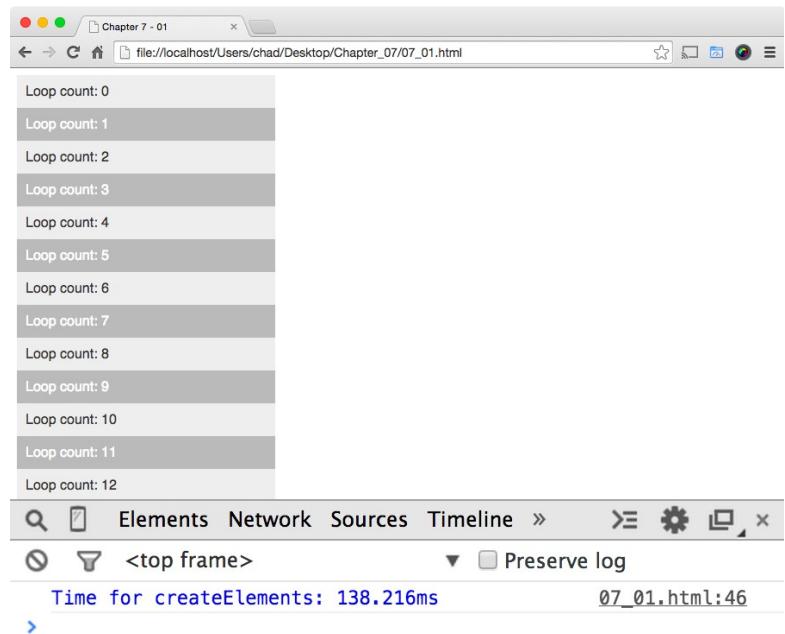
# Chapter 7



The screenshot shows a web browser window with the title bar "07\_01.html". The main content area displays the source code of the file. The code is a combination of HTML, CSS, and JavaScript. It includes a DOCTYPE declaration, an HTML structure with a head and body section, and a script block that creates a table with 10,000 rows. The CSS part defines styles for odd and even rows.

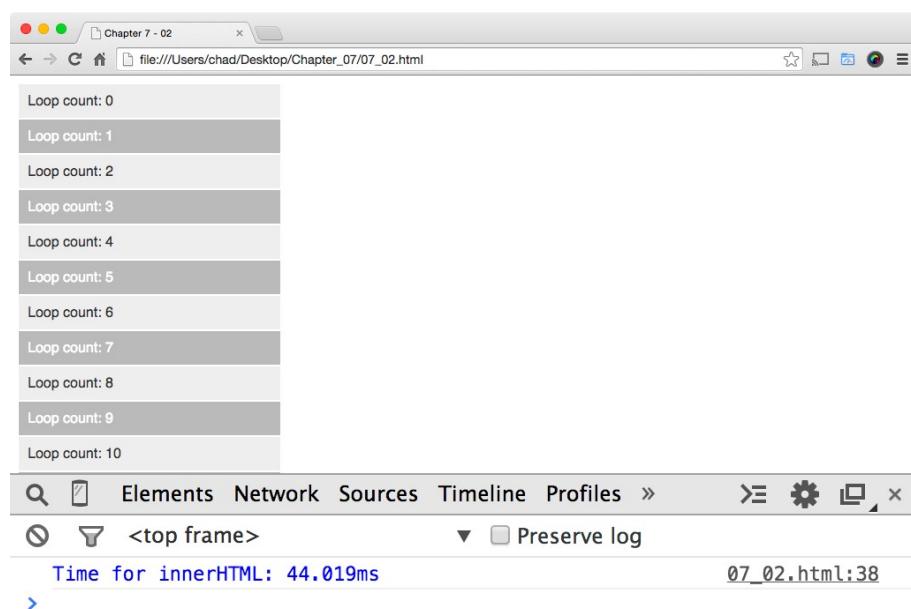
```
07_01.html
07_01.html

1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5     <title>Chapter 7 - 01</title>
6
7     <style type="text/css">
8       body { font-family: sans-serif; }
9       #datainsert tr:nth-of-type(odd) td {
10         background-color: #eeeeee;
11         color: #333;
12       }
13       #datainsert tr:nth-of-type(even)  td {
14         background-color: #bababa;
15         color: white;
16       }
17     </style>
18   </head>
19   <body>
20     <!-- Data goes here -->
21     <div id="datainsert"></div>
22   </body>
23   <script type="text/javascript">
24     // Anonymous function to render data.
25     (function(){
26       console.time("Time for createElements");
27       var tableElem = document.createElement("table");
28       tableElem.setAttribute("border" , 0);
29       tableElem.setAttribute("width" , 300);
30       tableElem.setAttribute("cellpadding" , 10);
31       tableElem.setAttribute("cellspacing" , 0);
32
33       for (var i = 0; i <= 10000; i++) {
34
35         var cellContent = document.createTextNode("Loop count: " + i);
36         var tableTr = document.createElement("tr");
37         var tableTd = document.createElement("td");
38
39         tableTd.appendChild(cellContent);
40         tableTr.appendChild(tableTd);
41         tableElem.appendChild(tableTr);
42
43     }
44
45     document.getElementById("datainsert").appendChild(tableElem);
46     console.timeEnd("Time for createElements");
47
48     }()
49
50
51   </script>
52 </html>
```

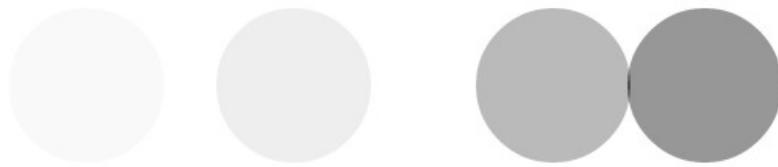


```
07_02.html ~ 07_02.html

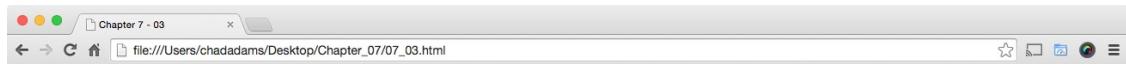
1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5     <title>Chapter 7 - 02</title>
6
7     <style type="text/css">
8       body { font-family: sans-serif; }
9       #datainsert tr:nth-of-type(odd) td {
10         background-color: #eeeeee;
11         color: #333;
12       }
13       #datainsert tr:nth-of-type(even)  td {
14         background-color: #bababa;
15         color: white;
16       }
17     </style>
18   </head>
19   <body>
20     <!-- Data goes here -->
21     <div id="datainsert"></div>
22   </body>
23   <script type="text/javascript">
24     // Anonymous function to render data.
25     (function(){
26       console.time("Time for innerHTML");
27
28       var tableContents = "<table width=\"300\" cellspacing=\"0\" cellpadding=\"10\"><tbody>";
29
30       for (var i = 0; i <= 10000; i++) {
31
32         tableContents += "<tr><td>" + "Loop count: " + i + "</tr></td>";
33
34       }
35       tableContents += "</tbody></table>";
36
37       document.getElementById("datainsert").innerHTML = tableContents;
38       console.timeEnd("Time for innerHTML");
39
40     }())
41
42
43   </script>
44 </html>
```



```
07_03.html
1 <!DOCTYPE HTML>
2 <html>
3     <head>
4         <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5         <title>Chapter 7 - 03</title>
6
7         <style type="text/css">
8             body { font-family: sans-serif; }
9             #dot {
10                 width: 100px;
11                 height: 100px;
12                 -webkit-border-radius: 50px;
13                 background-color: #333;
14                 position: absolute;
15                 left: 50px;
16                 top: 50px;
17             }
18         </style>
19     </head>
20     <body>
21         <!-- Data goes here -->
22         <div id="dot"></div>
23     </body>
24     <script type="text/javascript">
25         // Anonymous function to render data.
26         (function(){
27             var dot = document.getElementById("dot");
28             var i = 50;
29
30             console.time("JavaScript Animation");
31             var interval = setInterval(function(){
32                 i++;
33                 dot.style.left = i + "px";
34                 if(i === 450) {
35                     clearInterval(interval);
36                     console.timeEnd("JavaScript Animation");
37                 }
38             }, 1);
39
40             }()
41         </script>
42     </html>
```



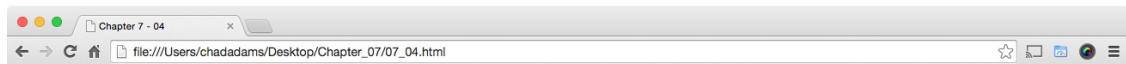
```
07_04.html 07_04.html ~
1 <!DOCTYPE HTML>
2 <html>
3     <head>
4         <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5         <title>Chapter 7 - 04</title>
6
7         <style type="text/css">
8             body { font-family: sans-serif; }
9             #dot {
10                 width: 100px;
11                 height: 100px;
12                 -webkit-border-radius: 50px;
13                 background-color: #333;
14                 position: absolute;
15                 left: 50px;
16                 top: 50px;
17             }
18             /* CSS3 ANIMATION */
19             #dot.active {
20                 -webkit-animation: moveDot 1000ms 0 ease both;
21                 animation: moveDot 1000ms 0 ease both;
22             }
23             @-webkit-keyframes moveDot {
24                 from { transform: translate3d(0, 0, 0); }
25                 to { transform: translate3d(450px, 0, 0); }
26             }
27             @keyframes moveDot {
28                 from { transform: translate3d(0, 0, 0); }
29                 to { transform: translate3d(450px, 0, 0); }
30             }
31         </style>
32     </head>
33     <body>
34         <!-- Data goes here -->
35         <div id="dot"></div>
36     </body>
37     <script type="text/javascript">
38         // Anonymous function to render data.
39         (function(){
40             var dot = document.getElementById("dot");
41
42             console.time("JavaScript Animation");
43             setTimeout(dot.setAttribute("class", "active"), 1000);
44             console.timeEnd("JavaScript Animation");
45         }())
46     </script>
47 </html>
```



Elements Network Sources Timeline `>` `Preserve log`

`<top frame>` `▼` `JavaScript Animation: 1855.135ms` `07_03.html:36`

`>`

A screenshot of the Chrome DevTools Timeline tab. The timeline shows a single entry: "JavaScript Animation: 1855.135ms" from "07\_03.html:36". The browser window above it shows a large black circle.

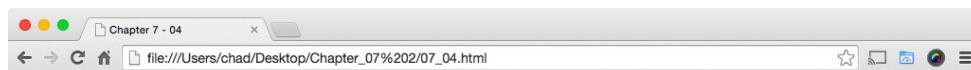
Elements Network Sources Timeline `>` `Preserve log`

`<top frame>` `▼` `JavaScript Animation: 0.034ms` `07_04.html:44`

`>`

A screenshot of the Chrome DevTools Timeline tab. The timeline shows a single entry: "JavaScript Animation: 0.034ms" from "07\_04.html:44". The browser window above it shows a large black circle.

```
07_05.html
1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5     <title>Chapter 7 - 05</title>
6
7     <style type="text/css">
8       body { font-family: sans-serif; }
9       #dot {
10         width: 100px;
11         height: 100px;
12         -webkit-border-radius: 50px;
13         background-color: #333;
14         position: absolute;
15         left: 50px;
16         top: 50px;
17         -webkit-transform: -webkit-translate3d(0,0,0);
18         will-change: left;
19       }
20     </style>
21   </head>
22   <body>
23     <!-- Data goes here -->
24     <div id="dot"></div>
25   </body>
26   <script type="text/javascript">
27     (function(){
28       var dot = document.getElementById("dot");
29       var i = 50;
30
31       console.time("JavaScript Animation");
32       var interval = setInterval(function(){
33         i++;
34         dot.style.left = i + "px";
35         if(i === 450) {
36           clearInterval(interval);
37           console.timeEnd("JavaScript Animation");
38         }
39       }, 1);
40
41     })();
42   </script>
43 </html>
```



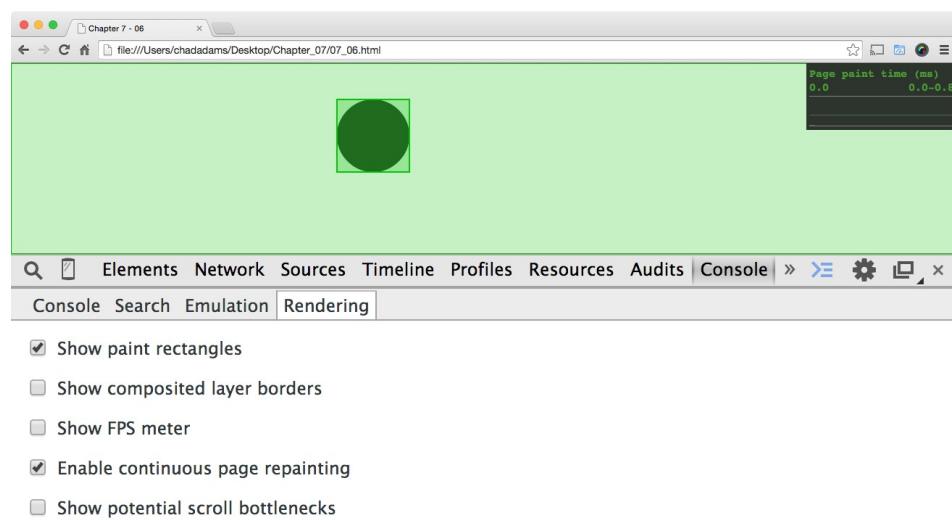
- Show paint rectangles
- Show composited layer borders
- Show FPS meter
- Enable continuous page repainting
- Show potential scroll bottlenecks

```

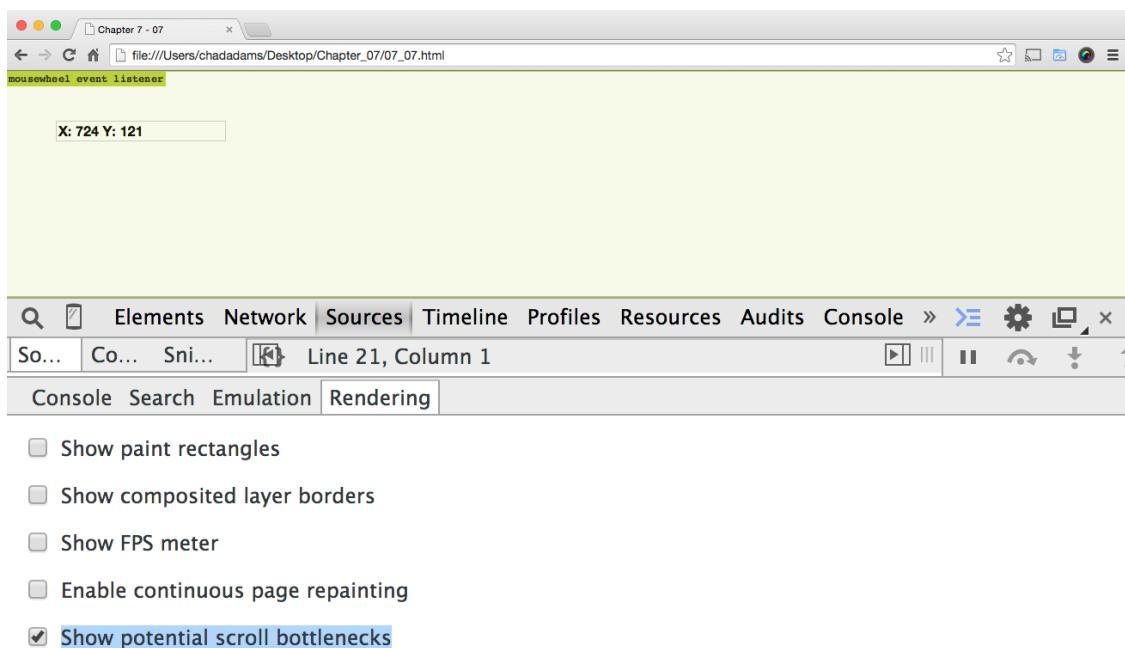
07_06.html
07_06.html

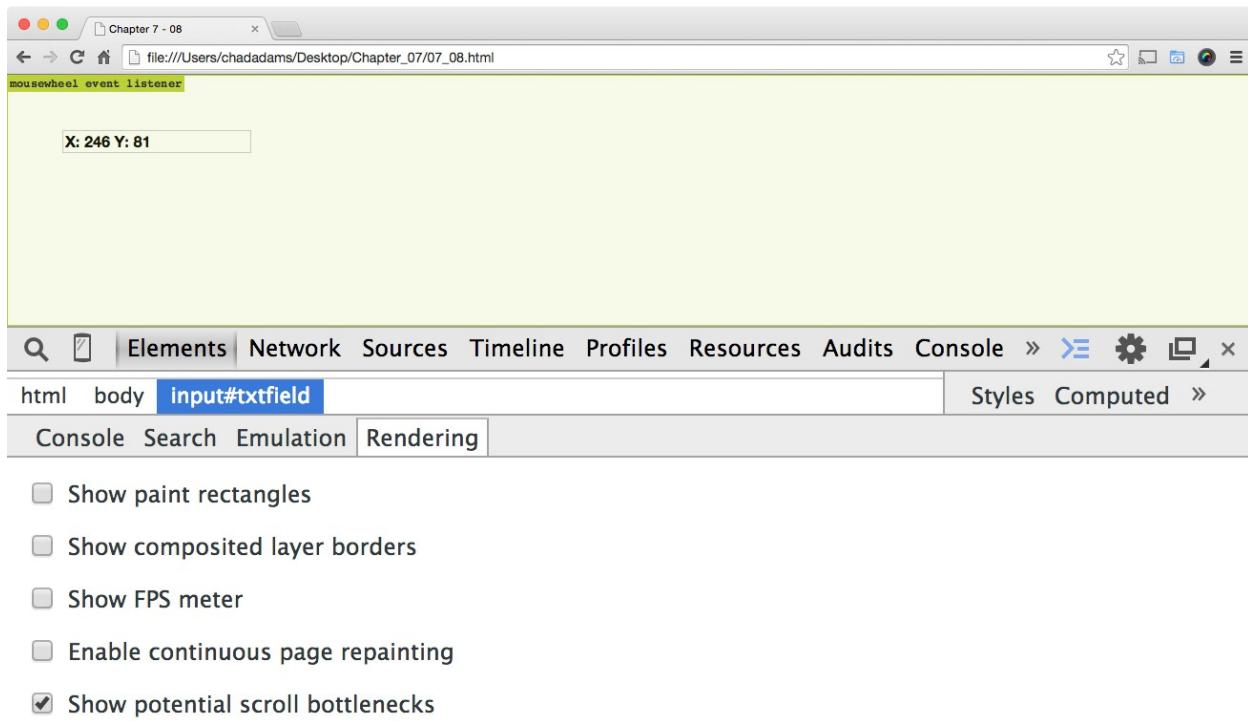
1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5     <title>Chapter 7 - 06</title>
6
7     <style type="text/css">
8       body { font-family: sans-serif; }
9       #dot {
10         width: 100px;
11         height: 100px;
12         -webkit-border-radius: 50px;
13         background-color: #333;
14         position: absolute;
15         left: 50px;
16         top: 50px;
17         -webkit-transform: -webkit-translate3d(0,0,0);
18         will-change: left;
19       }
20     </style>
21   </head>
22   <body>
23     <!-- Data goes here -->
24     <div id="dot"></div>
25   </body>
26   <script type="text/javascript">
27     (function(){
28       var dot = document.getElementById("dot");
29       var i = 50;
30       var interval = setInterval(function(){
31         i++;
32         dot.style.left = i + "px";
33         if(i === 450) {
34           clearInterval(interval);
35         } else if (i === 250 || i === 251 || i === 252 ||
36         i === 253 || i === 254 || i === 255 || i === 256 || i === 257 || i === 258) {
37           dot.style.left = "";
38         } else {
39           dot.style.left = i + "px";
40         }
41       }, 1);
42     }());
43   </script>
44 </html>

```



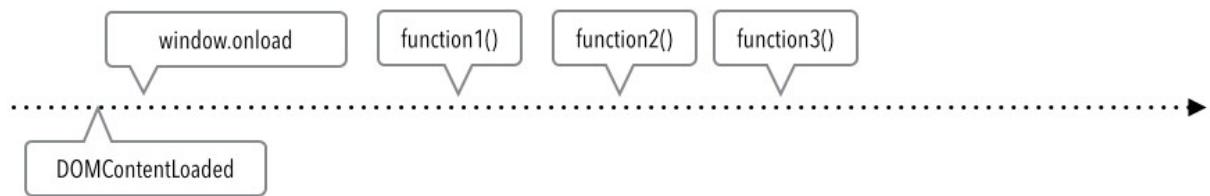
```
07_07.html
1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5     <title>Chapter 7 - 07</title>
6
7     <style type="text/css">
8       body { font-family: sans-serif; }
9       #txtfield {
10         font-size: 1em;
11         font-weight: bold;
12         margin: 50px;
13     }
14   </style>
15 </head>
16 <body>
17   <input id="txtfield" type="text" value="" />
18 </body>
19 <script type="text/javascript">
20   var txtfield = document.getElementById("txtfield");
21
22   <(function(){
23     document.addEventListener("mousewheel", getMouseLocation, false);
24   })()
25
26   function getMouseLocation(event) {
27     txtfield.value = "X: " + event.pageX + " Y: " + event.pageY;
28   }
29 </script>
30 </html>
```



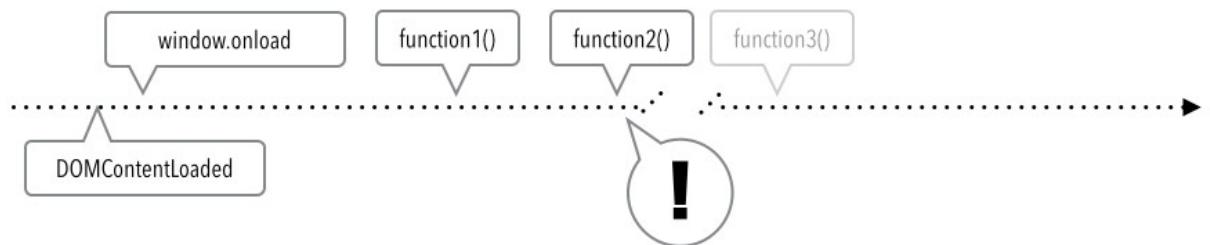


# Chapter 8

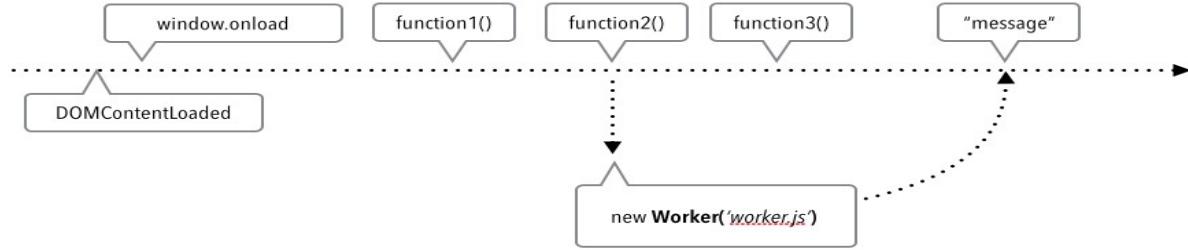
Standard single threaded JS application



Standard single threaded JS application with processing time



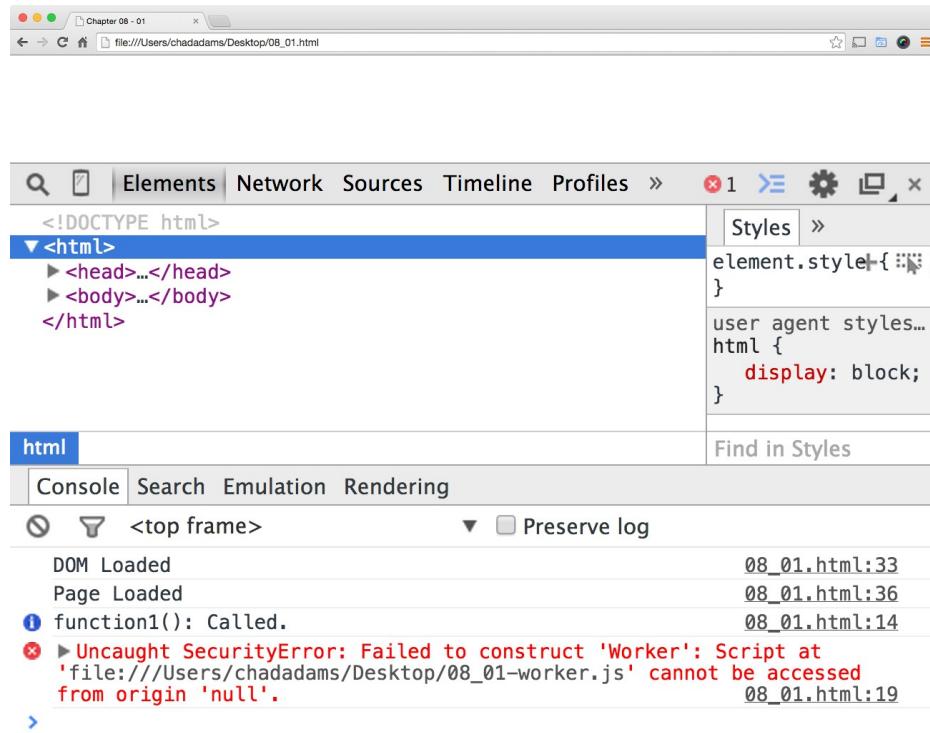
## Multi-threaded JS application (Web Worker)



```
08_01          08_01-worker.js          08_02          08_02
1 <!DOCTYPE HTML>
2 <html>
3 <head>
4 <meta charset="utf-8">
5 <title>Chapter 08 - 01</title>
6 </head>
7
8 <body>
9
10 <script type="text/javascript">
11
12     function function1() {
13         console.info("function1(): Called.");
14         console.time("Worker");
15     }
16
17     function function2() {
18         var func2_Worker = new Worker("08_01-worker.js");
19         func2_Worker.onmessage = function (oEvent) {
20             console.log("func2_Worker says : " + oEvent.data);
21         };
22
23         func2_Worker.postMessage("Processing a high performance JavaScript worker...");
24     }
25
26     function function3() {
27         console.info("function3(): Called.");
28         console.timeEnd("Worker");
29     }
30
31     window.addEventListener("DOMContentLoaded", function () {
32         console.log("DOM Loaded");
33     }, false);
34     window.addEventListener("load", function () {
35         console.log("Page Loaded");
36     }, false);
37
38     function1();
39     function2();
40     function3();
41
42 }, false);
43
44 </script>
45
46 </body>
47 </html>
```

```
08_01           08_01-worker.js           08_02           08_02
1 | onmessage = function (oEvent) {
2 |   for (var i = 0; i <= 1000; i++) {
3 |     postMessage(oEvent.data + " " + i);
4 |   }
5 | };
```

```
18 | function function2() {
19 |   var func2_Worker = new Worker("08_01-worker.js");
20 |   func2_Worker.onmessage = function (oEvent) {
21 |     console.log("func2_Worker says : " + oEvent.data);
22 |   };
23 |
24 |   func2_Worker.postMessage("Processing a high performance JavaScript worker...");
25 | }
26 |
27 | function function3() {
28 |   console.info("function3(): Called.");
29 |   console.timeEnd("Worker");
30 | }
31 |
32 | window.addEventListener("DOMContentLoaded", function () {
33 |   console.log("DOM Loaded");
34 | }, false);
35 | window.addEventListener("load", function () {
36 |   console.log("Page Loaded");
37 |
38 |   function1();
39 |   function2();
40 |   function3();
41 |
42 | }, false);
43 |
44 |</script>
45 |
46 |</body>
47 |</html>
```



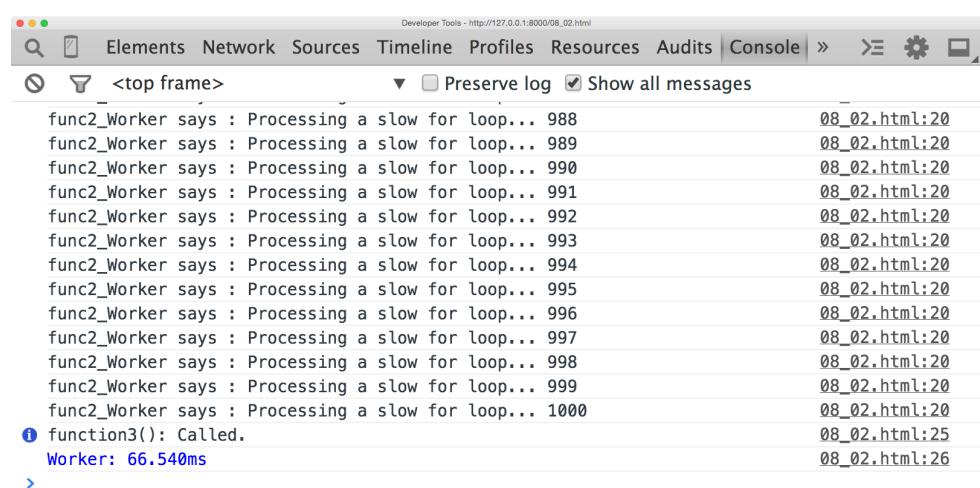
Developer Tools - http://127.0.0.1:8000/08\_01.html

Elements Network Sources Timeline Profiles Resources Audits Console » ⌂ ⌂ ⌂

✖ ⌂ <top frame> ▼ Preserve log  Show all messages

DOM Loaded	08_01.html:33
Page Loaded	08_01.html:36
ℹ function1(): Called.	08_01.html:14
ℹ function3(): Called.	08_01.html:28
Worker: 0.475ms	08_01.html:29
func2_Worker says : Processing a high performance JavaScript worker... 0	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 1	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 2	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 3	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 4	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 5	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 6	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 7	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 8	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 9	08_01.html:21
func2_Worker says : Processing a high performance JavaScript worker... 10	08_01.html:21

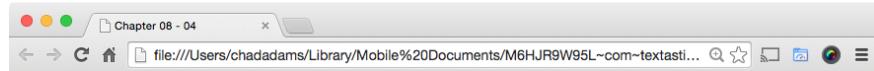
```
08_02
1 <!DOCTYPE HTML>
2 <html>
3 <head>
4 <meta charset="utf-8">
5 <title>Chapter 08 - 02</title>
6 </head>
7
8 <body>
9 >
10 >
11 <script type="text/javascript">
12
13 function function1() {
14 >   console.info("function1(): Called.");
15 >   console.time("Worker");
16 }
17
18 function function2() {
19 >   for (var i = 0; i <= 1000; i++) {
20 >     >   console.log("func2_Worker says : Processing a slow for loop... " + i);
21 >   }
22 }
23
24 function function3() {
25 >   console.info("function3(): Called.");
26 >   console.timeEnd("Worker");
27 }
28
29 window.addEventListener("DOMContentLoaded", function () {
30 >   console.log("DOM Loaded");
31 }, false);
32 window.addEventListener("load", function () {
33 >   console.log("Page Loaded");
34
35 >   function1();
36 >   function2();
37 >   function3();
38
39 }, false);
40
41 </script>
42 >
43 </body>
44 </html>
```



```
08_03
1 <!DOCTYPE HTML>
2 <html>
3 <head>
4 <meta charset="utf-8">
5 <title>Chapter 08 - 03</title>
6 <style type="text/css">
7   body { font-family: monospace; font-size: 1em; }
8   #results { margin-top: 1em; }
9 </style>
10 </head>
11
12 <body>
13 <button onclick="makeAPromise()">Make A Promise</button>
14
15 <div id="results"></div>
16
17 <script type="text/javascript">
18
19   function makeAPromise() {
20     var promiseCount = 0;
21
22     var promiseNo1 = new Promise(
23       function(resolve) {
24         for (var i = 0; i <= 1000; i++) {
25           promiseCount = i * 5;
26         }
27
28         /* Assign a value to our promise */
29         resolve("Our final count: <strong>" + promiseCount + "</strong>")
30       });
31
32     promiseNo1.then(
33       function(promiseCount) {
34         document.getElementById("results").innerHTML = promiseCount;
35       }
36     )
37   }
38
39 </script>
40 </body>
41 </html>
```

```
08_04
08_04 ~

1 <!DOCTYPE HTML>
2 <html>
3 <head>
4 <meta charset="utf-8">
5 <title>Chapter 08 - 04</title>
6 <style type="text/css">
7   body { font-family: monospace; font-size: 1em; }
8   #results { margin-top: 1em; }
9 </style>
10 </head>
11
12 <body>
13 <button onclick="makeAPromise()">Make A Promise</button>
14
15 <div id="results"></div>
16
17 <script type="text/javascript">
18
19   function makeAPromise() {
20     var timerCount = 0;
21     document.getElementById("results").innerHTML +=
22     timerCount + ": <strong>First</strong> count <br />";
23
24     var promiseNo1 = new Promise(
25       function(resolve) {
26         for (var i = 0; i <= 1000; i++) {
27           timerCount = i * Math.random();
28         }
29         resolve(timerCount);
30     });
31     promiseNo1.then(
32       function(response) {
33         var totalCount = response + timerCount;
34         window.setTimeout(function(){
35           document.getElementById("results").innerHTML +=
36           totalCount +
37           ": <strong>Second</strong> count (delayed)<br />";
38           }, timerCount);
39     }
40     ).then(
41       function() {
42         document.getElementById("results").innerHTML +=
43         timerCount + ": <strong>Third</strong> count <br />";
44       }
45     );
46   }
47
48 </script>
49 </body>
50 </html>
```



Make A Promise

```
0: First count
791.1708613391966: Third count
1582.3417226783931: Second count (delayed)
0: First count
768.0629084352404: Third count
1536.1258168704808: Second count (delayed)
0: First count
569.6942526847124: Third count
1139.3885053694248: Second count (delayed)
0: First count
187.0323233306408: Third count
374.0646466612816: Second count (delayed)
0: First count
306.5192673821002: Third count
613.0385347642004: Second count (delayed)
0: First count
297.56293166428804: Third count
595.1258633285761: Second count (delayed)
0: First count
798.901405883953: Third count
1597.802811767906: Second count (delayed)
```

# Chapter 9

The screenshot shows the Mac App Store interface. At the top, there's a navigation bar with icons for Featured, Top Charts, Categories, Purchases, and Updates, along with a search bar. Below the navigation bar, the Xcode app page is displayed. On the left, there's a large icon of a hammer and saw on a blueprint. The main title is "Xcode" with the subtitle "Create great apps for Mac, iPhone, and iPad." A "Installing" button is visible. To the right, there's a thumbnail of a laptop displaying the Xcode IDE. The central content area includes a brief description of Xcode, a "What's New in Version 6.1.1" section, and links to Apple Web Site, Xcode Support, App License Agreement, and Privacy Policy. At the bottom, there's a detailed description of Xcode, including its category (Developer Tools), update date (Dec 02, 2014), version (6.1.1), price (Free), size (2.49 GB), family sharing (Yes), language (English), and seller (Apple Inc.). It also shows a rating of 4+ and compatibility with OS X 10.9.4 or later. Below this, there's a "More by Apple" section featuring OS X Yosemite Utilities, iPhoto Photography, iMovie Video, and Pages Productivity, each with a small icon and a star rating.

Xcode [4+]

Essentials

Xcode provides everything developers need to create great applications for Mac, iPhone, and iPad. Xcode brings user interface design, coding, testing, and debugging all into a unified workflow. The Xcode IDE combined with the Cocoa and Cocoa Touch frameworks, and the Swift programming language make developing apps easier and more fun than ever before.

...More

What's New in Version 6.1.1

Includes SDKs for OS X 10.10 Yosemite, OS X 10.9 Mavericks, and iOS 8.1

...More

Apple Web Site

Xcode Support

App License Agreement

Privacy Policy

Information

Category: Developer Tools  
Updated: Dec 02, 2014  
Version: 6.1.1  
Price: Free  
Size: 2.49 GB  
Family Sharing: Yes  
Language: English  
Seller: Apple Inc.  
© 1999–2014 Apple Inc.

Rated 4+

Compatibility:  
OS X 10.9.4 or later

More by Apple

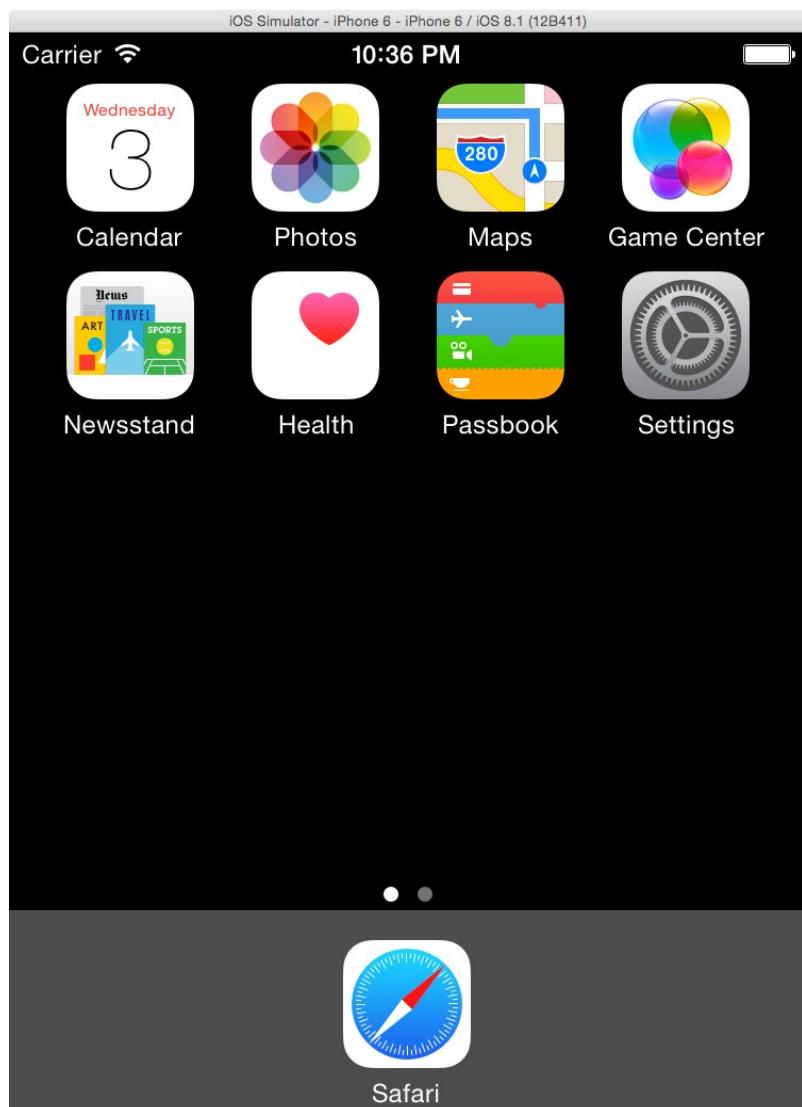
OS X Yosemite Utilities ★★★★☆

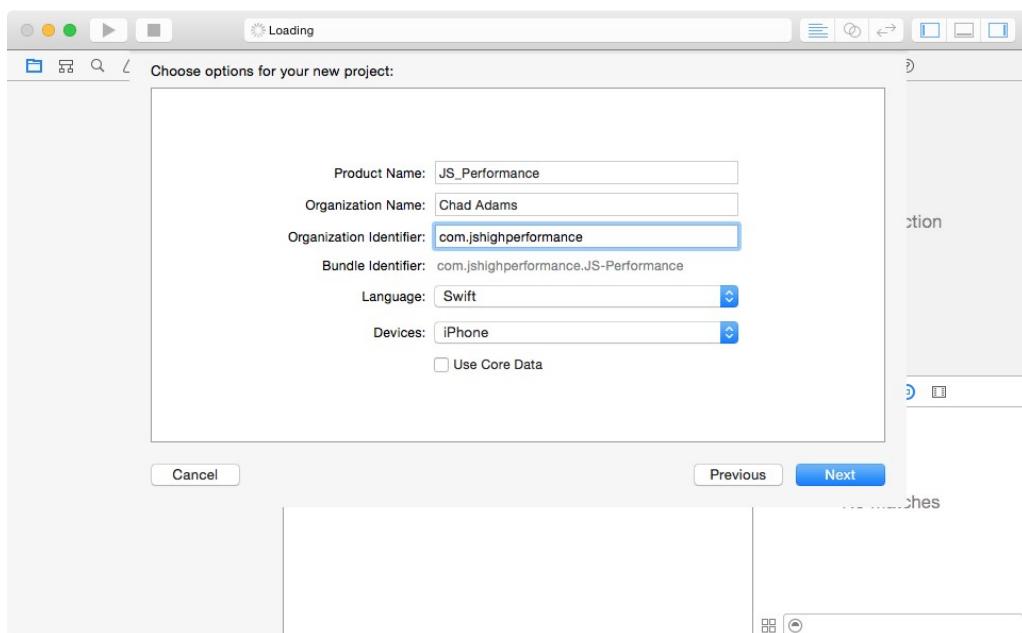
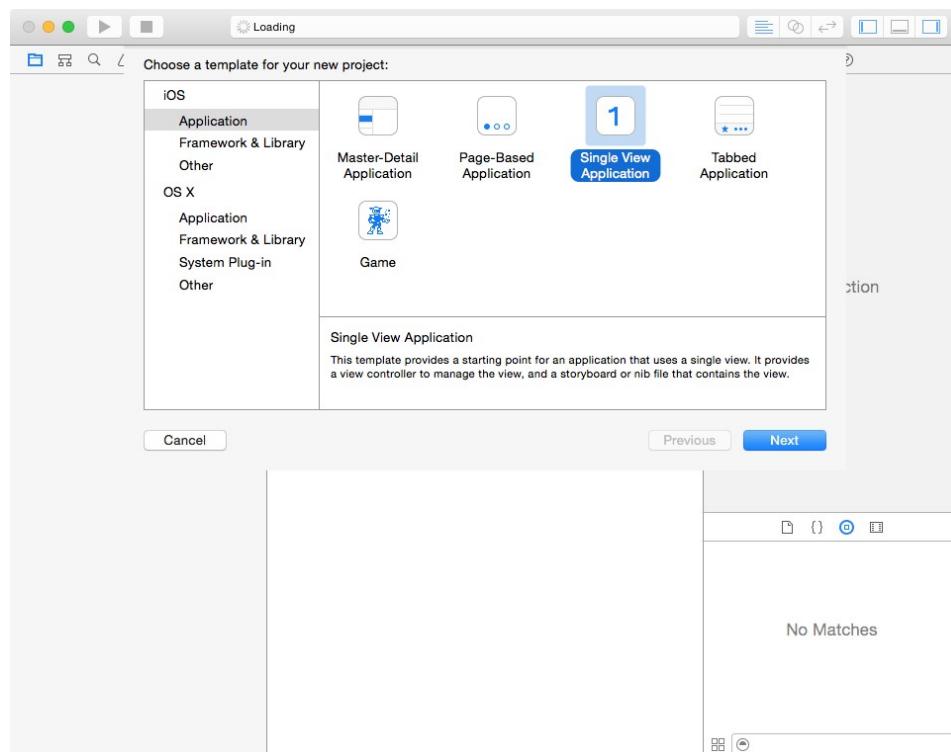
iPhoto Photography ★★★☆☆

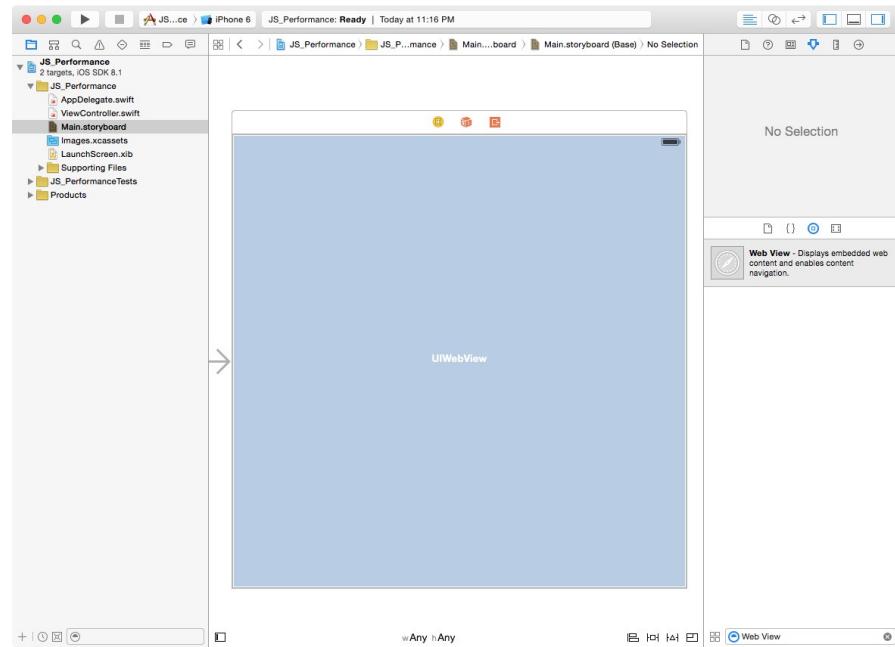
iMovie Video ★★★★☆

Pages Productivity ★★★☆☆

The screenshot shows the Xcode IDE. The left side features a file browser with a tree view of project files, including Shutterbug (Info.plist, Main.storyboard, AppDelegate.swift, ViewController.swift, etc.). The main workspace shows a storyboard scene titled "Shutterbugs" with a circular flower image. A constraint editor overlay is open over the storyboard, showing "Add New Constraint" with values 48, 7, and 473. The right side of the screen displays a code editor with Swift code for a LoginView.swift file. The code includes imports for Foundation, UIKit, and CoreLocation, and defines a LoginView class with methods like viewDidLoad, photoProgress, and commonInit. The code also handles UI interactions like setting up constraints and adding subviews. The status bar at the bottom shows "Sat 9:41 AM" and "Set 9:41 AM".



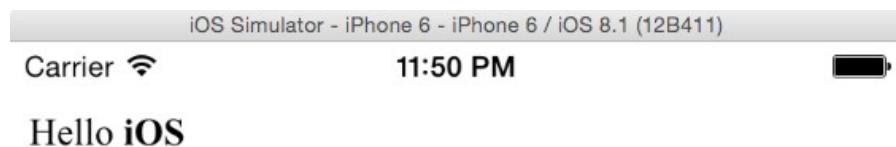




The screenshot shows the Xcode interface with the project 'JS\_Performance' selected. The code editor displays the 'ViewController.swift' file. The code defines a class 'ViewController' that inherits from 'UIViewController'. It includes two overridden methods: 'viewDidLoad()' and 'didReceiveMemoryWarning()'. A blue arrow points from the 'UIWebView' component in the storyboard to the 'viewDidLoad()' method in the code editor.

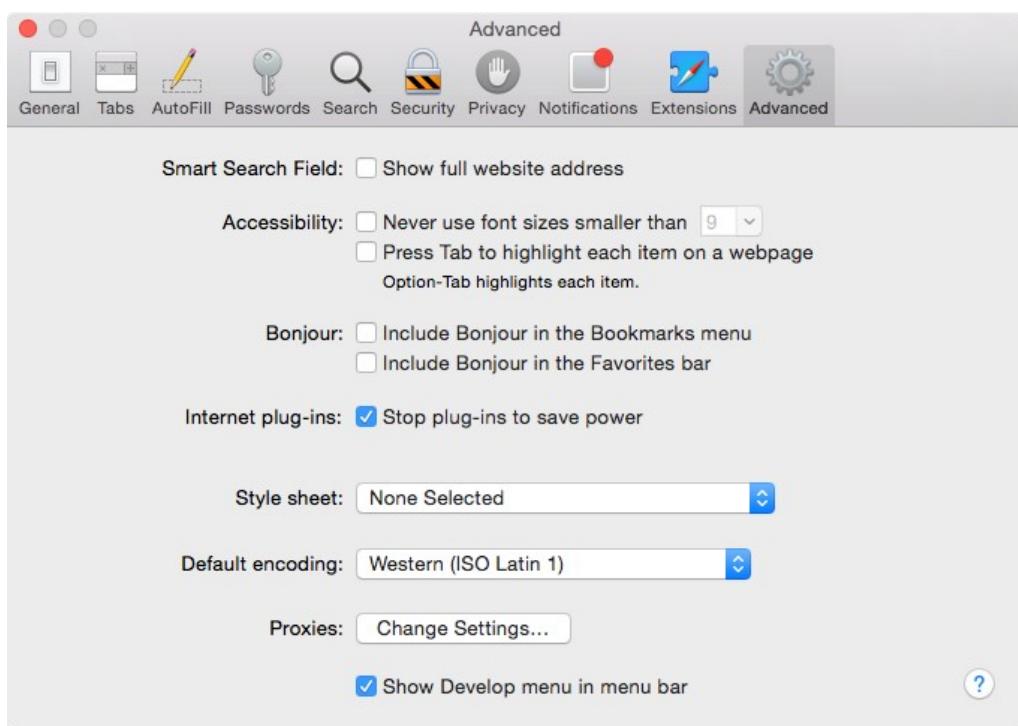
```
1 // ViewController.swift
2 // JS_Performance
3 //
4 //
5 // Created by Chad Adams on 12/3/14.
6 // Copyright (c) 2014 Chad Adams. All rights reserved.
7 //
8 import UIKit
9
10 class ViewController: UIViewController {
11
12     override func viewDidLoad() {
13         super.viewDidLoad()
14         // Do any additional setup after loading the view, typically from a nib.
15     }
16
17     override func didReceiveMemoryWarning() {
18         super.didReceiveMemoryWarning()
19         // Dispose of any resources that can be recreated.
20     }
21
22 }
23
24
25
26 }
```

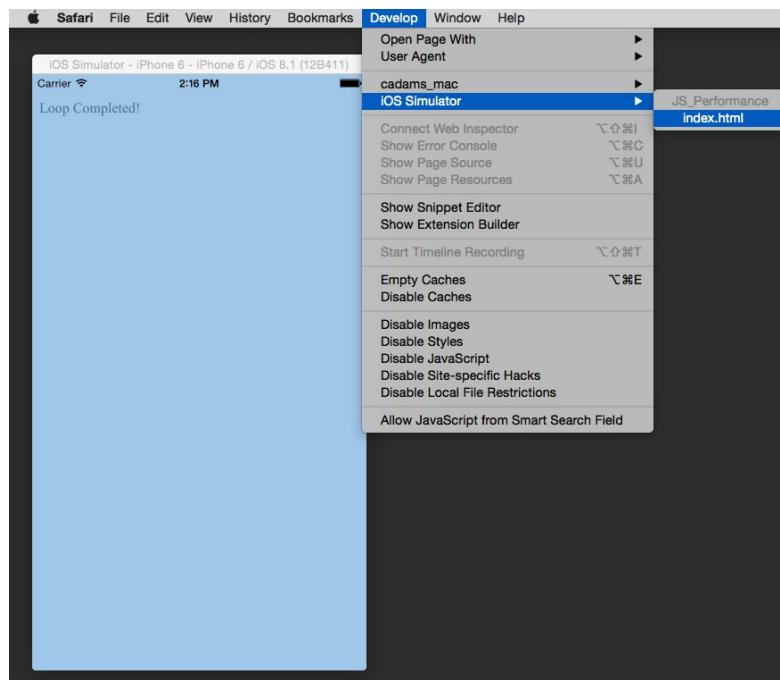
```
1 // ViewController.swift
2 // JS_Performance
3 // JS_Performance
4 //
5 // Created by Chad Adams on 12/3/14.
6 // Copyright (c) 2014 Chad Adams. All rights reserved.
7 //
8 import UIKit
9
10 class ViewController: UIViewController {
11     @IBOutlet weak var webView: UIWebView!
12
13     override func viewDidLoad() {
14         super.viewDidLoad()
15         // Do any additional setup after loading the view, typically from a nib.
16
17         let bundle = NSBundle mainBundle()
18         let pathofhtml = bundle.pathForResource("index", ofType: "html")
19
20         webView.loadRequest(NSURLRequest(URL: NSURL(fileURLWithPath: pathofhtml!)))
21
22     }
23
24     override func didReceiveMemoryWarning() {
25         super.didReceiveMemoryWarning()
26         // Dispose of any resources that can be recreated.
27     }
28
29
30
31 }
32
```

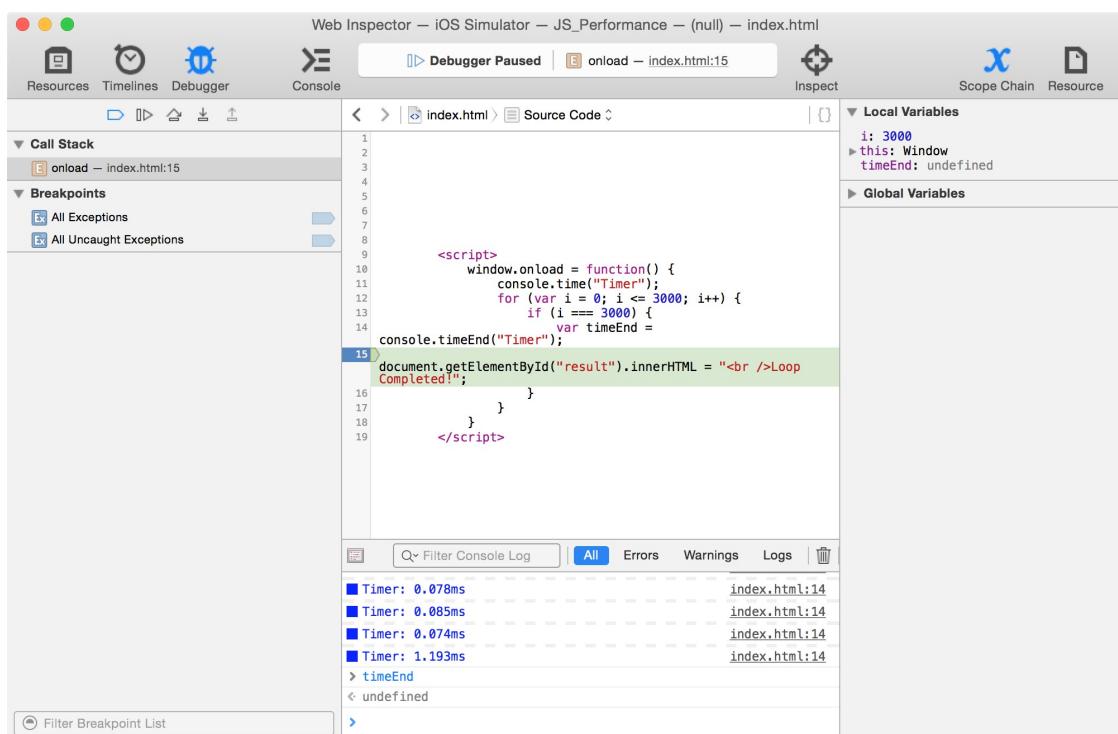
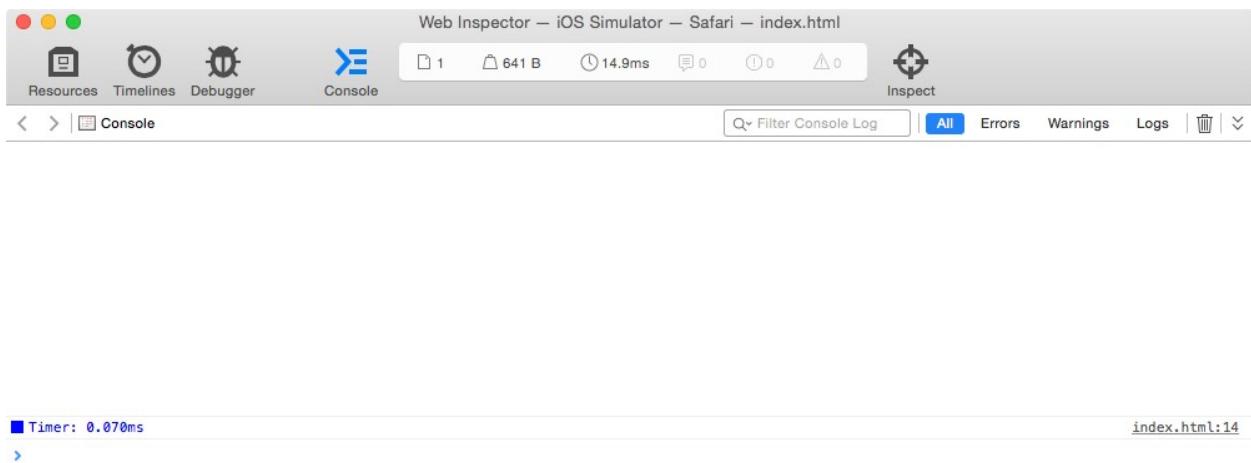


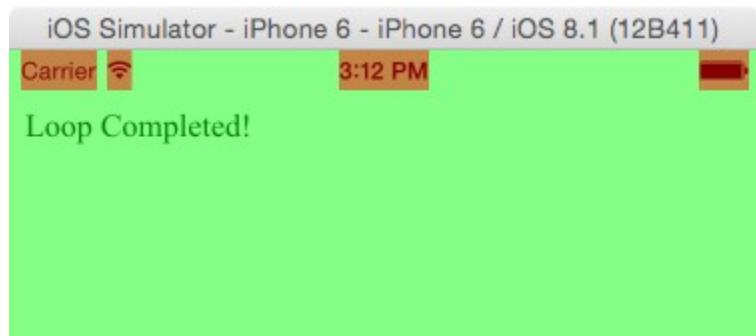
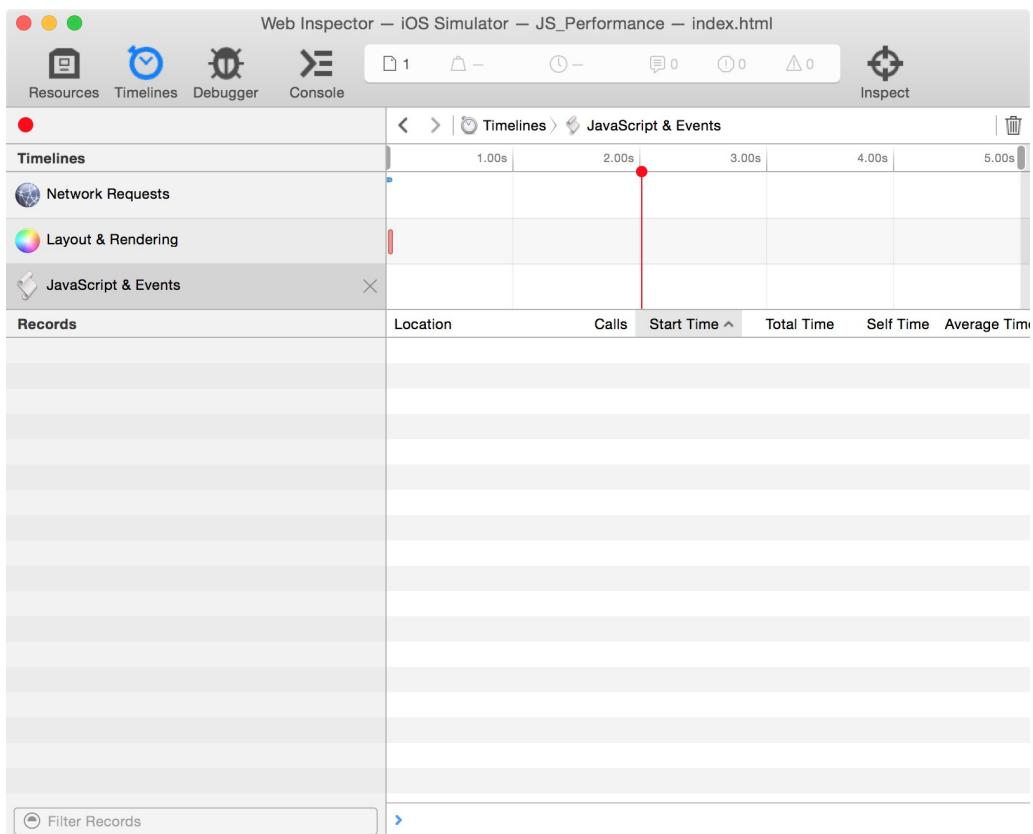
The screenshot shows a web browser window titled "JB\_Performance" with the URL "index.html". The page content is a simple HTML document with a single script block. The script contains a loop that runs 3000 times, timing each iteration. Once the loop completes, it updates the "result" div with the text "<br />Loop Completed!". The browser's status bar at the bottom indicates "Running JS\_Performance on iPhone 6".

```
1 <!DOCTYPE HTML>
2 <html>
3   <head>
4     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
5     <title>Chapter 09 - 01</title>
6   </head>
7   <body>
8     <div id="result"></div>
9     <script>
10    window.onload = function() {
11      console.time("Timer");
12      for (var i = 0; i <= 3000; i++) {
13        if (i === 3000) {
14          var timeEnd = console.timeEnd("Timer");
15          document.getElementById("result").innerHTML = "<br />Loop Completed!";
16        }
17      }
18    }
19  </script>
20 </body>
21 </html>
```



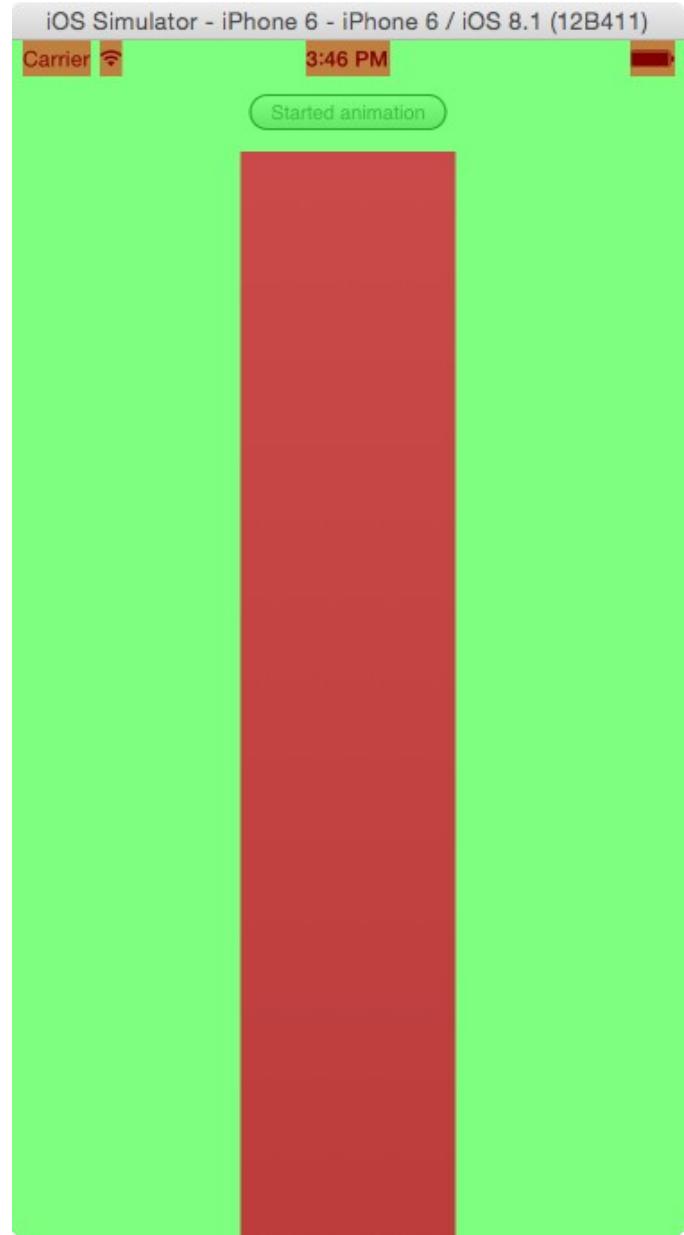






```
<!DOCTYPE HTML>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<title>Chapter 09 - 02</title>
</head>
<body style="text-align: center">
<br />
<button onclick="start()">Start animation</button>
<div id="updateDiv" style="background: -webkit-linear-gradient(top, #959595 0%,#0d0d0d
46%,#010101 50%,#a0a0a0 53%,#4e4e4e 76%,#383838 87%,#1b1b1b 100%);"></div>
<script>
function start() {
    var divHeight = 1;
    document.getElementsByTagName("button")[0].innerText = "Started animation";
    document.getElementsByTagName("button")[0].disabled = "disabled";
    var interval = setInterval(function(){
        divHeight++;
        document.getElementById("updateDiv").style.webkitTransform = "translate3d(0, 0, 0)";
        document.getElementById("updateDiv").style.width = "120px";
        document.getElementById("updateDiv").style.margin = "10px auto";
        document.getElementById("updateDiv").style.height = divHeight + "px";
    }, 1);
}

</script>
</body>
</html>
```



# Chapter 10

The screenshot shows the GitHub releases page for the `jasmine/jasmine` repository. The page displays four releases in descending order of version number:

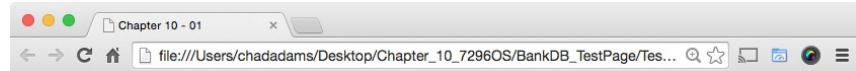
- Latest release:** v2.1.3 by slackersoft (14 days ago, 8 commits).
  - [Release notes](#)
  - [Download zip](#)
  - [Source code \(zip\)](#)
  - [Source code \(tar.gz\)](#)
- v2.1.2:** by slackersoft (29 days ago, 15 commits).
  - [Release notes](#)
  - [Download zip](#)
  - [Source code \(zip\)](#)
  - [Source code \(tar.gz\)](#)
- v2.1.1:** by slackersoft (Nov 14, 17 commits).
  - [Release notes](#)
  - [Download zip](#)
  - [Source code \(zip\)](#)
  - [Source code \(tar.gz\)](#)
- v2.1.0:** by slackersoft (Nov 14, 20 commits).
  - [Release notes](#)
  - [Download zip](#)
  - [Source code \(zip\)](#)
  - [Source code \(tar.gz\)](#)

A screenshot of a web browser window displaying a Jasmine test run. The title bar shows the file path: file:///Users/chadadams/Desktop/jasmine-standalone-2/SpecRunner.html. The main content area has a header with the Jasmine logo and version 2.1.3. To the right, it says "finished in 0.002s". Below the header, there are five green dots representing completed specs. A teal banner at the top indicates "5 specs, 0 failures". On the right side of this banner is a button labeled "raise exceptions" with a small checkbox icon. The main body of the page contains a list of test descriptions for a "Player" object:

- Player
  - should be able to play a Song
- when song has been paused
  - should indicate that the song is currently paused
  - should be possible to resume
- tells the current song if the user has made it a favorite
- #resume
  - should throw an exception if song is already playing

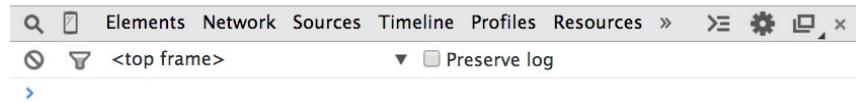
```
10_01 ~
```

```
1 // Gender Enumeration
2 var Gender;
3 (function (Gender) {
4     Gender[Gender["Male"] = 0] = "Male";
5     Gender[Gender["Female"] = 1] = "Female";
6     Gender[Gender["Alien"] = 2] = "Alien";
7 })(Gender || (Gender = {}));
8
9 // @class BankDB - Client-side database class object, with common query functions.
10 var BankDB = (function () {
11     function BankDB(_customer) {
12         this.customerID = _customer.customerID;
13         this.customerBalance = _customer.customerBalance;
14         this.customerName = _customer.customerName;
15         this.customerCity = _customer.customerCity;
16         this.customerGender = _customer.customerGender;
17         this.customerMarried = _customer.customerMarried;
18     }
19 }
20 BankDB.prototype.requestCustomerCityName = function () {
21     return "City: " + this.customerCity;
22 };
23
24 BankDB.prototype.requestBankBalance = function () {
25     var stringBalance = "Balance: $" + this.customerBalance;
26     return stringBalance;
27 };
28
29 BankDB.prototype.requestCustomerGreeting = function () {
30     var stringBalance;
31     switch (this.customerGender) {
32         case 0:
33             stringBalance = "Hello Mr. " + this.customerName[1] + ".";
34             break;
35         case 1:
36             if (this.customerMarried) {
37                 stringBalance = "Hello Mrs. " + this.customerName[1] + ".";
38             }
39             else {
40                 stringBalance = "Hello Miss. " + this.customerName[1] + ".";
41             }
42             break;
43         case 2:
44             stringBalance = "Live long and prosper " + this.customerName[1] + ".";
45             break;
46         default:
47             stringBalance = "Hello " + this.customerName[1] + ".";
48             break;
49     }
50     return stringBalance;
51 };
52 return BankDB;
53 })();
54
55 // New Customer data value
56 var newCustomer = {
57     customerID: 54323421,
58     customerName: "Leonard Adams",
59     customerBalance: "40000",
60     customerCity: "Raymore",
61     customerGender: 0 /* Male */,
62     customerMarried: 'false'
63 };
64
65 // New request to the client-side database.
66 var request = new BankDB(newCustomer);
67 document.body.style.fontFamily = "'Segoe UI', Helvetica, Arial, sans-serif";
68 document.body.style.fontSize = "2em";
69 document.body.style.textAlign = "center";
70 document.body.innerHTML += "<br />" + request.requestCustomerGreeting();
71 document.body.innerHTML += "<br />" + request.requestCustomerCityName();
72 document.body.innerHTML += "<br /><br /><strong>" + request.requestBankBalance() + "</strong>";
73
```

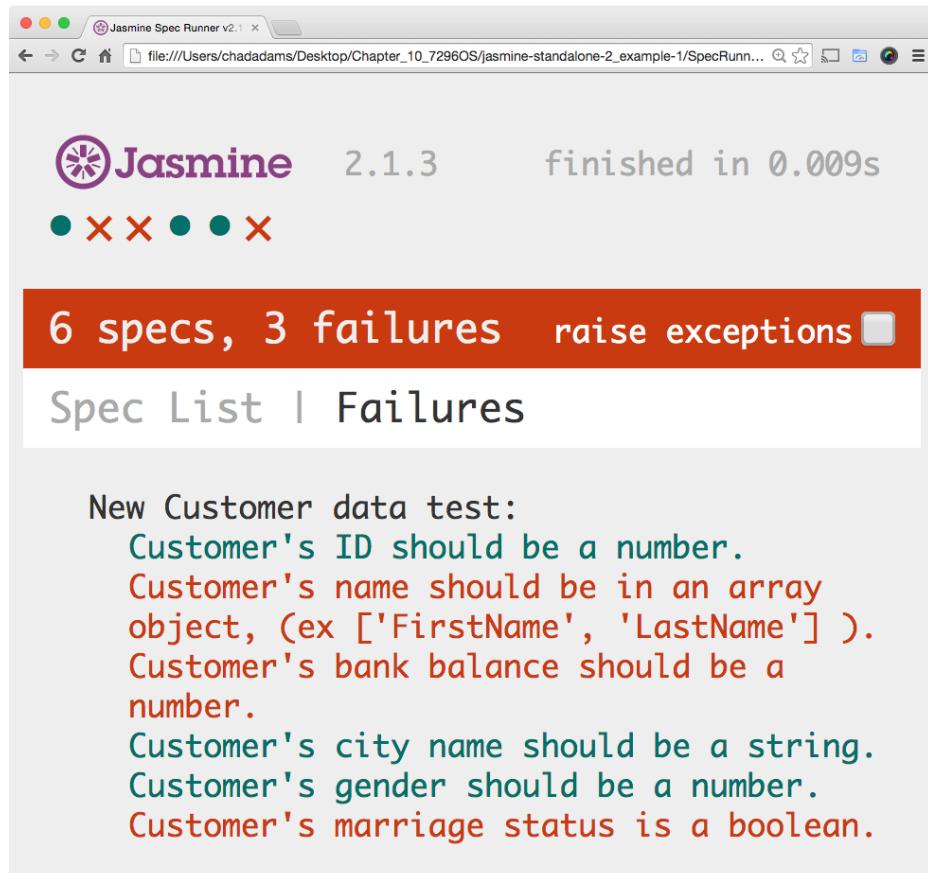


Hello Mr. e.  
City: Raymore

**Balance: \$40000**



```
Chapter_10_01Spec.js
1 describe("New Customer data test: ", function() {
2   it("Customer's ID should be a number.", function() {
3     expect(typeof newCustomer.customerID).toEqual("number");
4   });
5
6   it("Customer's name should be in an array object, (ex ['FirstName', 'LastName']).",
7     function() {
8       expect(typeof newCustomer.customerName).toEqual("object");
9     });
10
11   it("Customer's bank balance should be a number.", function() {
12     expect(typeof newCustomer.customerBalance).toEqual("number");
13   });
14
15   it("Customer's city name should be a string.", function() {
16     expect(typeof newCustomer.customerCity).toEqual("string");
17   });
18
19   it("Customer's gender should be a number.", function() {
20     expect(typeof newCustomer.customerGender).toEqual("number");
21   });
22
23   it("Customer's marriage status is a boolean.", function() {
24     expect(typeof newCustomer.customerMarried).toEqual("boolean");
25   });
26
27 });
28
29});
```



```
Chapter_10_01
55 // New Customer data value
56 var newCustomer = {
57   customerID: 54323421,
58   customerName: ["Leonard", "Adams"],
59   customerBalance: 40000,
60   customerCity: "Raymore",
61   customerGender: 0 /* Male */,
62   customerMarried: false
63 };
```

Jasmine Spec Runner v2.1.3

Chad

file:///Users/cadams/Desktop/10/jasmine-standalone-2...

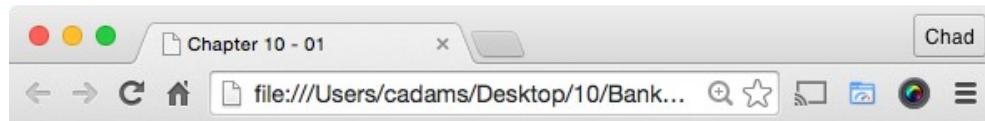
finished in 0.004s

● ● ● ● ●

**6 specs, 0 failures** raise exceptions

New Customer data test:

- Customer's ID should be a number.
- Customer's name should be in an array object, (ex ['FirstName', 'LastName'] ).
- Customer's bank balance should be a number.
- Customer's city name should be a string.
- Customer's gender should be a number.
- Customer's marriage status is a boolean.



# Hello Mr. Adams.

## City: Raymore

---

**Balance: \$40000**

A screenshot of the Chrome DevTools Elements tab. The left pane shows the HTML structure with the body element selected. The right pane shows the Computed styles for the body element, which includes the following CSS:

```
element.style {
  font-family: 'Segoe UI', Helvetica, Arial, sans-serif;
  font-size: 2em;
  text-align: center;
}

user agent stylesheet
body {
  display: block;
  margin: 8px;
}
```

The bottom right corner of the DevTools interface shows a visual representation of the element's bounding box and padding, with dimensions of 456.800 x 193.600 pixels.