

The Journey of Visual Studio Code

Erich Gamma

Job Description



microsoft x

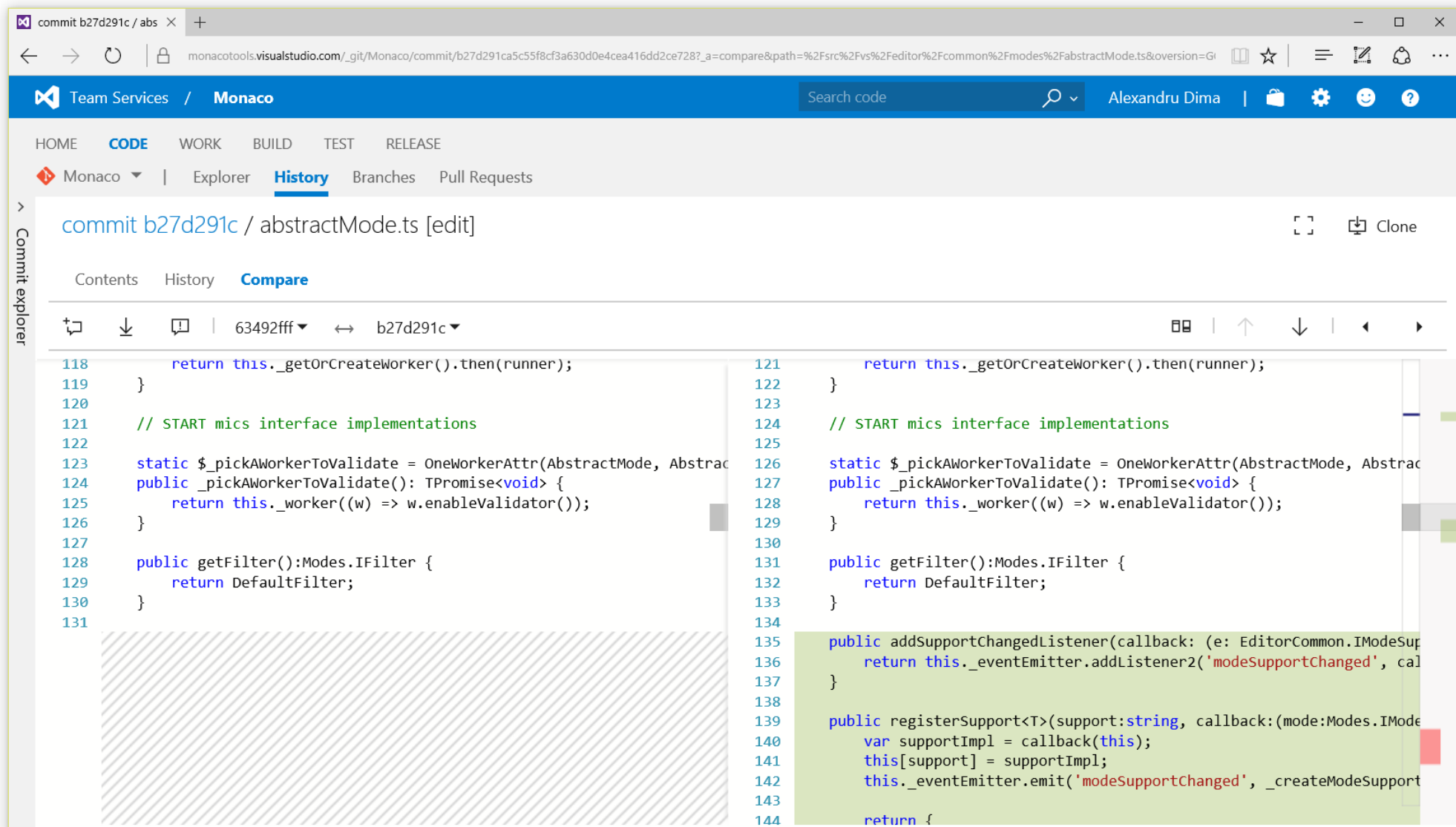


[Redacted text]

to me, Jason, Shanku ▾

5/11/11 ☆

Envision new paradigms for **online developer tooling** that will be as successful as the IDE has been for the desktop



The screenshot displays the Visual Studio Online Monaco editor interface. The browser address bar shows the URL: `monacotools.visualstudio.com/_git/Monaco/commit/b27d291ca5c55f8cf3a630d0e4cea416dd2ce728?_a=compare&path=%2Fsrc%2Fvs%2Feditor%2Fcommon%2Fmodes%2FabstractMode.ts&version=Gi`. The Monaco header includes the 'Team Services / Monaco' title, a 'Search code' input, and the user 'Alexandru Dima'. The navigation bar shows tabs for HOME, CODE, WORK, BUILD, TEST, and RELEASE, with 'CODE' selected. Below this, there are links for Monaco, Explorer, History, Branches, and Pull Requests. The main editor area is titled 'commit b27d291c / abstractMode.ts [edit]' and includes a 'Clone' button. A sub-header shows 'Contents History Compare' with 'Compare' selected. The comparison view shows two versions of the code: the base version (63492fff) on the left and the selected commit (b27d291c) on the right. The code is TypeScript for the 'AbstractMode' class. The left pane shows lines 118 to 131, and the right pane shows lines 121 to 144. The code includes a static method `_pickAWorkerToValidate` and a `getFilter` method. The right pane highlights the `addSupportChangedListener` and `registerSupport` methods. The Monaco logo is visible on the left side of the editor area.

```
118     return this._getOrCreateWorker().then(runner);
119   }
120
121   // START mics interface implementations
122
123   static $_pickAWorkerToValidate = OneWorkerAttr(AbstractMode, AbstractMode);
124   public _pickAWorkerToValidate(): TPromise<void> {
125     return this._worker((w) => w.enableValidator());
126   }
127
128   public getFilter():Modes.IFilter {
129     return DefaultFilter;
130   }
131
121     return this._getOrCreateWorker().then(runner);
122   }
123
124   // START mics interface implementations
125
126   static $_pickAWorkerToValidate = OneWorkerAttr(AbstractMode, AbstractMode);
127   public _pickAWorkerToValidate(): TPromise<void> {
128     return this._worker((w) => w.enableValidator());
129   }
130
131   public getFilter():Modes.IFilter {
132     return DefaultFilter;
133   }
134
135   public addSupportChangedListener(callback: (e: EditorCommon.IModeSupport) => void): void {
136     return this._eventEmitter.addListener2('modeSupportChanged', callback);
137   }
138
139   public registerSupport<T>(support:string, callback:(mode:Modes.IModeSupport) => void): void {
140     var supportImpl = callback(this);
141     this[support] = supportImpl;
142     this._eventEmitter.emit('modeSupportChanged', _createModeSupport(supportImpl));
143   }
144   return {
```

Playground · TypeScript × + | typescriptlang.org/play

TypeScript Documentation Samples Download Connect Playground

TypeScript 1.8 is now available. [Download](#) our latest version today!

Fork me on GitHub

Using Classes TypeScript Share Run JavaScript

```
1 class Greeter {
2   greeting: string;
3   constructor(message: string) {
4     this.greeting = message;
5   }
6   greet() {
7     return "Hello, " + this.greeting;
8   }
9 }
10 window.addEventListener('load', () => {
11   let greeter = new Greeter("world");
12   let button = document.createElement('button');
13   button.textContent = "Say Hello";
14   button.onclick = function () {
15     alert(greeter.greet());
16   };
17   document.body.appendChild(button);
18 }
19 document.body.appendChild(button);
```

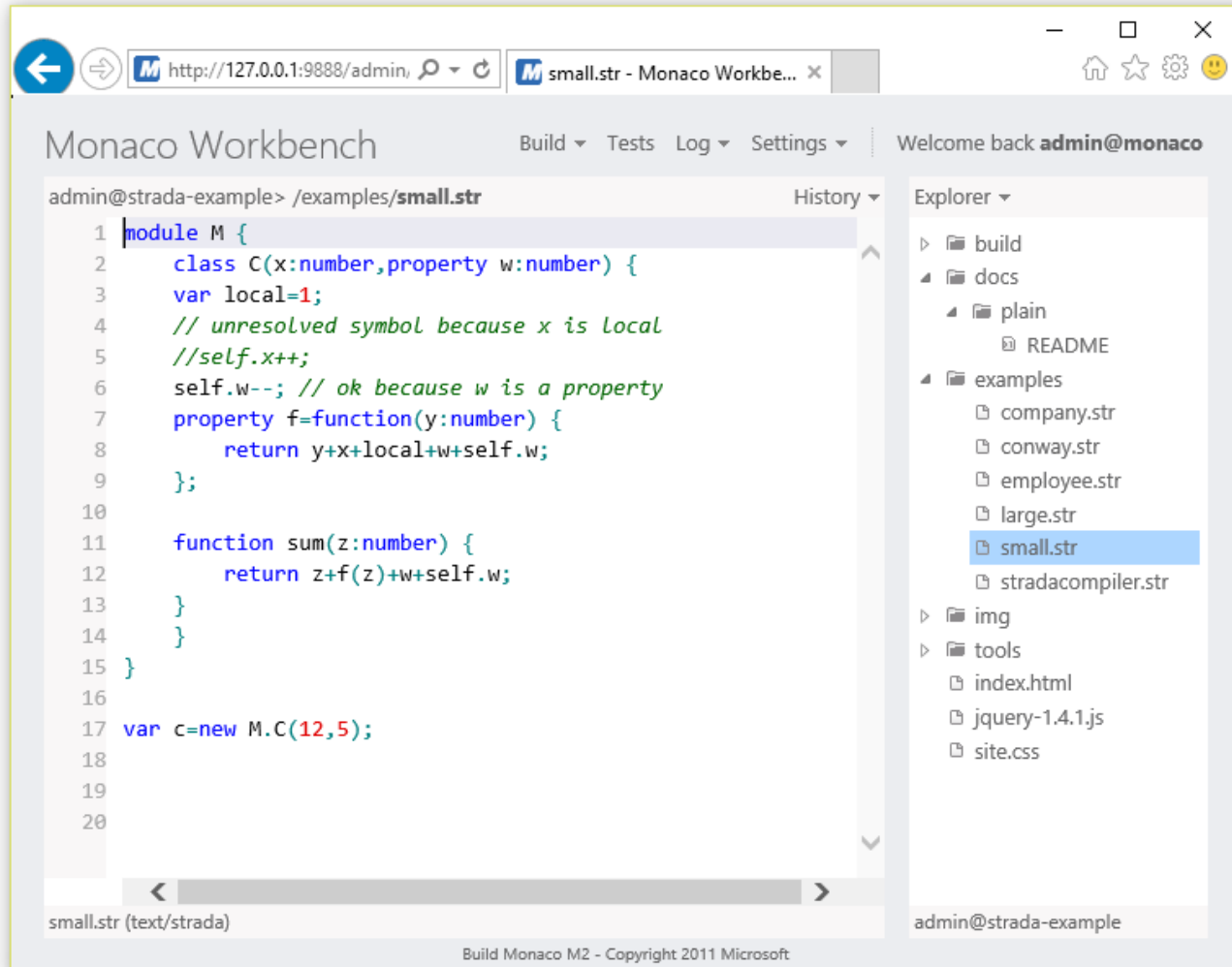
- onbeforeunload
- onload
- onloadeddata
- onloadedmetadata
- onloadstart
- onreadystatechange
- onunload
- addEventListener (method) Window.addEventListener

```
1 var Greeter = (function () {
2   function Greeter(message) {
3     this.greeting = message;
4   }
5   Greeter.prototype.greet = function () {
6     return "Hello, " + this.greeting;
7   };
8   return Greeter;
9 }());
10 window.ad
11 var greeter = new Greeter("world");
12 var button = document.createElement('button');
13 button.textContent = "Say Hello";
14 button.onclick = function () {
15   alert(greeter.greet());
16 };
17 document.body.appendChild(button);
```

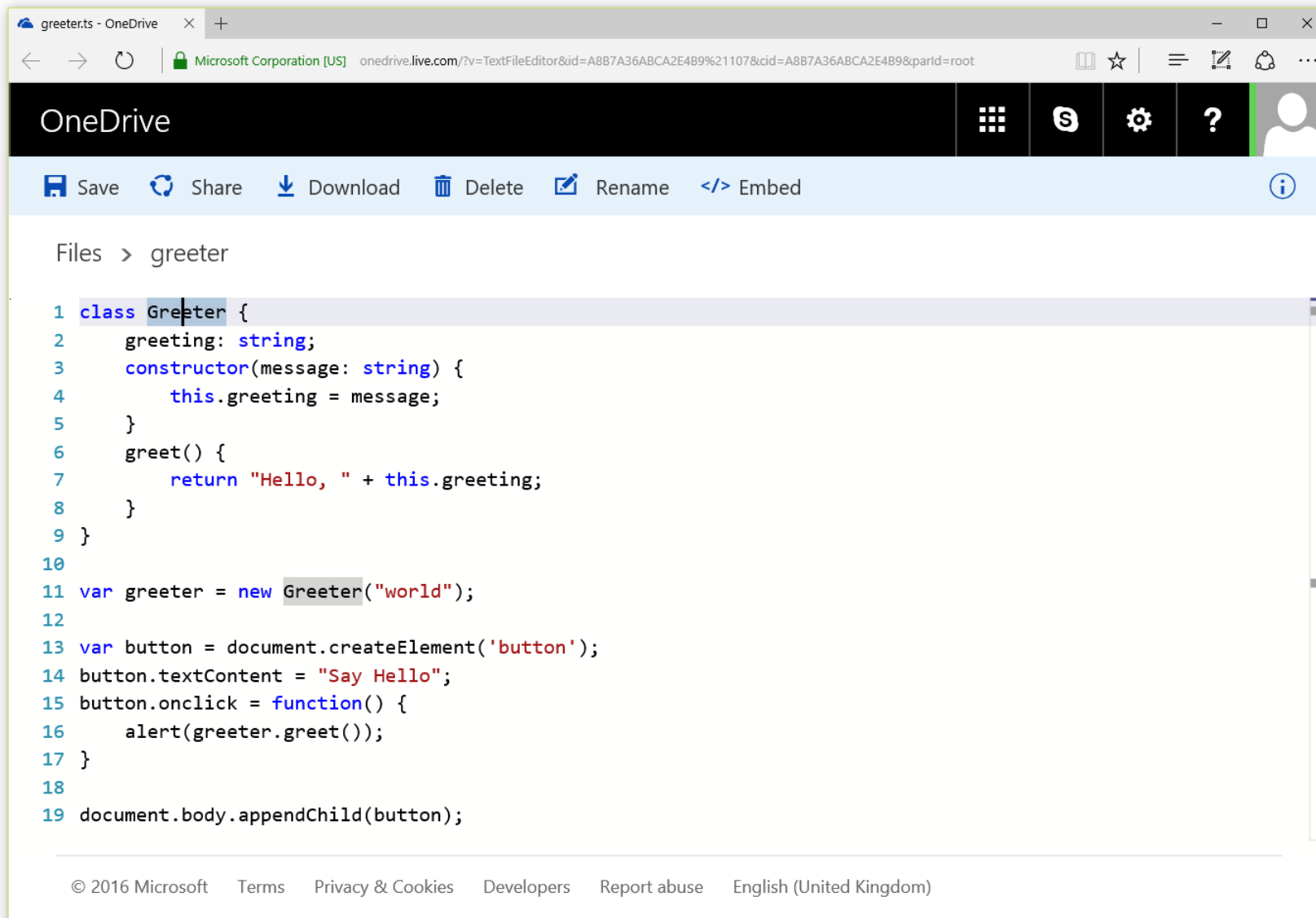
TypeScript

2011

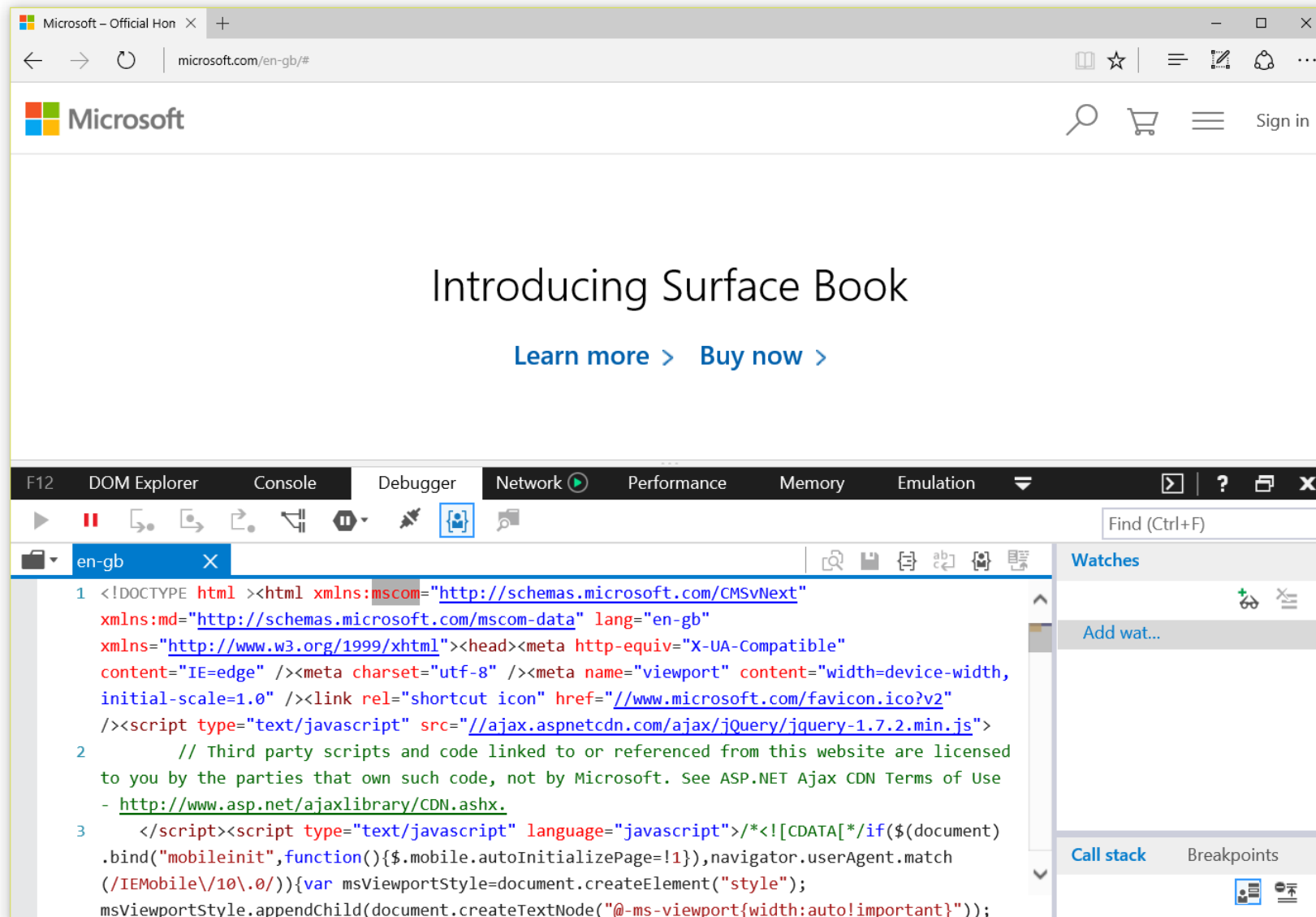
Eat your own dogfood



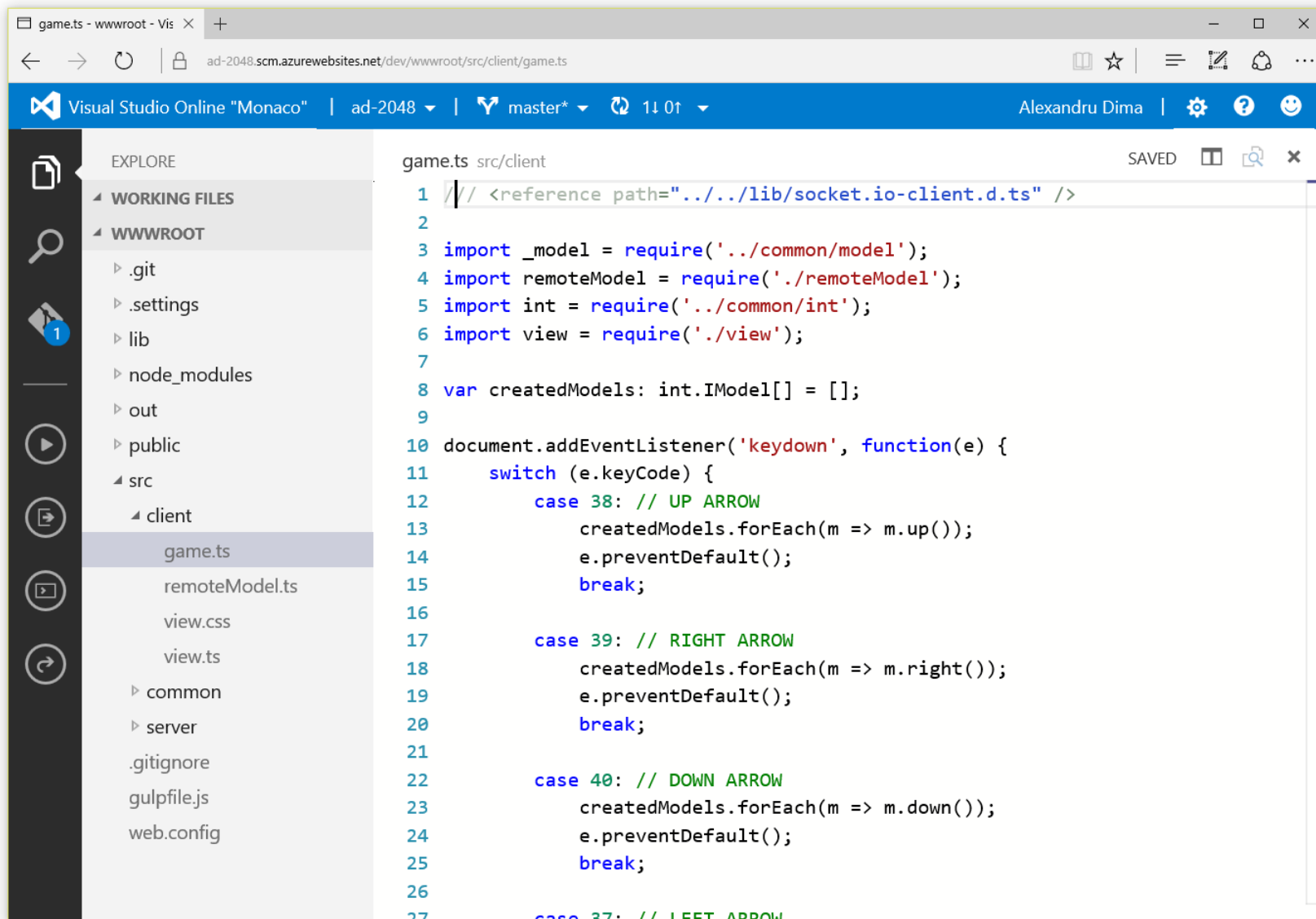
2011



2012



2012



game.ts src/client

```
1 // <reference path="../../lib/socket.io-client.d.ts" />
2
3 import _model = require('../common/model');
4 import remoteModel = require('../remoteModel');
5 import int = require('../common/int');
6 import view = require('../view');
7
8 var createdModels: int.IModel[] = [];
9
10 document.addEventListener('keydown', function(e) {
11     switch (e.keyCode) {
12         case 38: // UP ARROW
13             createdModels.forEach(m => m.up());
14             e.preventDefault();
15             break;
16
17         case 39: // RIGHT ARROW
18             createdModels.forEach(m => m.right());
19             e.preventDefault();
20             break;
21
22         case 40: // DOWN ARROW
23             createdModels.forEach(m => m.down());
24             e.preventDefault();
25             break;
26
27         case 37: // LEFT ARROW
```



Visual Studio Online "Monaco" 2013

Meanwhile Microsoft Changes

Run on **Windows**



Run **everywhere**

Edit in **Visual Studio**



Use your **favorite editor**

Black box compilers



Open Language Service APIs

Proprietary



Open Source

ASP.NET 4.6 and ASP.NET Core 1.0

ASP.NET 4.6

OSS

ASP.NET Core 1.0

OSS

.NET Framework 4.6



.NET Core 1.0

OSS



.NET framework libraries

.NET core libraries

OSS

Compilers and runtime components

(.NET Compiler Platform: Roslyn, C#, VB, F# Languages, RyuJIT, SIMD)

OSS

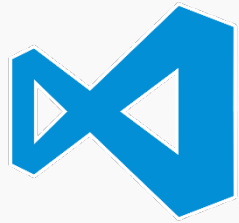
Hacker News: Microsoft “Hit List”

Y	Hacker News	new	comments	show	ask	jobs	submit
	Microsoft takes .NET open source and cross-platform	2376 points	ethomson	a year ago	772 comments	(http://news.microsoft.com/2014/11/12/microsoft-takes-net-open-source-and-cross-platform-adds-new-de)	
	Microsoft Launches Visual Studio Code, a Free Cross-Platform Code Editor	1608 points	MikusR	a year ago	542 comments	(http://techcrunch.com/2015/04/29/microsoft-shocks-the-world-with-visual-studio-code-a-free-code-editor-for)	
	Microsoft Open Sources C# Compiler	1297 points	keithwarren	2 years ago	451 comments	(http://roslyn.codeplex.com/)	
	Microsoft CEO Steve Ballmer to retire within 12 months	1183 points	tomorgan	3 years ago	771 comments	(http://www.microsoft.com/en-us/news/press/2013/aug13/08-23AnnouncementPR.aspx)	
	The Next Microsoft	1157 points	exogen	4 years ago	327 comments	(http://www.minimallyminimal.com/journal/2012/7/3/the-next-microsoft.html)	
	Microsoft Acquires Xamarin	1126 points	legomaster	3 months ago	383 comments	(http://weblogs.asp.net/scottgu/welcoming-the-xamarin-team-to-microsoft)	
	Satya Nadella – Microsoft's CEO	953 points	fredwu	2 years ago	570 comments	(http://www.microsoft.com/en-us/news/ceo/index.html)	
	Hands-On with Microsoft's New Holographic Goggles	946 points	vesinisa	a year ago	325 comments	(http://www.wired.com/2015/01/microsoft-hands-on)	
	Yes, we're being bought by Microsoft	941 points	jordanmessina	2 years ago	521 comments	(https://mojang.com/2014/09/yes-were-being-bought-by-microsoft/)	
	Microsoft Launches Its .NET Distribution for Linux and Mac	915 points	Errorcod3	a year ago	237 comments	(http://techcrunch.com/2015/04/29/microsoft-launches-its-net-distribution-for-linux-and-mac/)	
	Microsoft, Google, Facebook Back Apple in Blocked Phone Case	888 points	sbuk	2 months ago	240 comments	(http://www.bloomberg.com/news/articles/2016-02-25/microsoft-says-it-will-file-an-amicus-brief-to-support-a)	
	New Windows 10 Devices From Microsoft						

Pivot or Persevere?

THE LEAN STARTUP

How Today's **Entrepreneurs** Use
Continuous Innovation to Create
Radically **Successful** Businesses



Visual Studio

Code
A tool that combines the **simplicity of a code editor** with what developers need for the core **code-build-debug-commit cycle**



↓ Windows

Windows 7, 8, 10



↓ .deb

Debian, Ubuntu

↓ .rpm

Red Hat, Fedora, CentOS



↓ OS X

OS X Yosemite, El Capitan



<https://github.com/Microsoft/vscode/>

editor

lightweight/fast
keyboard centered
file/folders
many languages
many workflows



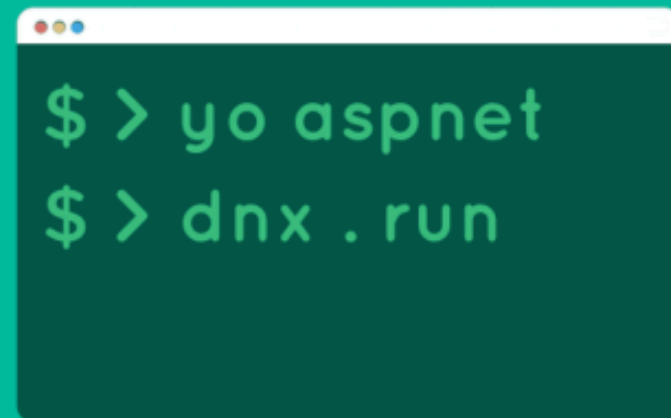
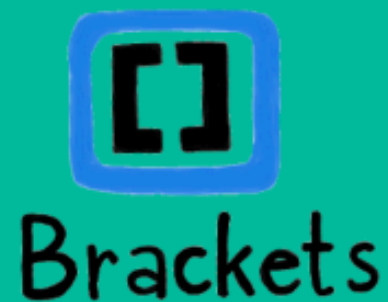
lightweight/fast
file/folders with project context
many languages
keyboard centered
code understanding
debug
task running

IDE

project systems
code understanding
debug
integrated build
File>New, wizards
designers
ALM integration
platform tools
...



DEMO: .NET Core Development on OS
X



Inside Visual Studio Code – OSS in Action

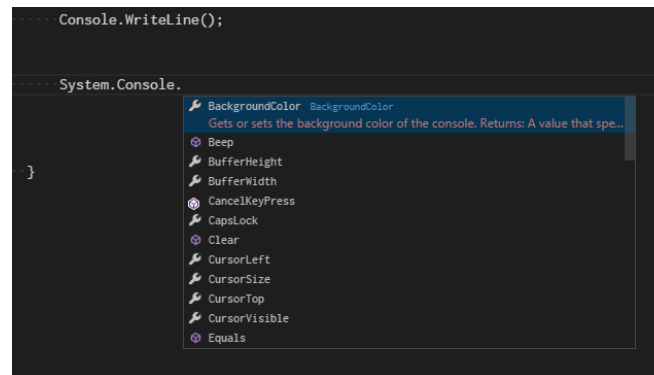
Electron, Node



TypeScript



Monaco Editor





ELECTRON

Build cross platform desktop apps with web technologies

Formerly known as Atom Shell. Made with ❤ by [GitHub](#).



Web Tech

Use HTML, CSS, and JavaScript with Chromium and Node.js to build your app.



Open Source

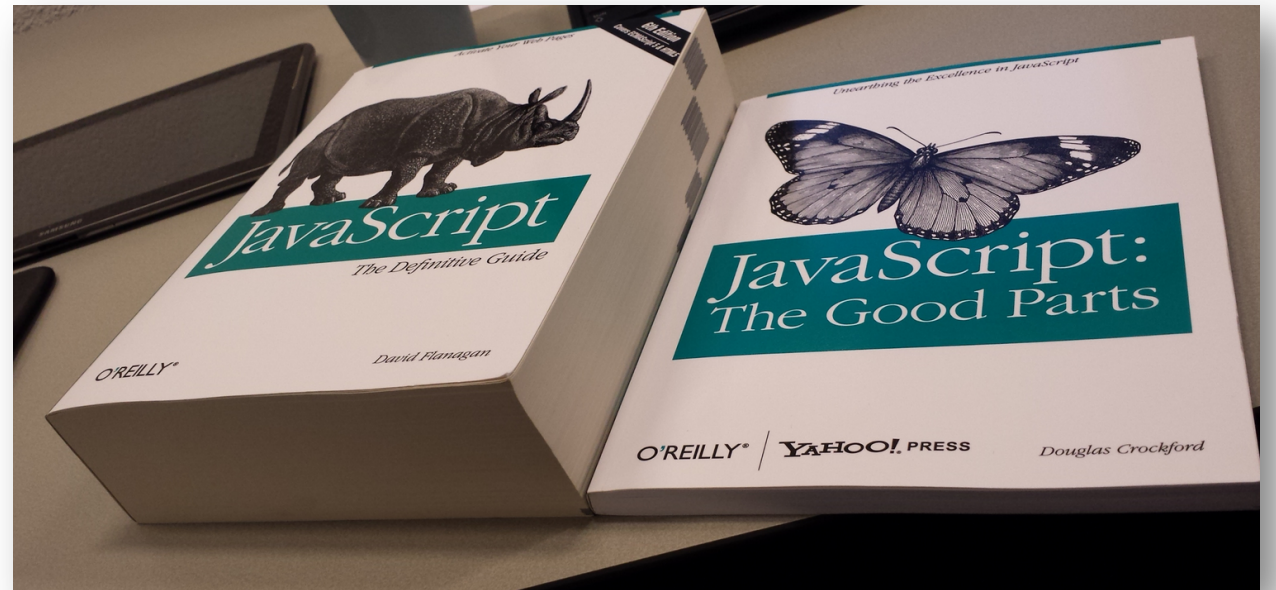
Electron is open source; maintained by GitHub and an active community.



Cross Platform

Electron apps build and run on Mac, Windows, and Linux.

It's fun
to program in
JavaScript



Pains

Compensating patterns for classes, modules and namespaces.

Refactoring JavaScript code is difficult!

Code becomes read only

Defining and documentation of APIs is difficult.

Type information in comments are not checked

TypeScript

Optional static types – better tooling: IntelliSense, Refactoring

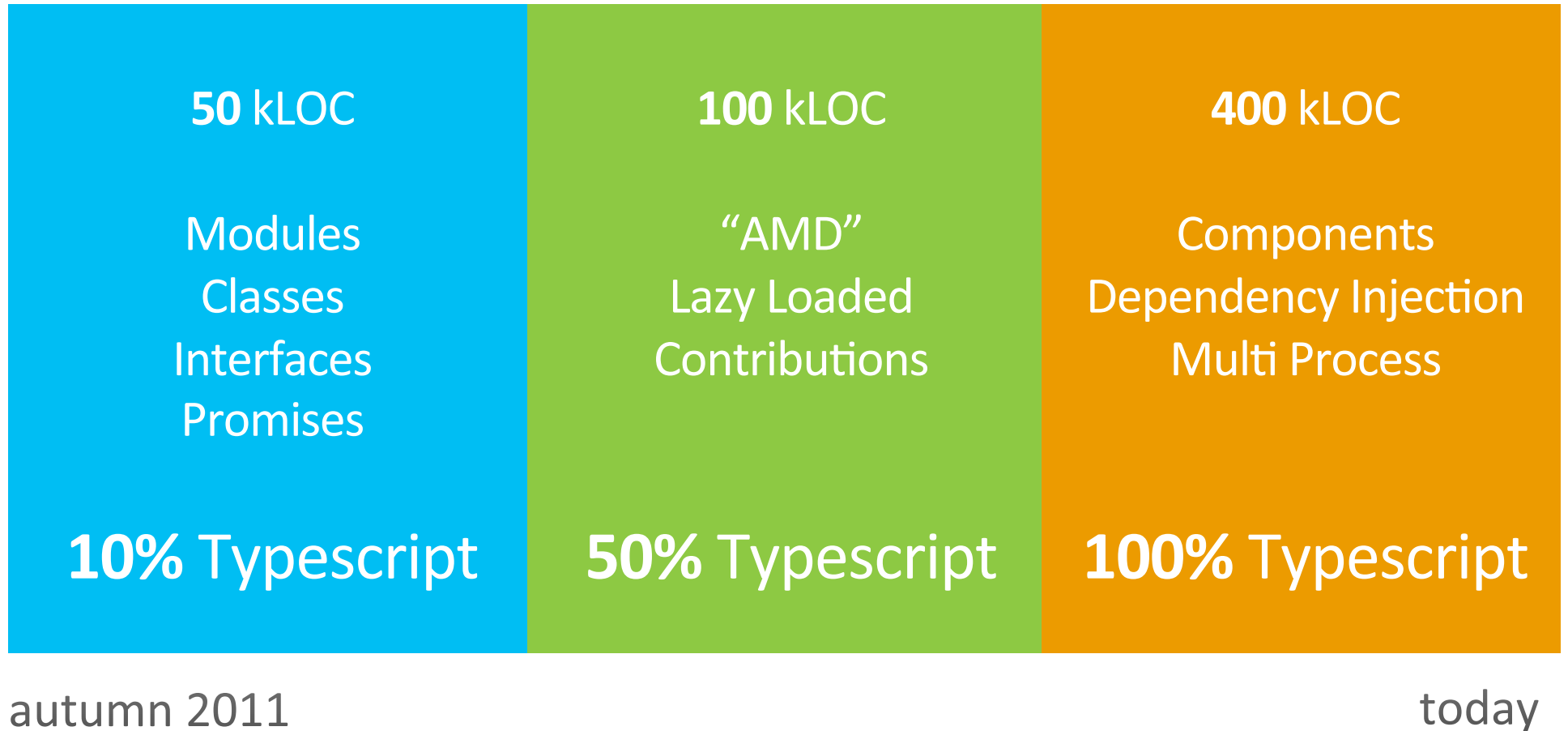
Better APIs docs

More safety

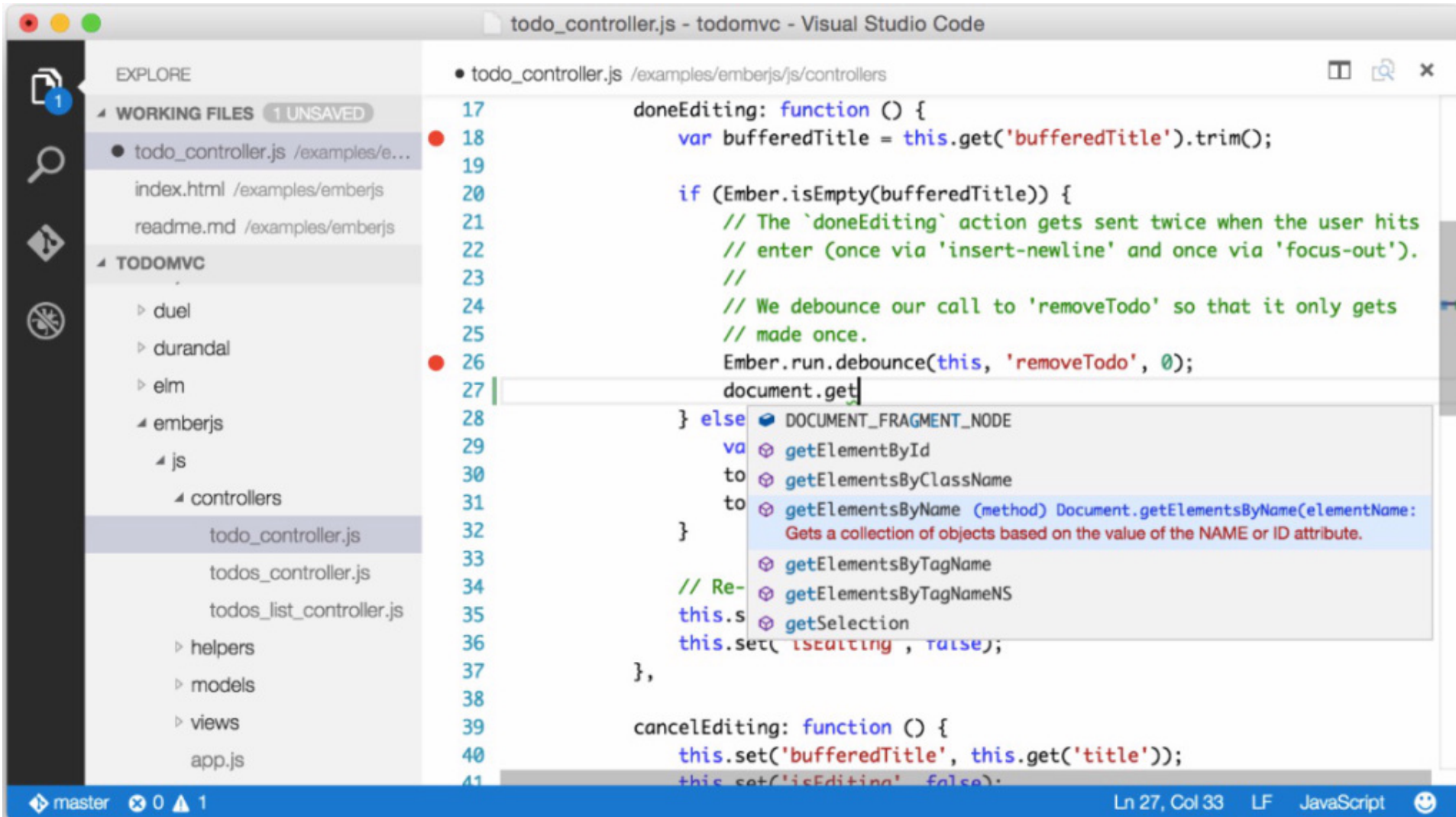
```
delete this.markers[range.statMarkerId]; // startMarkerId
```

Use features from the future (ES6, ES7) today

Growing the Code



VS Code Preview – April 2015



Extensions

7,610

votes

Vote

Plugin system

With integrated package manager

51 comments · Flag idea as inappropriate...



PLANNED

- Visual Studio Team (Product Team, Microsoft) responded

We plan to offer plugin support for Visual Studio Code. Thank you for your interests and look for more details in our blog in the coming weeks. <http://blogs.msdn.com/b/vscode>.

For the preview we are looking for exactly this type of feedback. Keep it coming.

Sean McBreen – VS Code Team Member

Eclipse

Everything is...

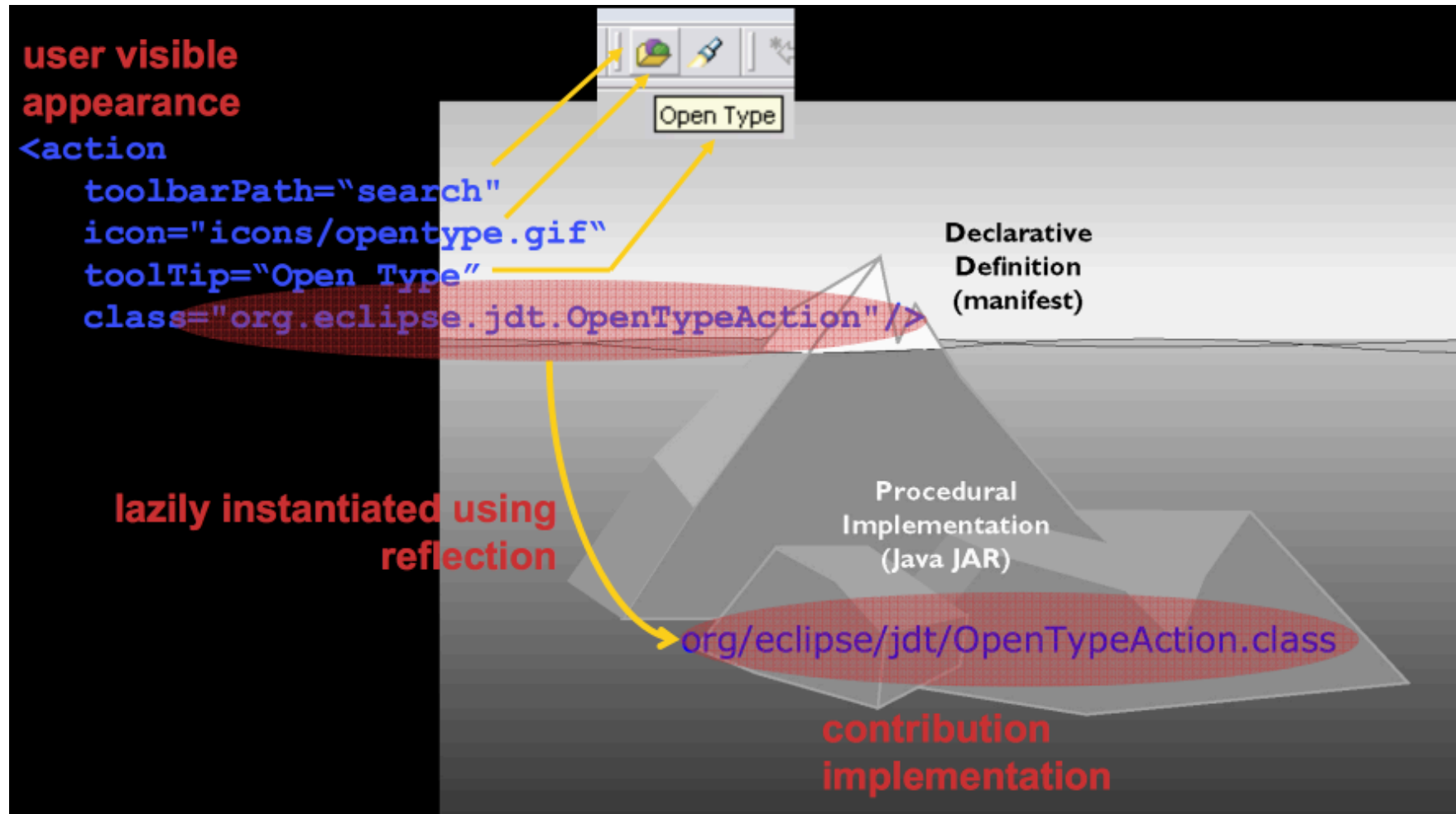
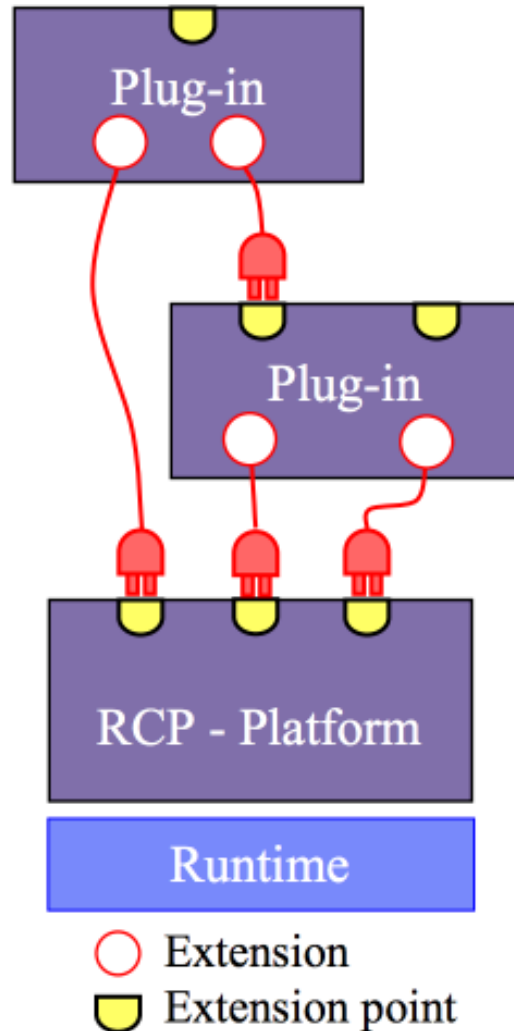
... a **plugin** with contributions

... implemented **in Java**

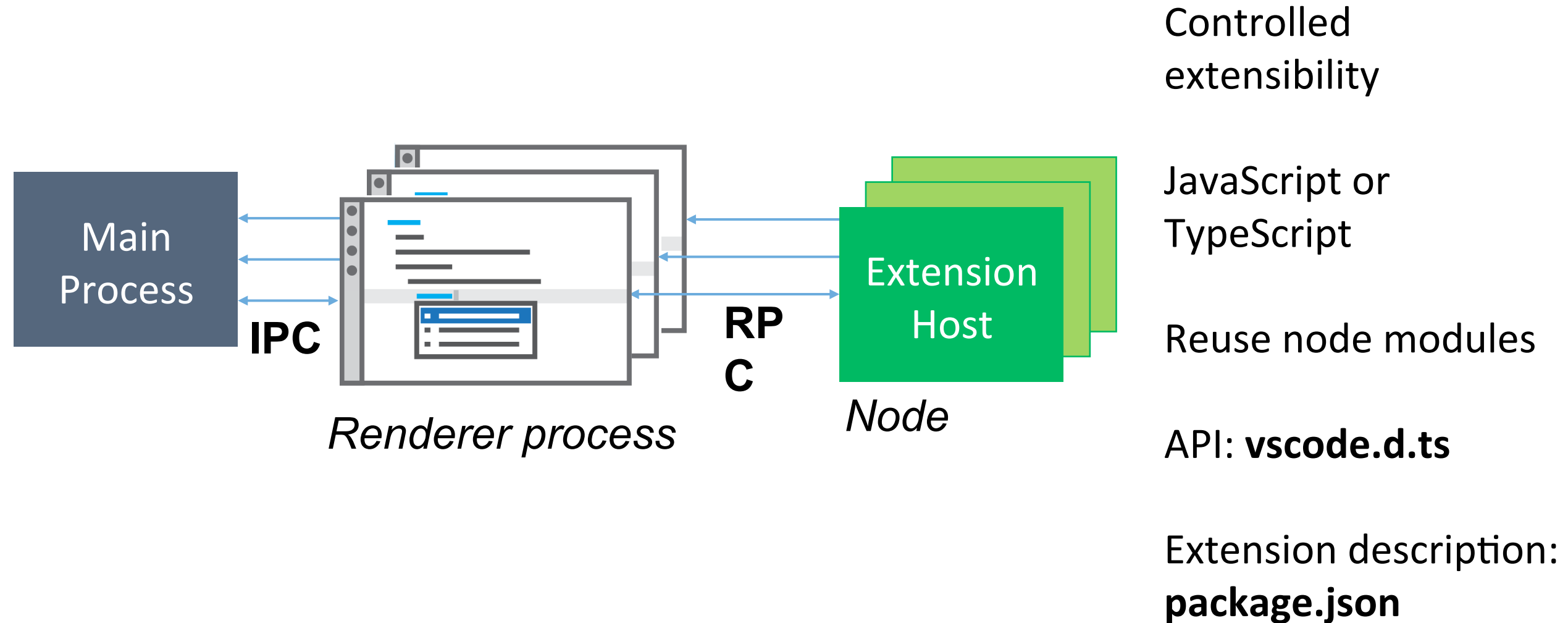
... runs in a **single shell/window**



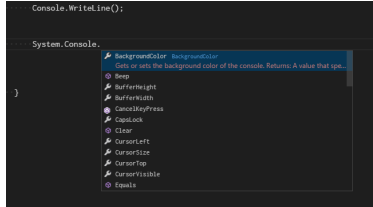
Eclipse Plug-ins



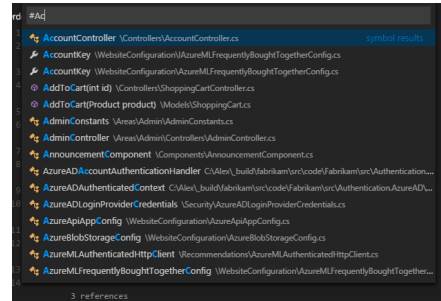
Extension isolation



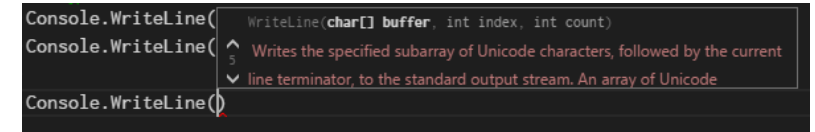
Language API



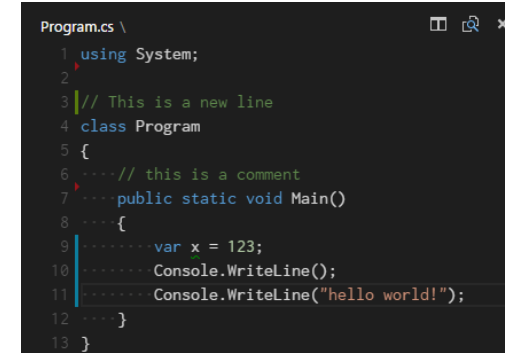
IntelliSense



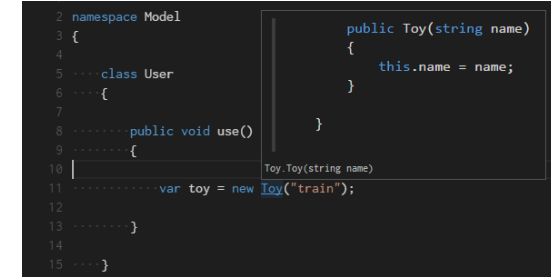
goto any symbol



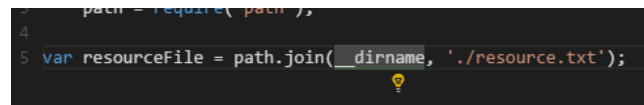
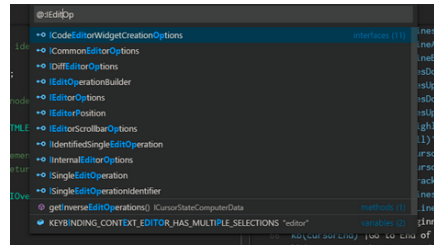
parameter hints



gutter

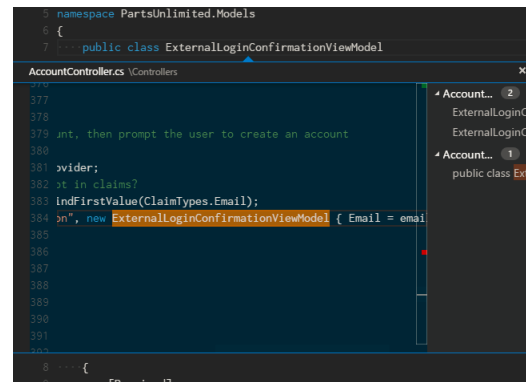


goto definition/preview

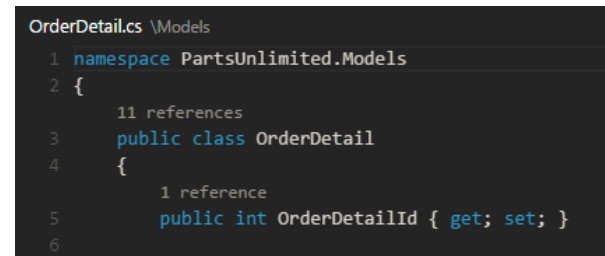


code actions

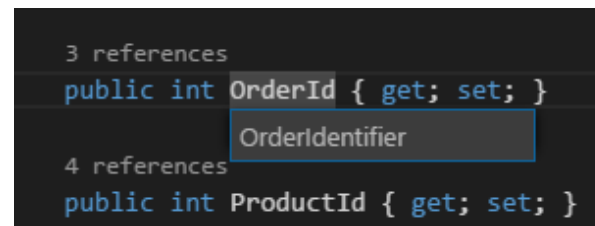
goto symbol in file



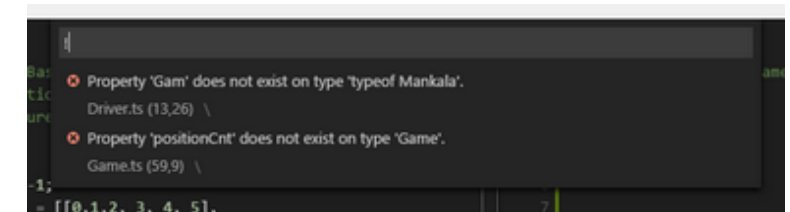
find all references



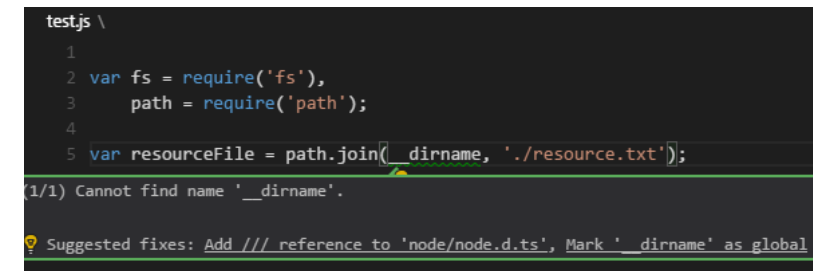
inline references



rename symbol



error/warnings















inline errors

Language API – Providers

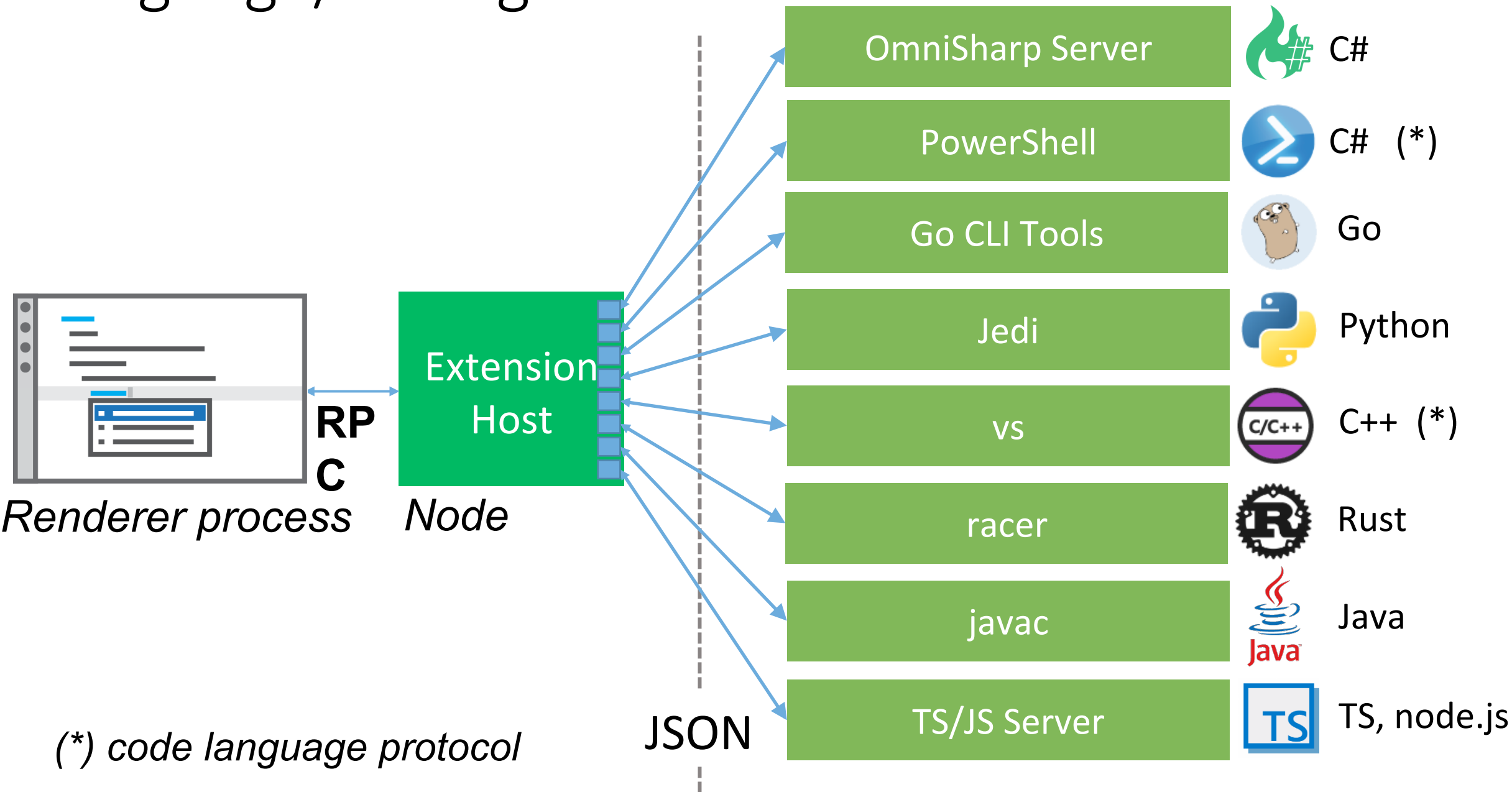


DEMO: Extension Development

Extensions, Extensions, Extensions

 C# Microsoft 177K C# for Visual Studio Code (powered by OmniSharp)	 Python Don Jayamanne 101K Linting, Debugging (multi-threaded, remote)	 Go lukehoban 64.6K Rich Go language support for Visual Studio Code	 Debugger for Chrome Microsoft JS Diagnostics 63.3K Debug your JavaScript code in the Chrome browser, or	 PowerShell Microsoft 50.3K Develop PowerShell scripts in Visual Studio Code!	 C/C++ Microsoft 44.8K Complete C/C++ language support including code-
<div>★ 1000+ extensions in the marketplace</div>					
 ESLint Dirk Baeumer 41.9K Integrates ESLint into VS Code. ★★★★★ FREE	 Material-theme zhuangtongfa 41.4K Material themes for VS Code. By ZTF ★★★★★ FREE	 Angular 1 JavaScript and TypeScript snippets johnpapa 28.7K Angular 1 JavaScript and TypeScript snippets ★★★★★ FREE	 JavaScript (ES6) code snippets charalampos karypis 28.1K Code snippets for JavaScript in ES6 syntax ★★★★★ FREE	 PHP Code Format Martin Kase 27.9K Code format for PHP Language ★★★★★ FREE	 Angular 2 TypeScript Snippets johnpapa 25.7K Angular 2 TypeScript snippets ★★★★★ FREE

Language/Debug services



Tool Protocols

<i>Request</i>	<i>Response</i>
definition	Returns the file location of the symbol at the given file location
references	Returns the file locations that reference the symbol at the given file location
completions	Returns possible completions at a given file location
symbolDetails	Return a type information and documentation for the symbol at a given file location
format	Returns edit instructions to format a file
outline	Returns list of navigation targets
open	Notifies the server that the user has opened a file
close	Notifies the server that a file has been closed
change	Notifies the server that a file has been changed

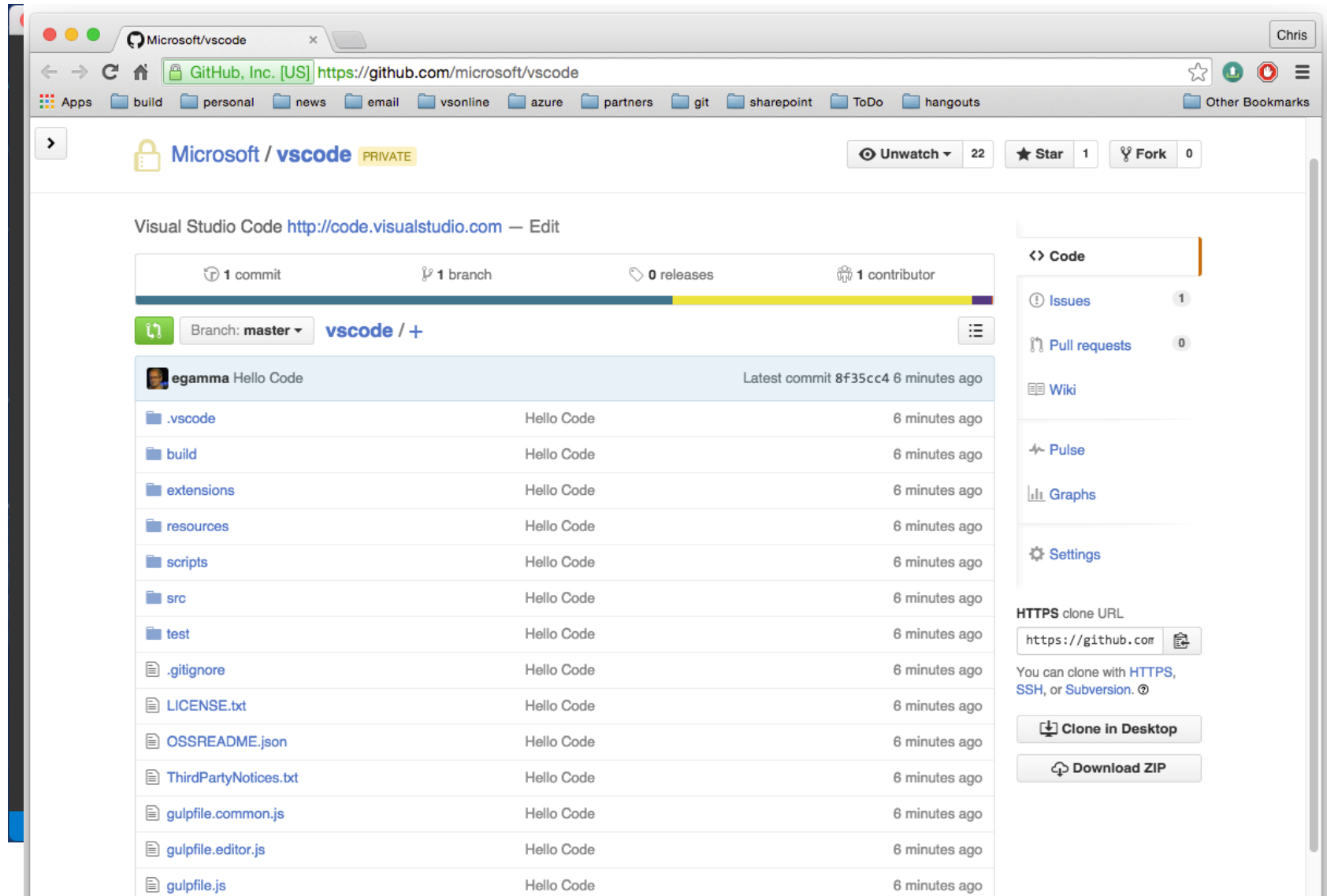
Debugger Protocol

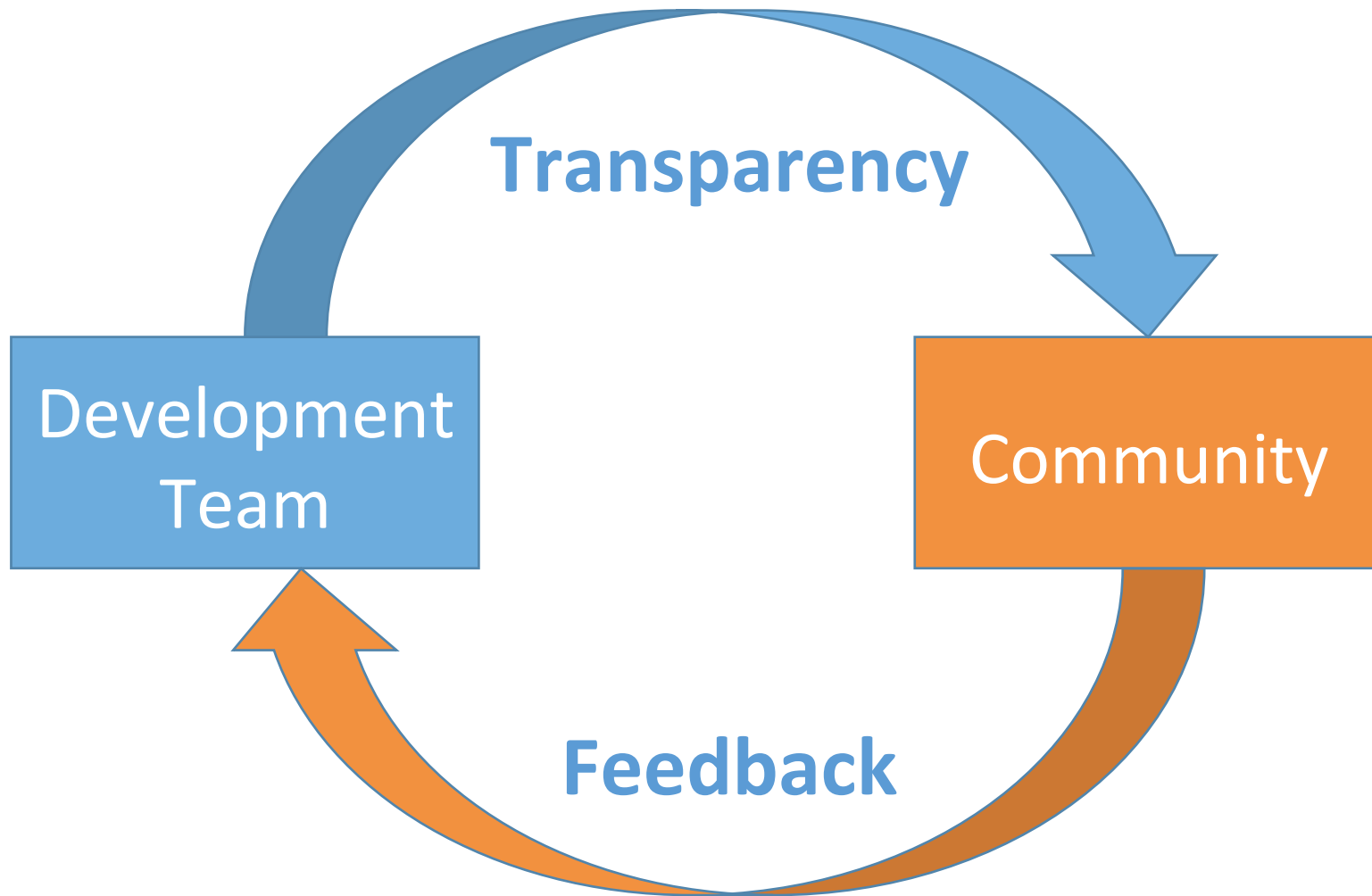
<i>Request</i>	
launch	Launch a debuggee
setBreakpoints	Sets multiple break points
continue, next, stepIn, stepOut	Execution control
stackTrace	Returns the stack trace from the current execution state
variables	Returns the children of all variables given a variable reference
<i>Event</i>	
stopped	The execution of the debuggee has stopped
exited	The debuggee has terminated

Language Protocol

DEMO: Sublime

November 2015: VS Code goes OSS





OSS - Transparency

Project Management

- [Roadmap](#)
- [Breaking Changes](#)
- [Development Process](#)
 - [Issue Tracking](#)
 - [Iteration Plans](#)
- [Previous Releases](#)
- [Related Projects](#)

Contributing

- [How to Contribute](#)
- [Submitting Bugs and Suggestions](#)
- [Code Organization](#)
- [Coding Guidelines](#)
- [Contributor License Agreement](#)
- [Requested Extensions](#)

Documentation

Roadmap

Chris Dias edited this page on Jan 7 · 22 revisions

1.0 (March 31st)

Declare General Availability

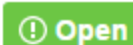
- Accessibility
- Localization
- Stable APIs
- Performance

Eliminate Adoption Blockers

Core Editing

- Code folding
- Providing key bindings for users used to other editors
- Improve the document management

May Iteration Plan #6105



Open

egamma opened this issue 7 days ago · 0 comments



egamma commented 7 days ago · edited

Micro

This plan captures what we **work on during May** and will **ship early June**.

We arrived at the following themes for May:

- Work on highly requested UI features (tabs, integrated terminal).
- Make a repository with the Monaco/standalone editor available.
- Continue to do some UI explorations.

The [May Test Plan items](#) are created as issues get closed.

For more information about our development process please refer to the development process page.

Schedule

Feedback Channels

Questions: **Stack Overflow**

Issues/Pull Requests: **GitHub**

Feature Voting: **User Voice**

Sentiment: **Twitter**

MSFT FTEs use to **same channels**

How do I get debugging to work after building VS Code from source?



I built VS Code from source following the guide [How to Contribute](#). It seems to build fine and launches in Electron.

2



Problem:



When I try to build [vscode-samples](#), both with the included JavaScript and TypeScript versions (I ran `npm install` on each first), I'm not able to enter debug mode with `F5`. It says "Error: No extension installed for 'node' debugging."

Also...

I tried running and debugging [an extension](#) I had previously worked on for VS Code (I'm able to do this on the distribution available on <http://code.visualstudio.com>).

However, I'm getting a similar error: "No extension installed for 'extensionHost' debugging."

Any help would be greatly appreciated. Thanks!

vscode

share edit flag

[add a comment](#)

asked Jan 22 at 19:58

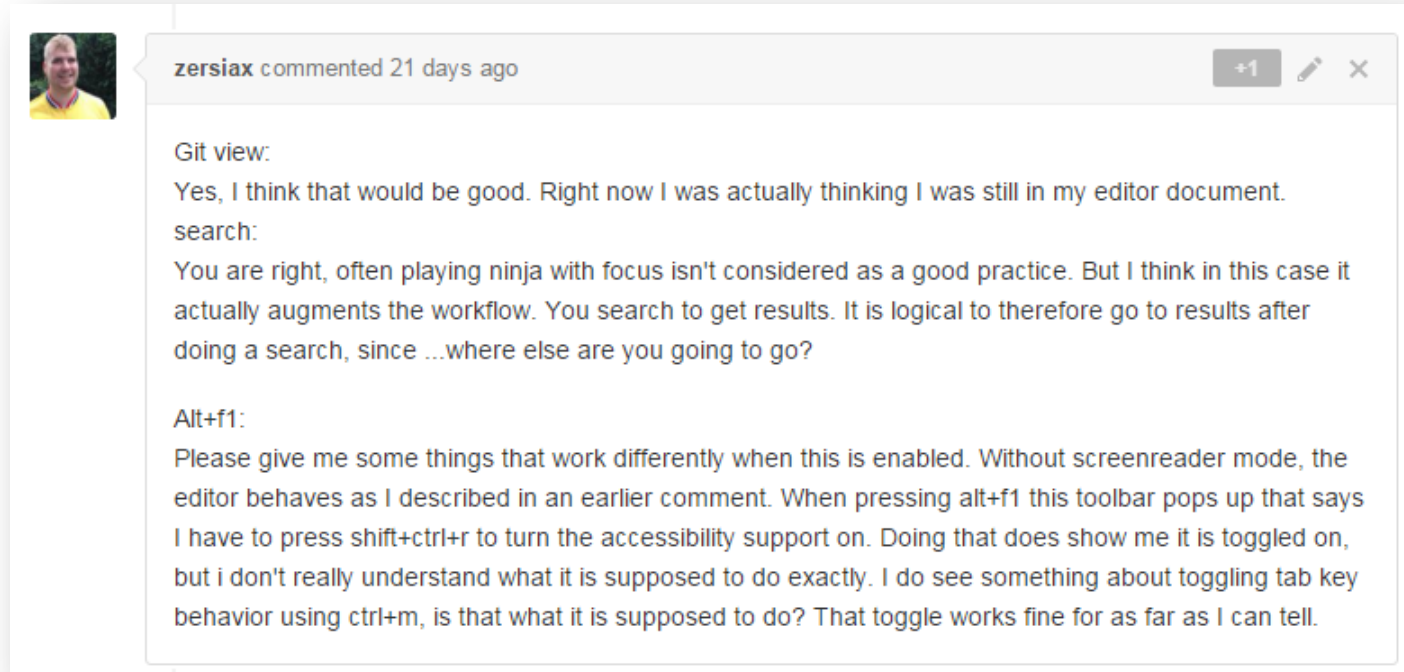


[bgashler1](#)

23 4

Feedback Example - Accessibility

Collaboration with GitHub on Electron accessibility



<https://github.com/Microsoft/vscode/issues/2108>

More Feedback: Development Channels

Stability



Daily updates

Krzysztof Cieślak
@k_cieslak



Follow

Looks like today's @code insiders have some problem with git file diffs.

```
1 NUGET
2 remote: https://www.nuget.org/api/v2
3 FAKE (4.27)
4 FunScript (1.1.94)
5 Microsoft.Bcl.Build (1.1.10) - framework: net10, net11, net20, net30, net35, net40, net40-
6 Microsoft.Bcl.Build (1.1.10) - framework: net10, net11, net20, net30, net35, net40, net40-
7 Microsoft.Bcl.Build (1.1.10) - framework: net10, net11, net20, net30, net35, net40, net40-
8 Microsoft.Bcl.Build (1.1.10) - framework: net10, net11, net20, net30, net35, net40, net40-
9 Microsoft.Bcl.Build (1.1.10) - framework: net10, net11, net20, net30, net35, net40, net40-
10 Microsoft.Bcl.Build (1.1.10) - framework: net10, net11, net20, net30, net35, net40, net40-
11 Node.js (5.3)
12 Npm.js (2.15.1)
13 Node.js (5.3)
14 Octokit (0.19)
15 Microsoft.Net.Http - framework: net10, net11, net20, net30, net35, net40, net40-
16 GIT
17 remote: https://github.com/ionide/ionide-vscode-helpers.git
18 (b01a88ede2179222a5639cf866a23d9bc62f8b6)
19 build: build.cmd
20 remote: https://github.com/ionide/FSharpFormatting.CLI.git
21 (8699684852cabe1ba952896fb38881fab92381f)
22 build: build.cmd
23 remote: https://github.com/ionide/FSharpAutoComplete.git
24 (90423567453c82104e052a188048cbfd5882aa)
25 build: build.cmd localRelease
26 remote: https://github.com/fsharp/fsharp-forge.git
27 (7b61d8ab2b988c6d723866d5dfe61c3a59a)
28 build: build.cmd
29 remote: git@github.com:ionide/ionide-fsharp.git
30 (77ad35a24efc288acc84482250589a7f2ab801ea)
31 GITHUB
32 remote: fsharp/FAKE
33 modules/Octokit/Octokit.fsx (8c077f35f8cd03584851094d618104afe9085d1a)
34 Octokit
```

12:47 PM - 9 Jun 2016

Diff is broken #7474



joaomoreno opened this issue 5 days ago · 8 comments



joaomoreno commented 5 days ago · edited

Fixes #7474: Prevent cancelation of worker proxy object promise

master



alexandrudima committed 5 days ago

1 parent ff9bf52 com



Showing 1 changed file with 3 additions and 1 deletion.

VS Code OSS vs. VS Code Distro

VS Code **OSS**

Everybody can build from github repo

Not branded

MIT License

Supported by Community

VS Code **Distro**

Builds on VS Code

MS branded (logo, telemetry, gallery)

MS Standard License

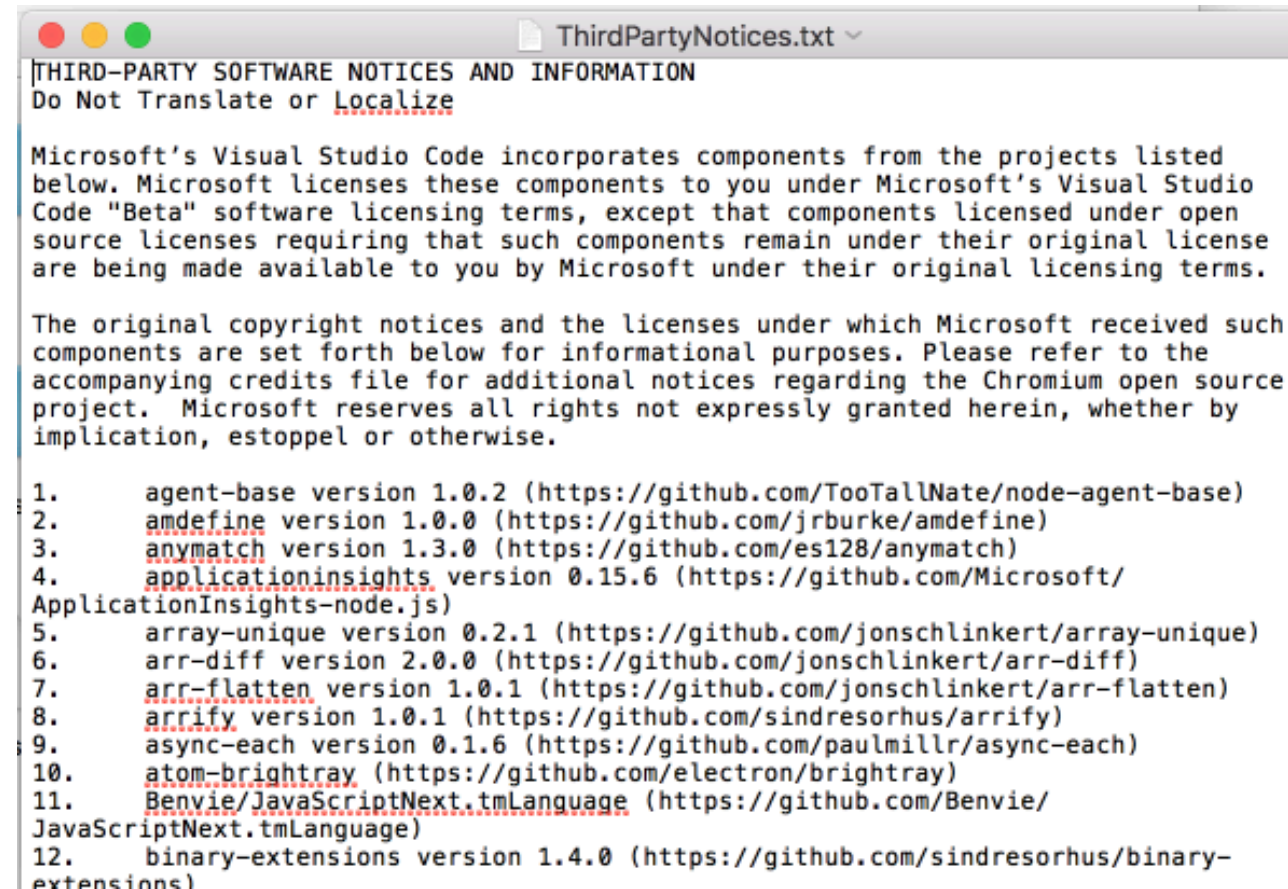
Supported by MS

Easy for Developers

VS Code consumes 142 OSS components, 90+% are node modules

Variety of licenses, sometimes none
We track, review each license, C/R statements for every dependency

Needs tooling to generate and maintain third party notices



```
ThirdPartyNotices.txt
THIRD-PARTY SOFTWARE NOTICES AND INFORMATION
Do Not Translate or Localize

Microsoft's Visual Studio Code incorporates components from the projects listed
below. Microsoft licenses these components to you under Microsoft's Visual Studio
Code "Beta" software licensing terms, except that components licensed under open
source licenses requiring that such components remain under their original license
are being made available to you by Microsoft under their original licensing terms.

The original copyright notices and the licenses under which Microsoft received such
components are set forth below for informational purposes. Please refer to the
accompanying credits file for additional notices regarding the Chromium open source
project. Microsoft reserves all rights not expressly granted herein, whether by
implication, estoppel or otherwise.

1. agent-base version 1.0.2 (https://github.com/TooTallNate/node-agent-base)
2. amdefine version 1.0.0 (https://github.com/jrburke/amdefine)
3. anymatch version 1.3.0 (https://github.com/es128/anymatch)
4. applicationinsights version 0.15.6 (https://github.com/Microsoft/
ApplicationInsights-node.js)
5. array-unique version 0.2.1 (https://github.com/jonschlinkert/array-unique)
6. arr-diff version 2.0.0 (https://github.com/jonschlinkert/arr-diff)
7. arr-flatten version 1.0.1 (https://github.com/jonschlinkert/arr-flatten)
8. arrify version 1.0.1 (https://github.com/sindresorhus/arrify)
9. async-each version 0.1.6 (https://github.com/paulmillr/async-each)
10. atom-brightray (https://github.com/electron/brightray)
11. Benvie/JavaScriptNext.tmLanguage (https://github.com/Benvie/
JavaScriptNext.tmLanguage)
12. binary-extensions version 1.4.0 (https://github.com/sindresorhus/binary-
extensions)
```

Easy for Contributors: CLA BOT

☐  **Show the total number of matches in the Search tab** ✓ **cla-already-signed**

#6997 opened 10 hours ago by kisstkondoros

msftclas commented 10 hours ago

Microsoft member



Hi @kisstkondoros, I'm your friendly neighborhood Microsoft Pull Request Bot (You can call me MSBOT).

Thanks for your contribution!

You've already signed the contribution license agreement. Thanks!

The agreement was validated by Microsoft and real humans are currently evaluating your PR.

TTYL, MSBOT;



 **msftclas** added the **cla-already-signed** label 10 hours ago

Summary

Run on **Windows**



Run **everywhere**

Edit in **Visual Studio**



Use your **favorite editor**

Black box compilers



Open Language Service APIs

Proprietary



Open Source

just@code
code.visualstudio.com

Thank you!

@erichgamma

@code