

```
package example
```

```
object Main {  
  def main(args: Array[String]): Unit = {  
  }  
}
```

```
/** @constructor */  
ScalaJS.c.example_Main$.prototype = (function() {  
  ScalaJS.c.java_lang_Object.prototype.constructor.call(this);  
});  
ScalaJS.c.example_Main$.prototype = new ScalaJS.inheritable.java_lang_  
ScalaJS.c.example_Main$.prototype.constructor = ScalaJS.c.example_Mair  
ScalaJS.c.example_Main$.prototype.main__AT__V = (function(args) {  
  /*<skip>*/  
});  
ScalaJS.c.example_Main$.prototype.main = (function(arg$1) {  
  return this.main__AT__V(arg$1)  
});
```

Live Coding in Scala.js

Li Haoyi

SF Scala 27/2/2014

Who Scala.js?

- I work at Dropbox writing Python



- I write Scala on the side

- Been working on/with Scala.js since last October

Not that much compiler-work,
but I send in all the tickets

- Core work done by [@sjrd](#) and [@gzm0](#)

What Scala.js?

- Scala -> Javascript Compiler

- Write code in Scala,
run it in Chrome

- Everything works*
 - *You'll see in a moment



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Live Demo: Games

<http://lihaoyi.github.io/scala-js-games/>

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Why Scala.js

"I particularly wanted to emphasise the biggest weakness of Scala being its inherent dependency on Java"

"I love Scala. It is my favorite programming language... The problem is, I can't use it in the places I want to use it - like the browser, or in a mobile app"

Why Scala.js

"At least in my applications I wish it could be compiled to native binaries or to JS (my use of Java classes is absolutely minimal)"

"If anyone has the requisite skills, I would really like to support the development of some sort of Scala to iOS compile chain."

Why Scala.js

...even if Scala is great, ..., as a web developer there always was this unavoidable "stone in the shoe" ... JavaScript.

...Scala.js is invaluable because it makes the circle complete: it provides that same "experience" of Scala (back-end) to web front-end development.

How Scala.js

*.scala files

Scala Compiler

*.class files

Not used, but they make IntelliJ happy

ScalaJS Plugin

Lots of small *.js files

Package

A few large *.js files

~1mb

Closure Compiler

A few small *.js files

200 kb

Whitespace removal
Variable renaming
Dead code elimination

One for each .class file

When Scala.js?

- Jun 2013: [Scaladays](#) (by @sjrd)

- Hello World!

- 16mb of Javascript

← Ouch

- [Reversi in the browser!](#)

- Aug 2013:

- 900kb of Javascript

← Yay for Google

Closure Compiler!

- 30s compilation/packaging/reloading

- *“Does this project have a test suite?”*

← Nope

- Oct 2013

- 700kb

- [Scala-Js-Games](#)

- “Does Scalaz work?” “Omg [it does!](#)”

- Nov 2013

- [Roll](#), a HTML5/Canvas 2D Platformer

- 400kb

- ~10s incremental compilation/packaging/reloading

Half of this was Chrome
reloading the code

- Dec 2013

- Rhino-based test suite!

- Cross-platform [Sliding Puzzle](#) game by Seb Nozzi

Today

- Feb 2014

- 200kb

- ~1s Incremental Compilation/Packaging/reloading

- Passes entire scala partest suite

- 2 Cross JS/JVM libraries ([Scalatags](#), [Scala.Rx](#))

- 1 Cross JS/JVM test framework ([uTest](#))

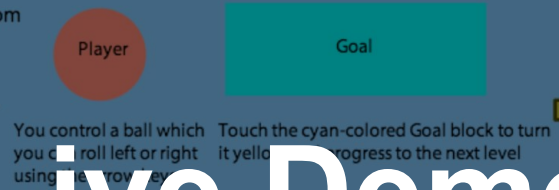
- [TodoMVC](#)

Tutorial

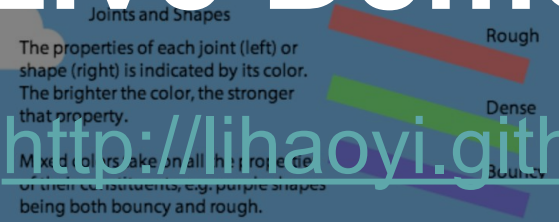
On the right are some of the common types of materials and joints you will encounter in the game.

Roll your ball left and right using the arrow keys, and draw paths using the mouse or touchscreen for your ball to roll on. Esc restarts the current level, and pg up and pg down allow you to zoom in or out.

When ready, roll your ball to the bottom right corner of the level and hit the light blue "Goal" block to proceed to the next level.



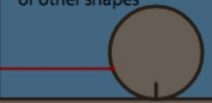
Live Demo: Roll



- Frictiony
- Springy
- Spinny

Lasers

These destroy your ball if you touch them, forcing you to restart from your last check point. They can be blocked by drawn paths or other shapes



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Live Coding!

Be sure to interrupt if you have questions

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Libraries used

Scala.js

scala-js-workbench

Live-reloading and sbt log-forwarding to the browser





scala-js-dom

Static types for everything!

workbench-example-app

Project skeleton

Future Plans and Ideas

- ScalaJS Web Console** **ideas** #199
Opened by lihaoyi 4 days ago
- A Reactive UI Library** **ideas** ← #190
Opened by lihaoyi 6 days ago  1 comment
- Actors and Akka** **ideas** #189
Opened by lihaoyi 6 days ago
- Play! Framework Integration** **ideas** #188
Opened by lihaoyi 6 days ago  2 comments
- Use a headless webkit for running tests** **ideas** #115
Opened by lihaoyi a month ago  2 comments
- ScalaTest/Specs compatibility** **enhancement** **ideas** #96
Opened by lihaoyi a month ago  10 comments

Live Demo: TodoMVC

<http://lihaoyi.github.io/workbench-example-app/todo.html>

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TodoMVC Comparison

- ScalaJS: 120 LOC, 1 file

- +120LOC, 1 file of “framework” ←

Gluing together:

- AngularJS: 240 LOC, 5 files

- Scala.Rx

- Scalatags

- Scala-js-dom

- BackboneJS: 440 LOC, 7 files

- Facebook React: 470LOC, 6 files

- GWT: 950 LOC, 14 files











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Play! Framework Integration

- What if routing for Ajax calls is done for you?
- What if Ajax calls were just
`func(a, b): T`
`ajax{func(a, b)}: Future[T]`
- What if they were all compiled together and
typechecked?

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Live Demo: Scala.js Fiddle

<http://www.scala-js-fiddle.com/>

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Take Aways

- Scala.js is Awesome

- It's way more mature than you thought it was

- The development workflow is *slick*

- There's a ridiculous amount of potential

How to get involved?

Try it out

Hang out on the mailing list

Try your hand at some issues

Make some cool stuff with it!


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Thanks!

Questions?