Welcome

learn & hack Elm

Initial Elm Zürich - 19th May 2016

Host **XIAG AG**

Program: (stay tuned)

1. Welcome and Introduction by Ivan & Fabio

2. Future events and activities ~5min by Fabio

3. **Introduction to Elm** ~20min by Fabio

4. **A look at Elm-Css**~30min by Jasper

5. **Explore, learn, share**

Future events and activities

learn / hack Elm

Learn Elm

Everyone is welcome! Interested in Elm? Are you a **young hacker**? What are you waiting for? ! (Do you want to give programming a try? This is your chance!)

Topics/Activities:

We learn, hack, connect, share, discuss..

- Learn how the Web works with Elm (Web Development)
- **Mentorship** (and improve your communication ability)
- Create web sites/apps, graphics and games with Elm
- Get into functional programming with Elm
- Make cool stuff with Elm - together!
- Learn new tricks and skills
- Intro for **newcomers**
- Learn Elm!!
- ..

Hack Elm

Everyone is welcome! **Be active and help to make Elm and the Elm-ecosystem even more awesome!**

Topics/Activities:

We hack, learn, connect, share, discuss..

- Interoperability with HTML, CSS and JavaScript
- Functional reactive programming with Elm
- Future of web & graphical programming
- Functional programming with Elm
- **Improve projects, libraries, docs**
- **Collaborate on projects**
- Build useful stuff
- Hack Elm!!
- ..

1. passive phase -> talks
2. active phase -> learn, explore, share

http://fabio.filli.io/**elm-zurich**/

fabio.filli.io

@FabioFilli

Fysi GmbH

Fysi.World - Build Your own World on the Internet

I believe

Everyone should learn how to program - with **Elm**

Elm

Initial Elm Zürich - 19th May 2016

Elm

What’s that?

Created by **Evan Czaplicki**

Mission Impossible

To make GUI programming more pleasant

$\Rightarrow$ **Functional Programming**

To make programming more accessible

$\Rightarrow$

Elm is a

Functional

Programming Language

ML (1973)

SML (1990) **OCaml** (1996)

Haskell (1990)

F# (2005)

Elm 0.17 **Erlang** (1986)

..Erlang style of concurrency

ufff..

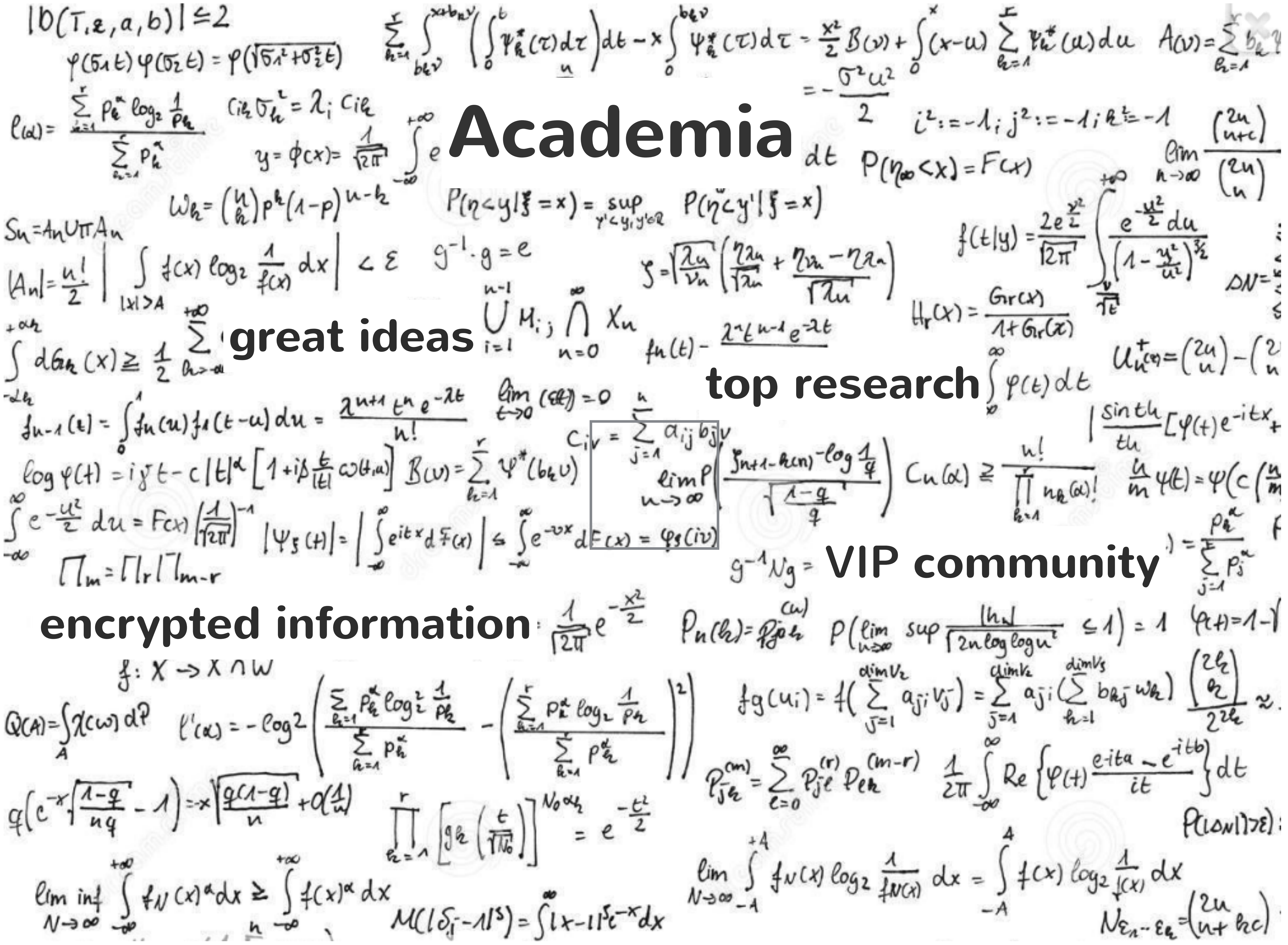
functional

programming

for academics..

difficult..

with a PHD in Math..



Academia

great ideas

top research

VIP community

encrypted information

functional programming

```
isPositive n =
  if n > 0 then “jep” else “nop”
```

```
isPositive 7
```

```
jep
```

```
isPositive -7
```

```
nop
```

```
sin()
```

```
sin(π/2)
```

```
1
```

functional

programming

it's

statically typed

Elm enforces safe programming practices at the language level.

No "runtime errors"

No "null"

No "undefined is not a function"

hell yeah :] more pleasant!!

don't forget **immutability / pure functions**

Created by **Evan Czaplicki**

Mission Impossible

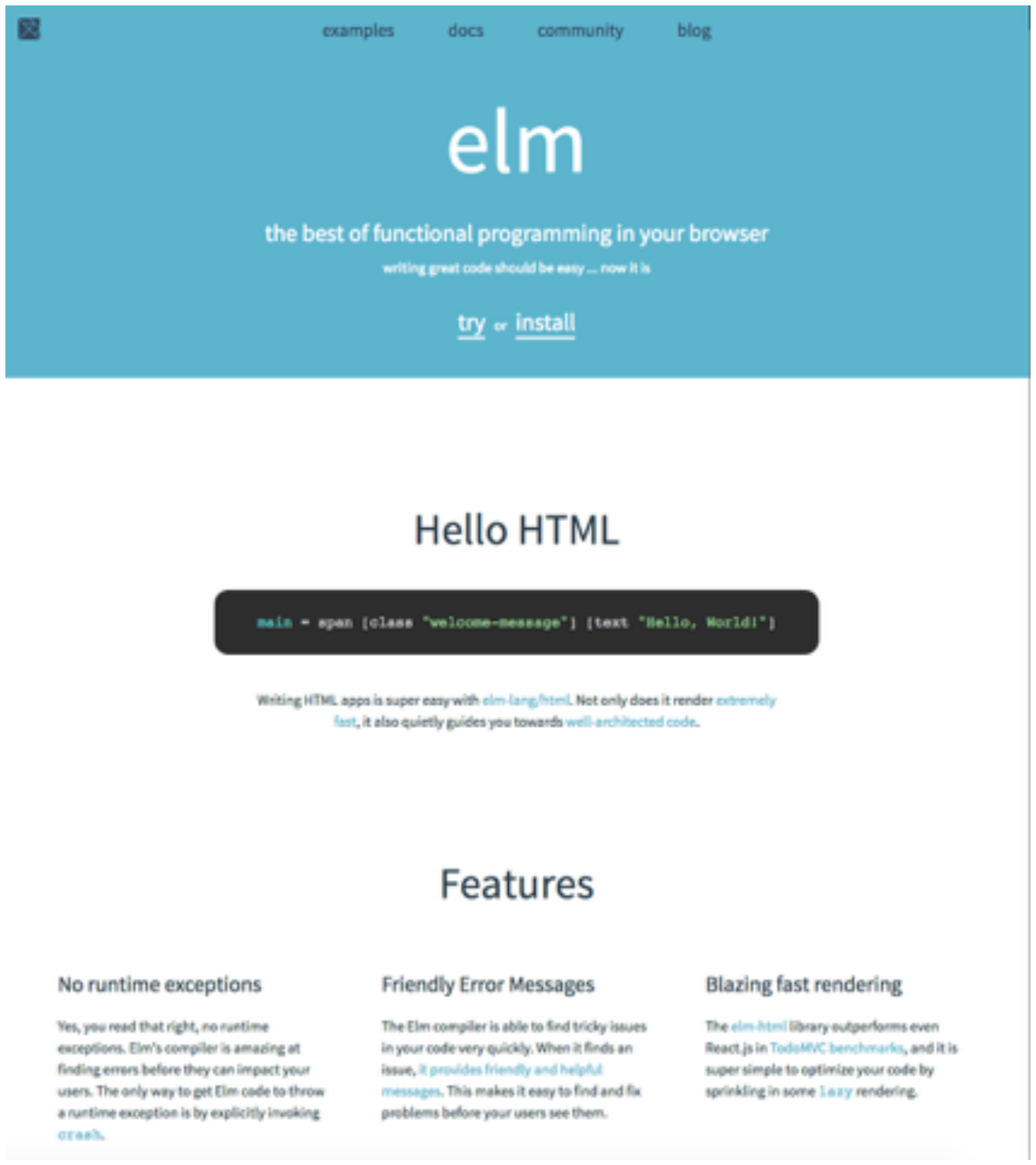
To make GUI programming more pleasant

$\longrightarrow$ **Functional Programming**

To make programming more accessible

$\longrightarrow$ **Web**

Websites



elm

the best of functional programming in your browser

writing great code should be easy ... now it is

try or install

Hello HTML

```
main = span [class "welcome-message"] [text "Hello, World!"]
```

Writing HTML apps is super easy with elm-lang/html. Not only does it render extremely fast, it also quietly guides you towards well-architected code.

Features

No runtime exceptions

Yes, you read that right, no runtime exceptions. Elm's compiler is amazing at finding errors before they can impact your users. The only way to get Elm code to throw a runtime exception is by explicitly invoking `crash`.

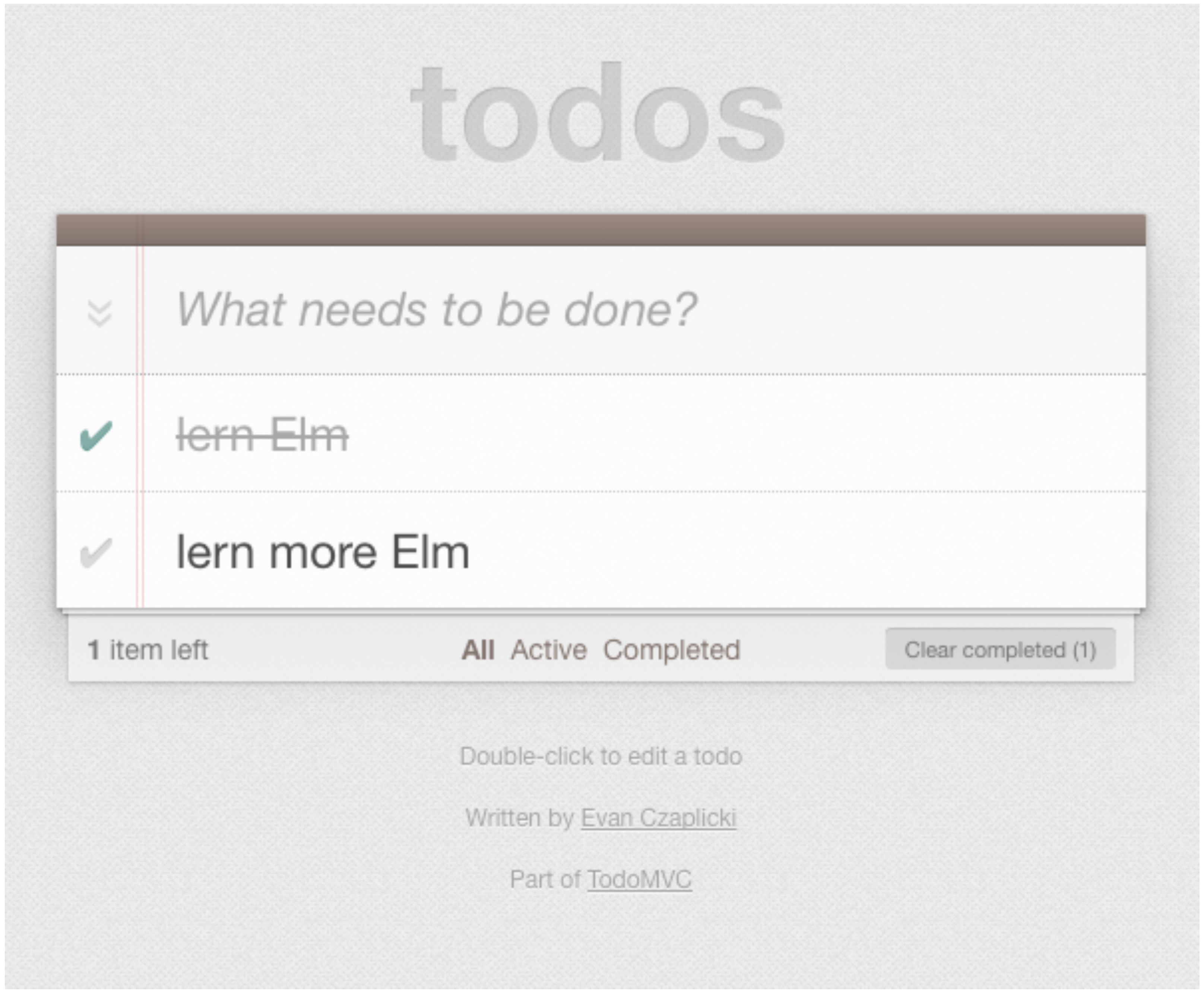
Friendly Error Messages

The Elm compiler is able to find tricky issues in your code very quickly. When it finds an issue, it provides friendly and helpful messages. This makes it easy to find and fix problems before your users see them.

Blazing fast rendering

The elm-html library outperforms even React.js in TodoMVC benchmarks, and it is super simple to optimize your code by sprinkling in some `lazy` rendering.

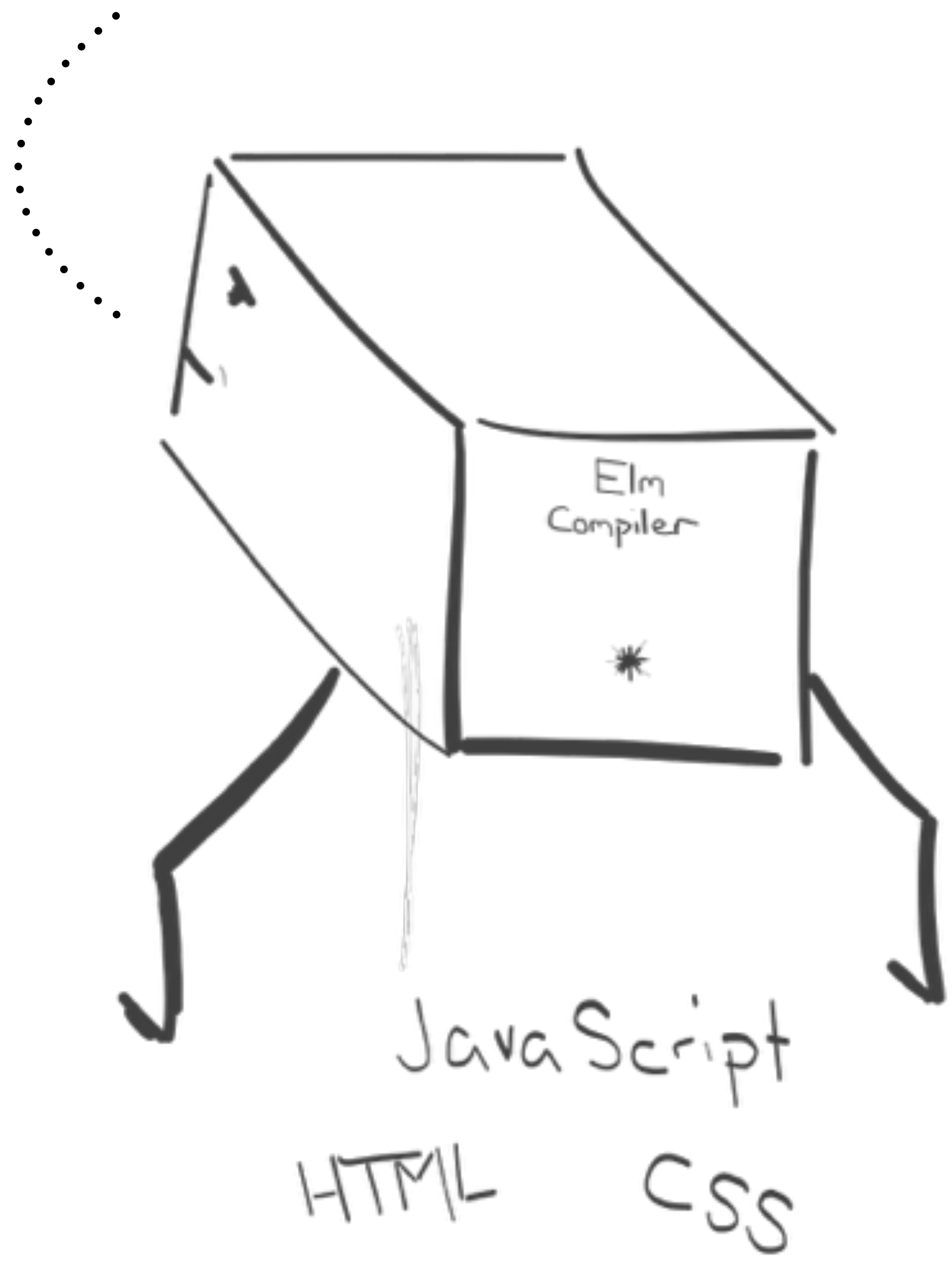
interactive Websites

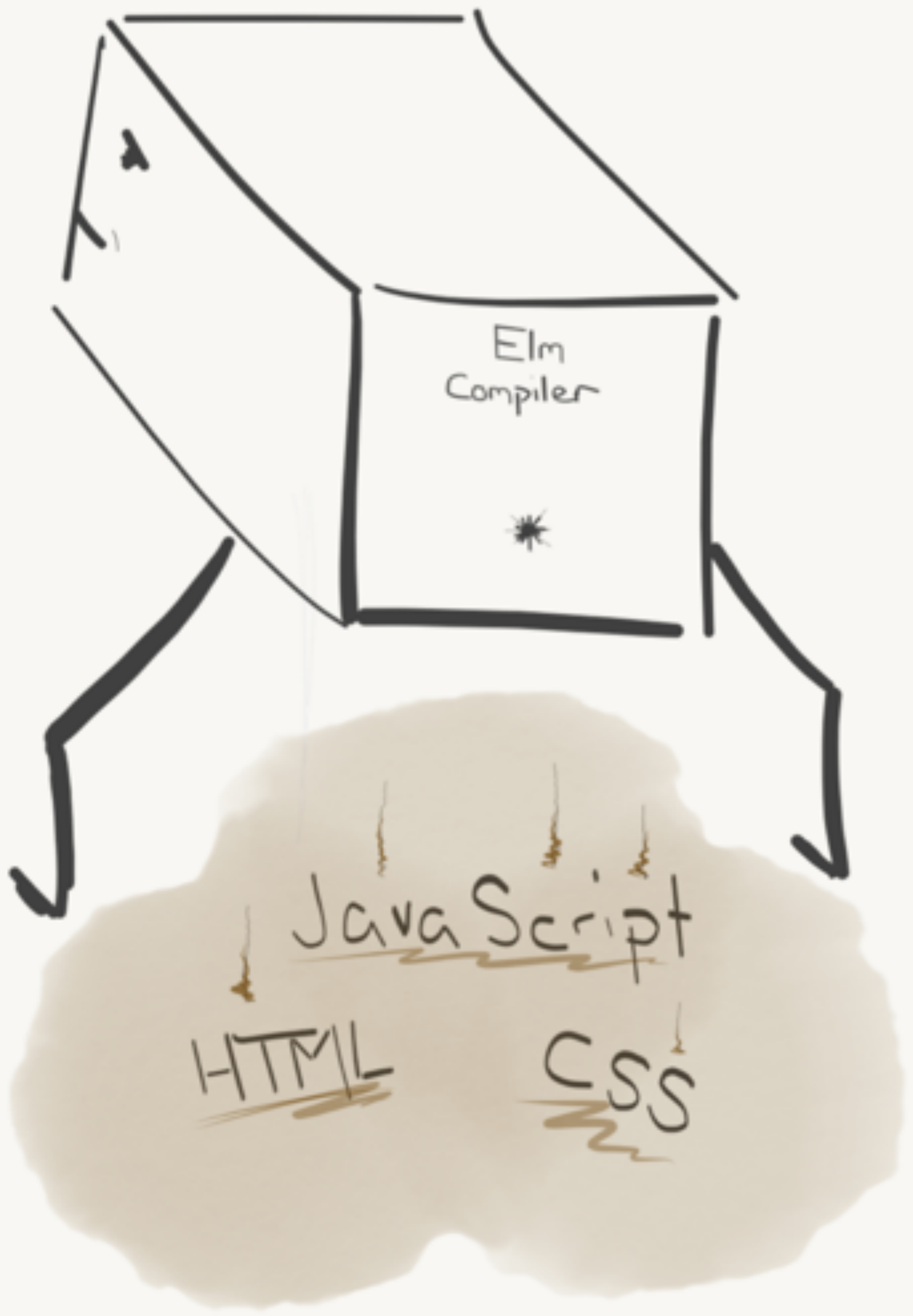


but there is already

JavaScript

No "runtime errors"




Elm Compiler
JavaScript
HTML
CSS

Elm's awesomeness

No "runtime errors"

No "null"

No "undefined is not a function"

Well-Organised Code

Awesome Error Messages

Fast HTML rendering

Libraries with **semantic versioning**

JavaScript **interoperable**

Live Debugger

…

No “runtime errors”

No “undefined is not a function”

No “null”

Well-Organised Code

Awesome Error Messages

Fast HTML rendering

Libraries with **semantic versioning**

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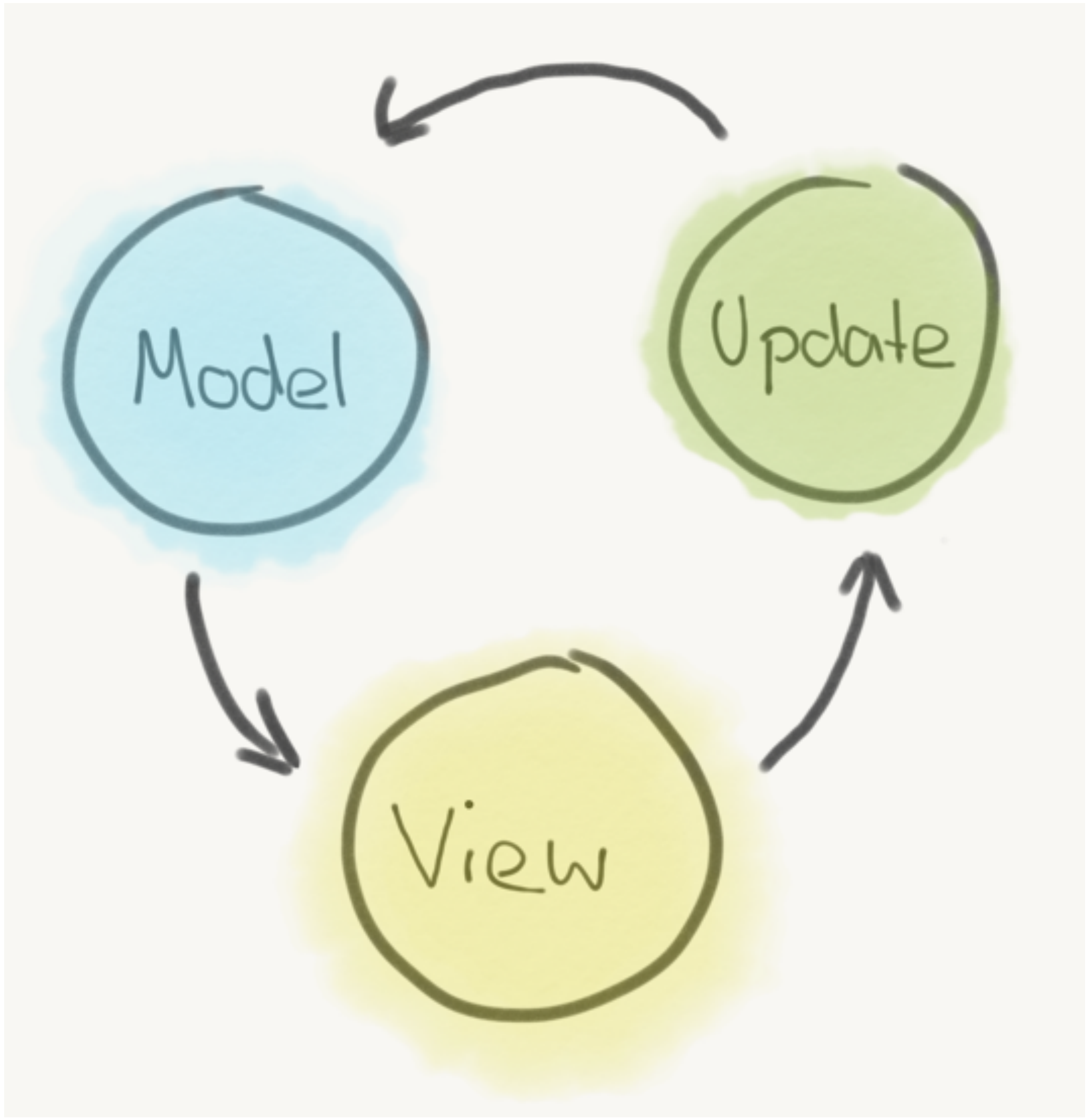
Elm stylee

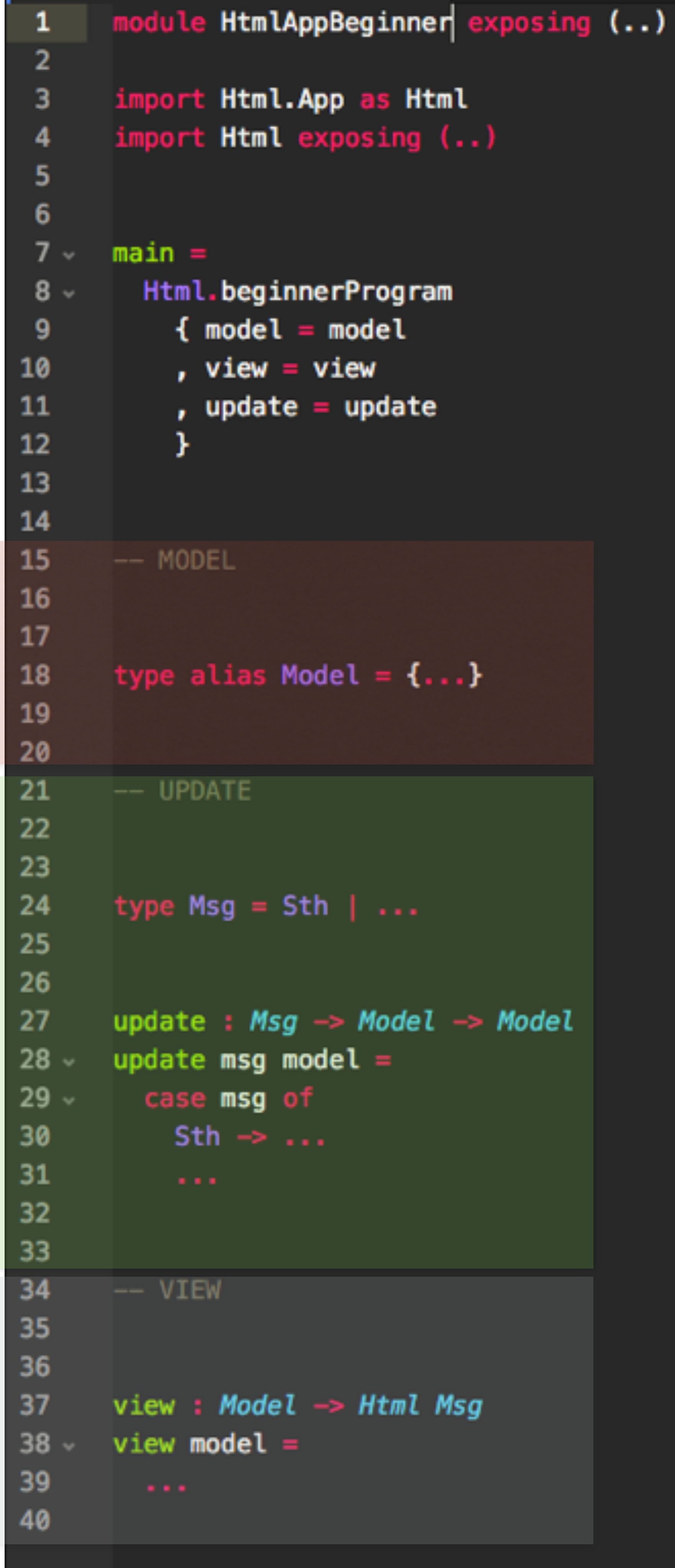


Well-Organised Code

Model - the state of your app

Update - a way to update your state

View - a way to view your state as HTML



```
module HtmlAppBeginner exposing (..)

import Html.App as Html
import Html exposing (..)


main =
  Html.beginnerProgram
    { model = model
    , view = view
    , update = update
    }


-- MODEL


type alias Model = {...}


-- UPDATE


type Msg = Sth | ...


update : Msg -> Model -> Model
update msg model =
  case msg of
    Sth -> ...
    ...


-- VIEW


view : Model -> Html Msg
view model =
  ...

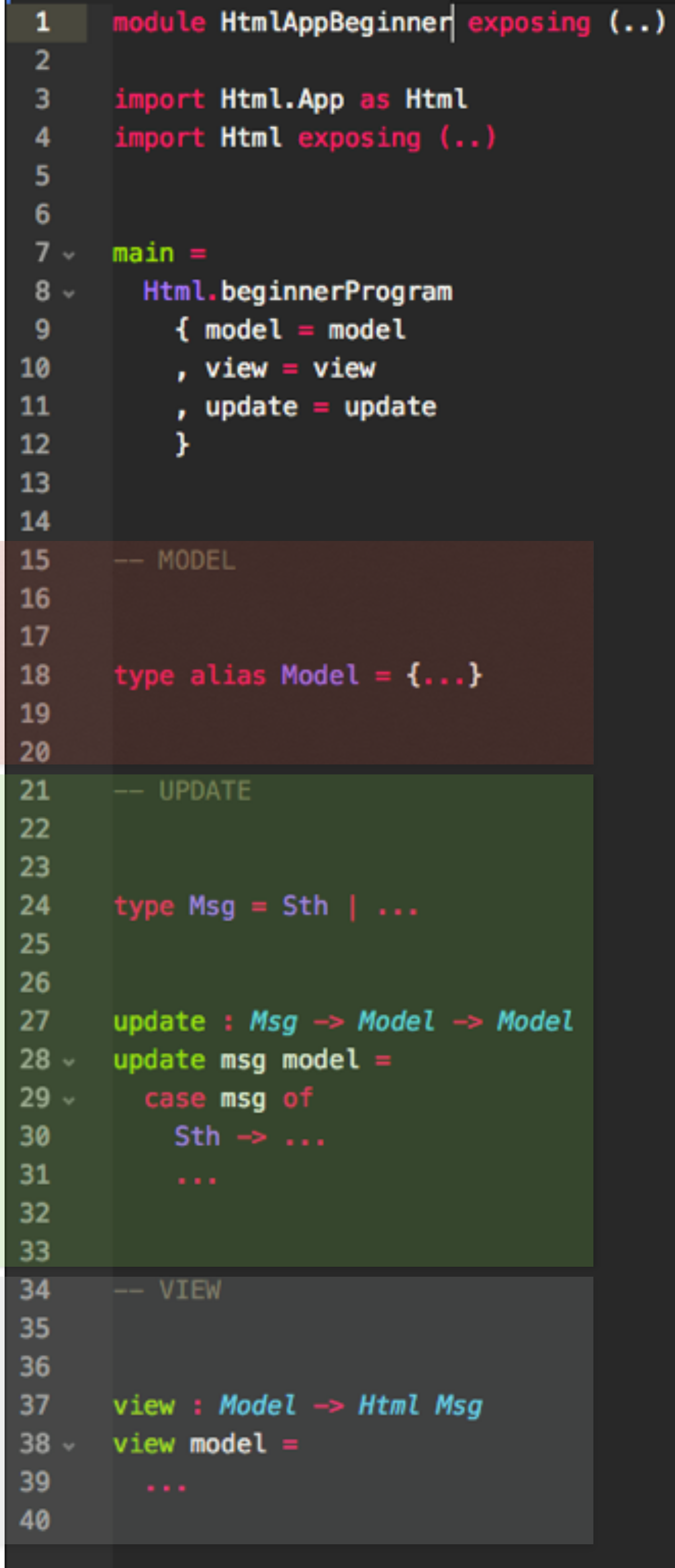
```

Elm Architecture

Model - the state of your app

Update - a way to update your state

View - a way to view your state as HTML



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-- VIEW


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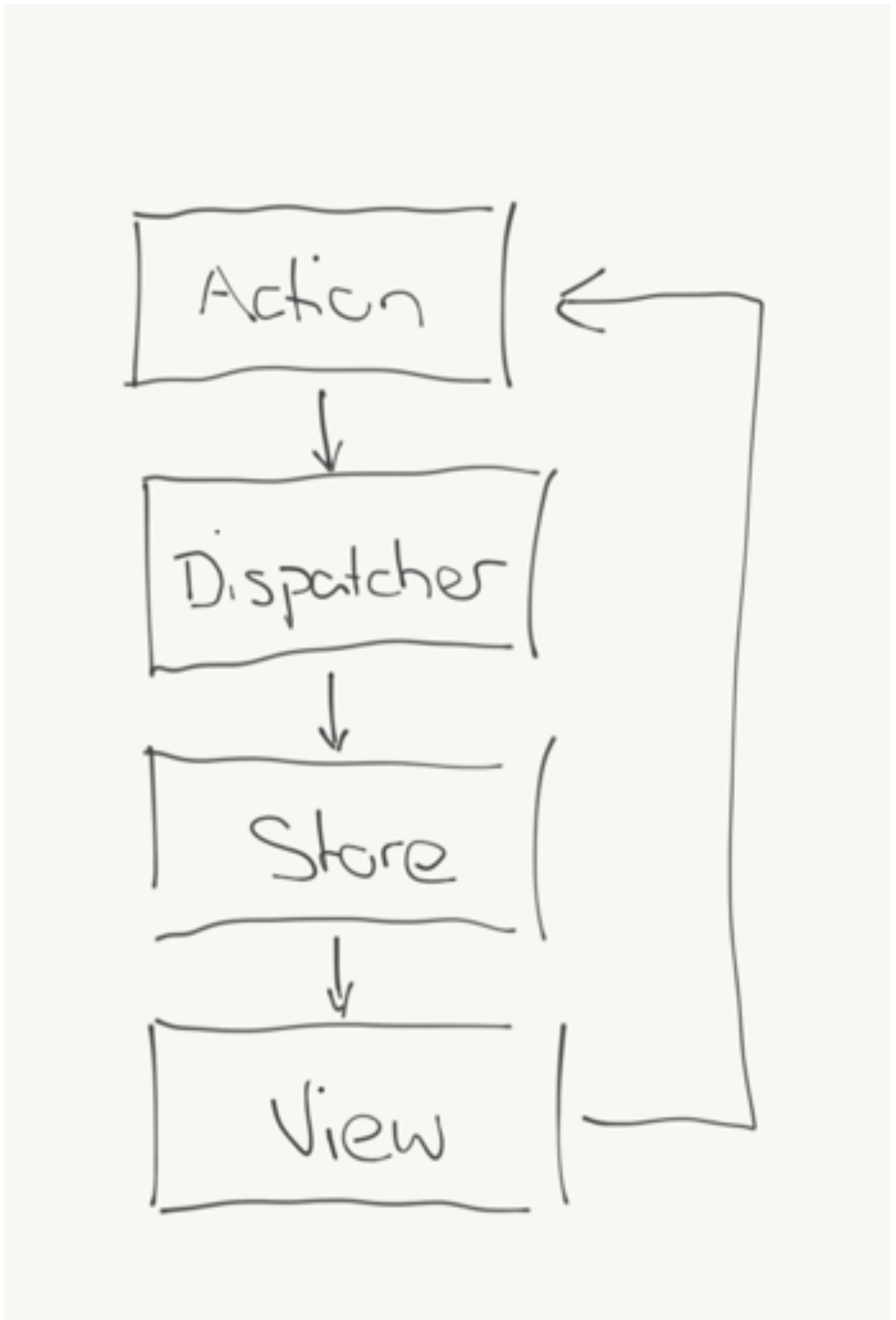
view model =
  ...

```

Flux + React + Redux



Flux

React

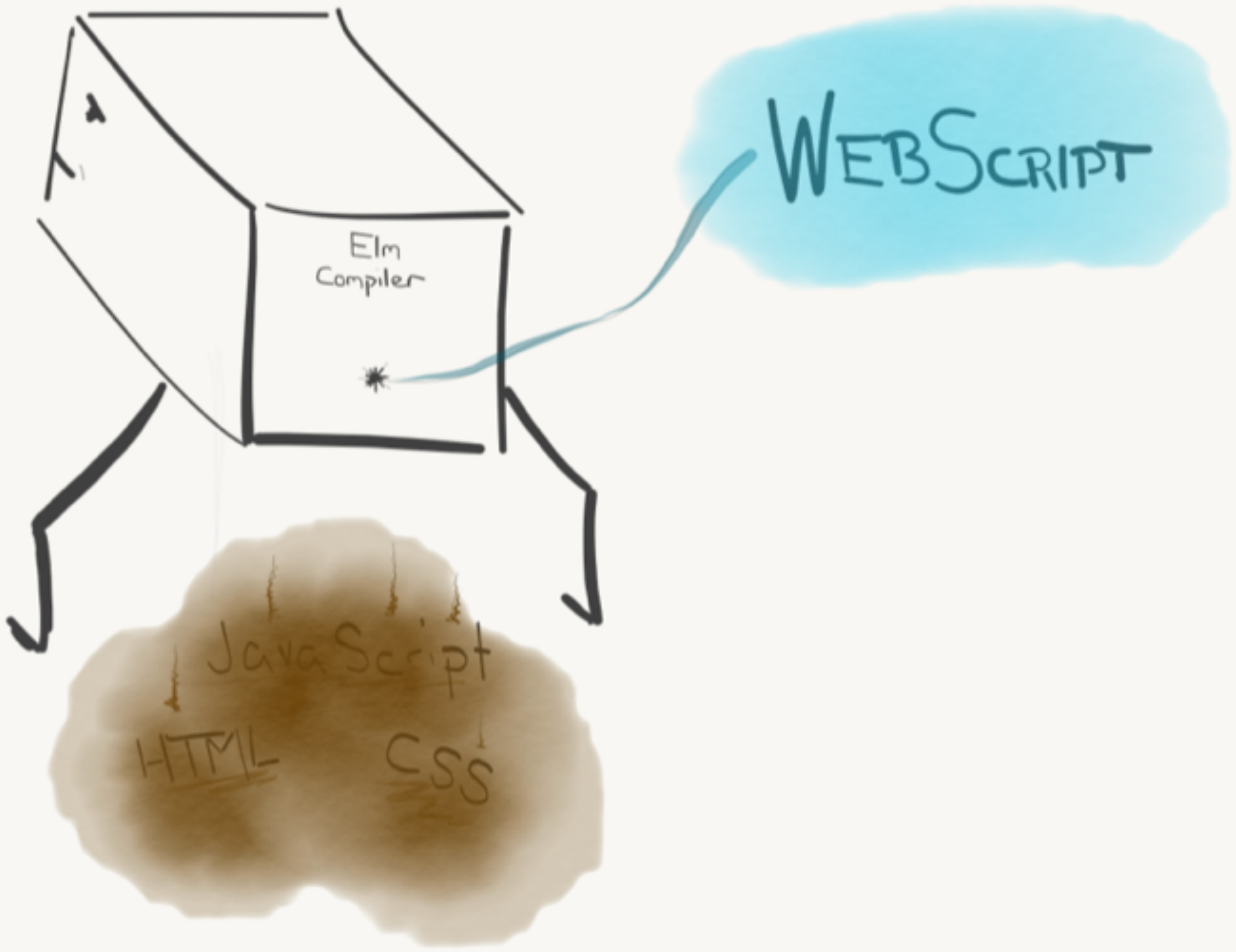
Redux

Angular

ember

Cycle.js

JavaScript


Elm Compiler
WebScript
JavaScript
HTML
CSS

Elm

What’s that?

Elm rocks!!

It’s made for the **Web**

It’s **functional**

It’s **easy** to learn

Elm rocks!!

The Tools

Elm Platform

elm-compiler elm-reactor elm-repl

elm-make elm-package

Time-Traveling Debugger

Online editor elm-lang.org/try

Elm

For me?

Pro
developer

&

Young Hacker
people new to programming

Where to start..

http://elm-lang.org/

The Guide - An introduction to Elm

http://**guide**.elm-lang.org/

http://**package**.elm-lang.org/

core, html..

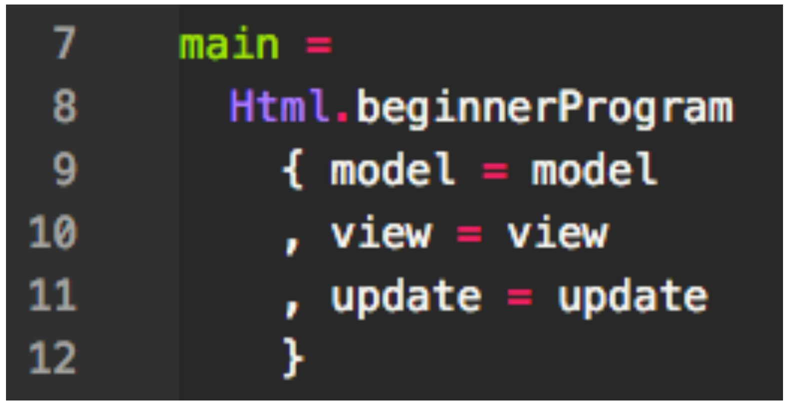
check out the **examples**
and **start** right away
with the online editor

~~0.16~~

0.17

Elm is now easier than ever to learn

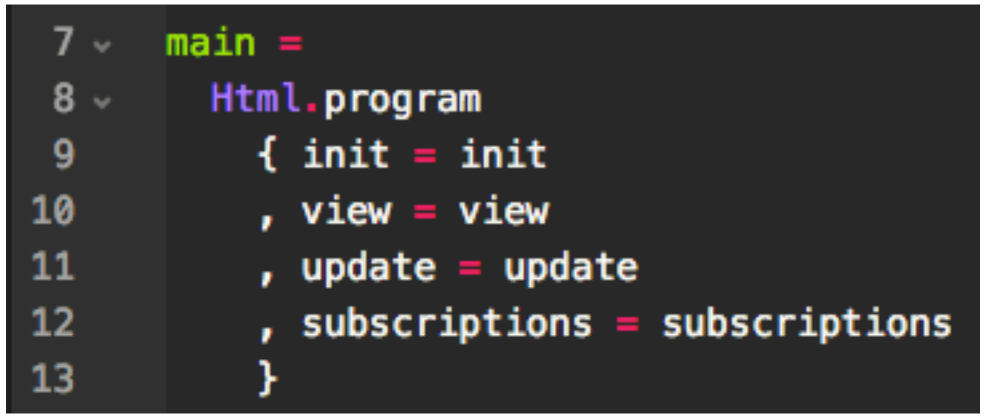
Every Elm project will define main to be some sort of Program.



```
main =
  Html.beginnerProgram
    { model = model
    , view = view
    , update = update
    }
```

Html.App

Cmd Sub



```
main =
  Html.program
    { init = init
    , view = view
    , update = update
    , subscriptions = subscriptions
    }
```

WebSocket support

geolocation page-visibility

..Erlang style of concurrency