A Compiler for the Front End: Intro to Elm

If you brought a laptop, and it has npm installed, you can try this right now

```
npm install -g elm
```

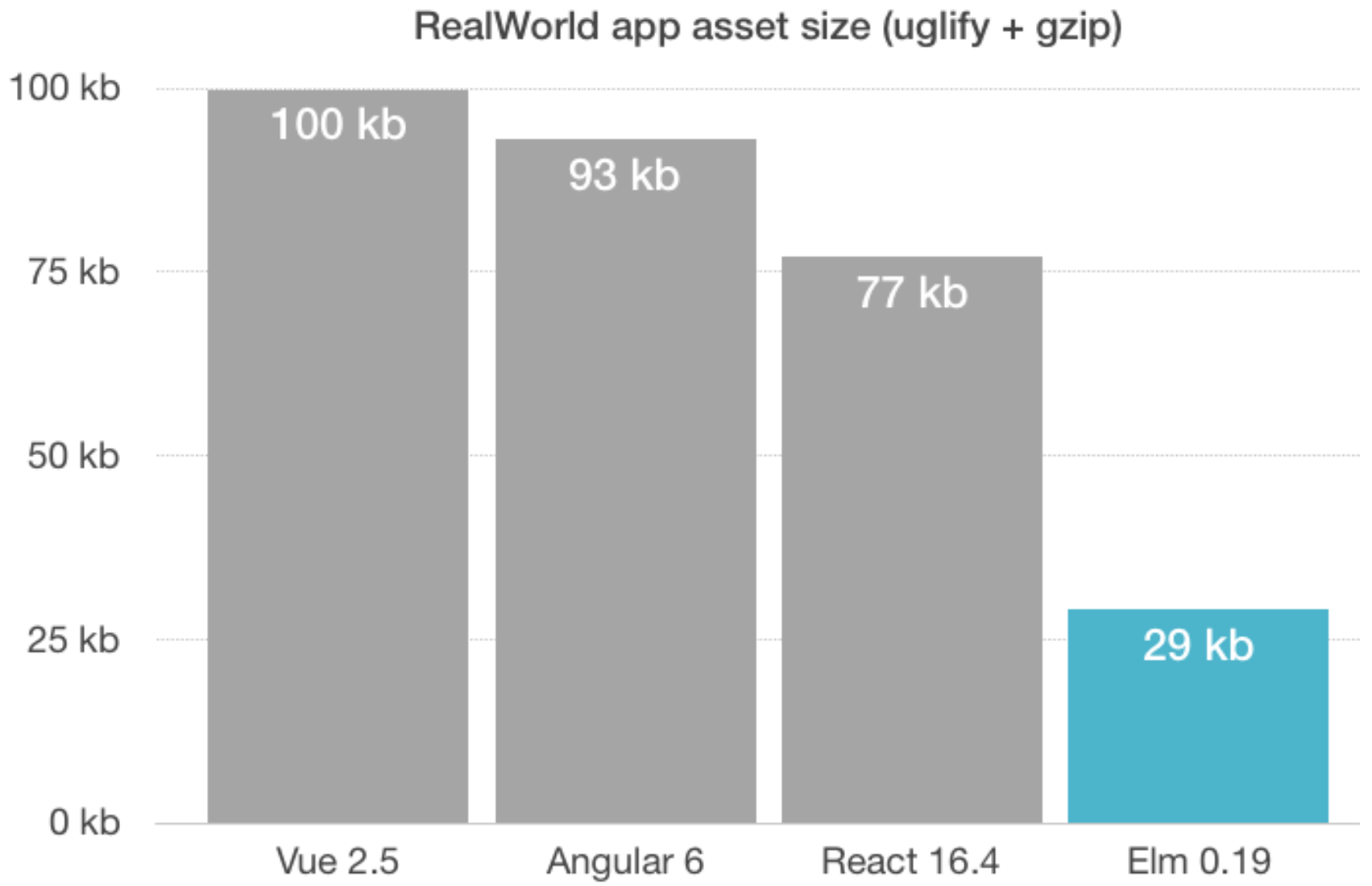
Try this too. At the least, it has many links to Elm:

```
git clone https://github.com/atom-box/MKE.git
```

summary

1)Elm is very fast and very small when compared with React, Angular, Ember, etc.
2)Elm is a programming language that compiles to JavaScript.
3)It is known for its friendly error messages, helping you find issues quickly and refactor large projects with confidence.
4)It has static types.
5)Elm is purely functional.

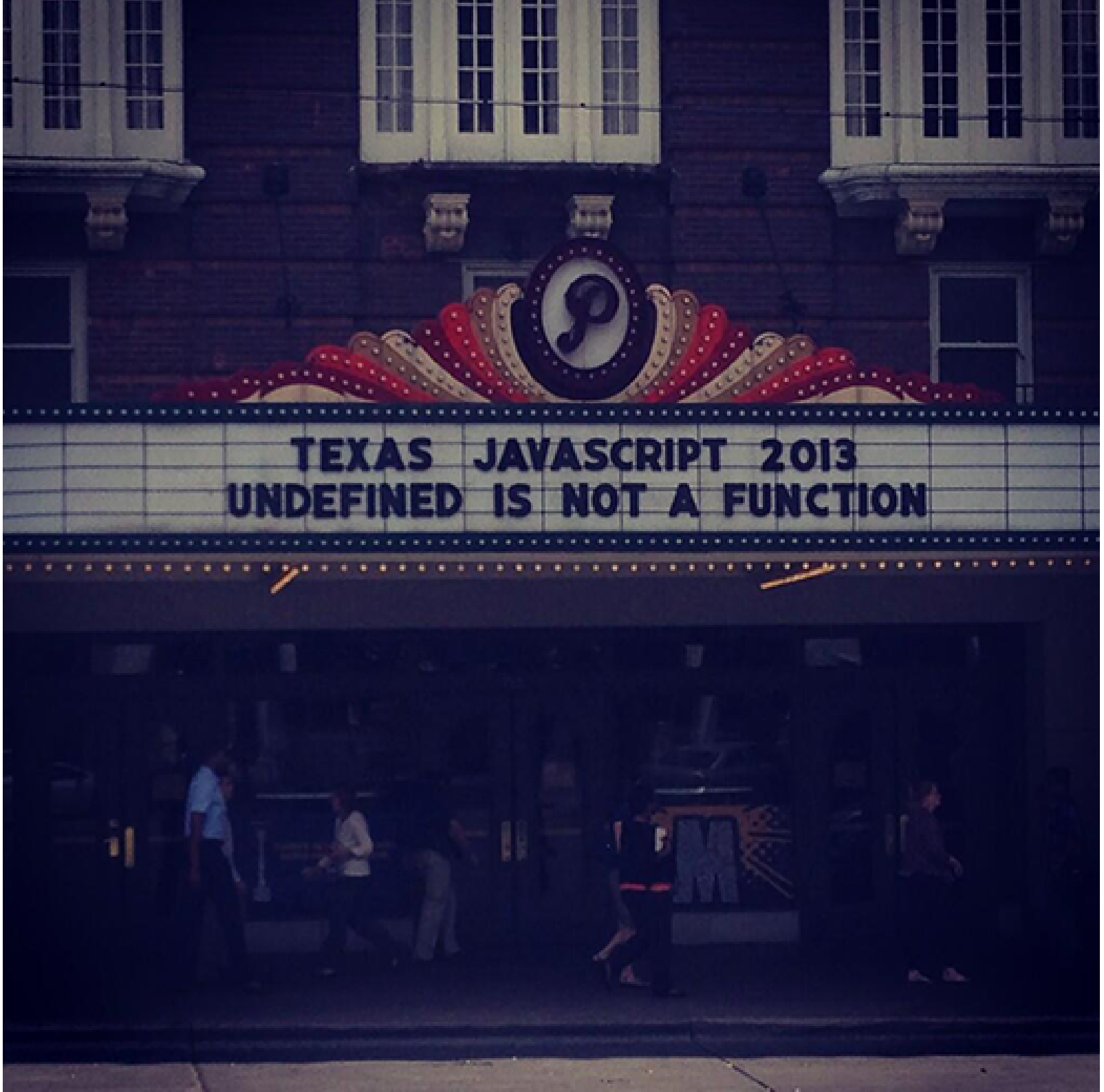

THE CHANGELOG



The Elm version is quite small! (Smaller is better. Smaller assets means faster downloads!) Note that the React library itself is 32kb. Just the library without any application code. The entire Elm RealWorld App is 29kb, so no amount of code splitting can make the React version smaller than the Elm version!

Elm is a compiled language.

It can compile to .js or .html


TEXAS JAVASCRIPT 2013
UNDEFINED IS NOT A FUNCTION

Language	Typing
Kotlin, Java	static
Elm	static
C++	static
Javascript	dynamic
Python	dynamic
Typescript(MS)	dynamic
Elixir	dynamic

Common programming paradigms include:[1][2][3]

- imperative in which the programmer instructs the machine how to change its state,
  - procedural which groups instructions into procedures,
  - object-oriented which groups instructions together with the part of the state they operate on,
- declarative in which the programmer merely declares properties of the desired result, but not how to compute it
  - functional in which the desired result is declared as the value of a series of function applications,
  - logic in which the desired result is declared as the answer to a question about a system of facts and rules,
  - mathematical in which the desired result is declared as the solution of an optimization problem

Functional languages [edit]

See also: Category:Functional languages.

Functional programming languages define programs and subroutines as mathematical functions and treat them as first-class. Many so-called functional languages are "impure", containing imperative features. Many functional languages are tied to mathematical calculation tools. Functional languages include:

Pure [edit]

- Agda
- Charity
- Clean
- Coq (Gallina)
- Cuneiform
- Curry
- Elm
- Haskell
- Hope
- Idris
- Joy
- Mercury
- Miranda
- KRC
- SAC
- SASL
- SequenceL


THAT
CONFERENCE
AUGUST 5 - 8,
2019

summary

1)Elm is very fast and very small when compared with React, Angular, Ember, etc.
2)Elm is a programming language that compiles to JavaScript.
3)It is known for its friendly error messages, helping you find issues quickly and refactor large projects with confidence.
4)It has static types.
5)Elm is purely functional.

marinintim@ @marinintim · Oct 20

— Knock-knock.

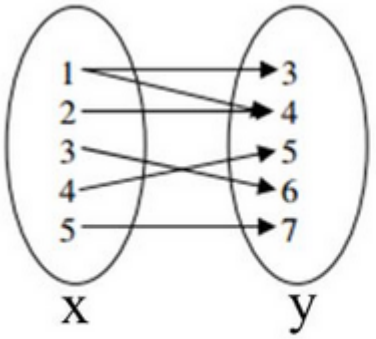
— Who's there?

— [object Object]

— [object Object].who()

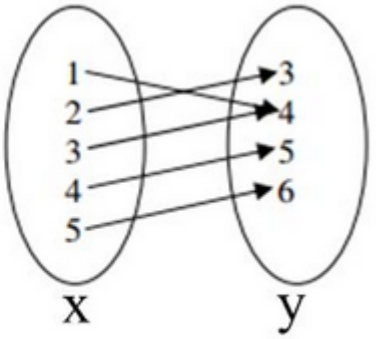
— **undefined is not a function**

A.



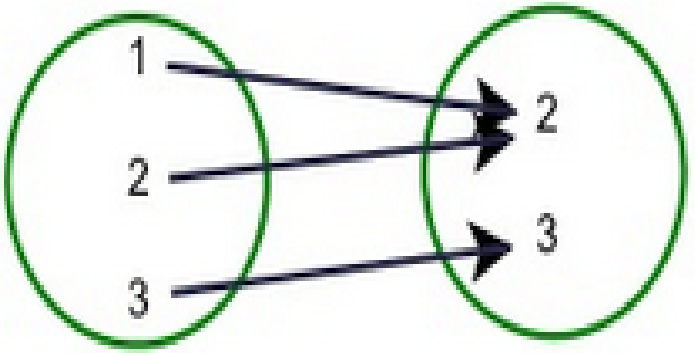
Relation A is not a function.

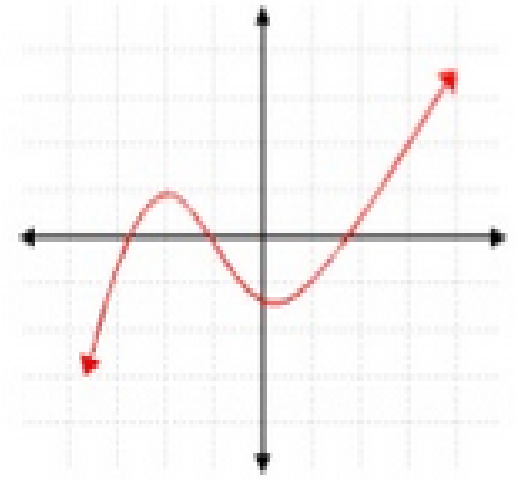
B.



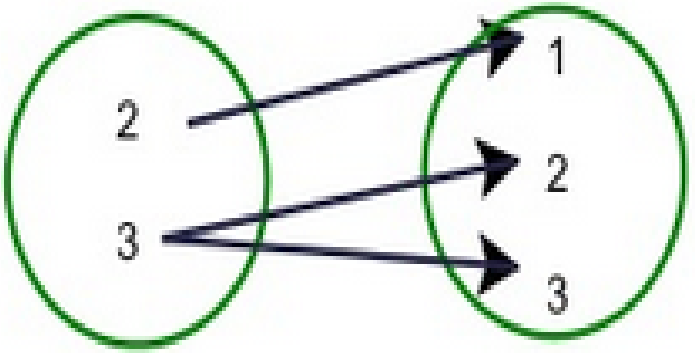
Relation B is a function.

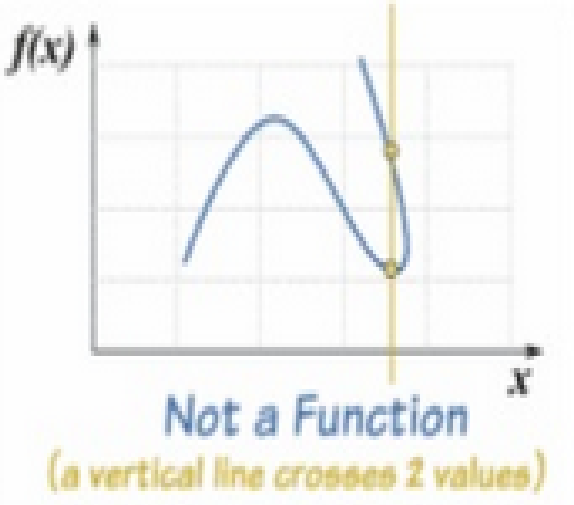
This is a function.





This is NOT a function.





JS trying to do Immutability

In ES6 there is a new keyword called ***const***. This means that once a variable is set, it cannot be reset:

```
const a = 1;
a = 2; // error.
```

```
const a = {
x: 1,
y: 2
};
a.x = 2; // NO ERROR!
a = {}; // this will throw a
TypeError
```

Javascript

Mutation (bad!):

```
var rooms = [“H1”, “H2”, “H3”];

rooms[2] = “H4”;

rooms;

=> ["H1", "H2", "H4"]
```

Elm:

No mutation (good!):

```
var rooms = [“H1”, “H2”, “H3”];
Var newRooms = rooms.map(function (rm) {
  if (rm == “H3”) { return “H4”; }
  else { return rm; }
});
newRooms; => ["H1", "H2", "H4"]
rooms; => ["H1", "H2", "H3"]
```

What about side effects?

Hidden I/O (hidden side effects)

```
const addUser = (user) => {
    Database.addUser(user);
    userCount + 1;
    NotifyComponent.createToast(`User ${user.name} added!`);
};
```

Declared I/O

```
// square :: (Number, Number) -> Number
const square = (x, y) => {
    return x * y;
};
```


IBM

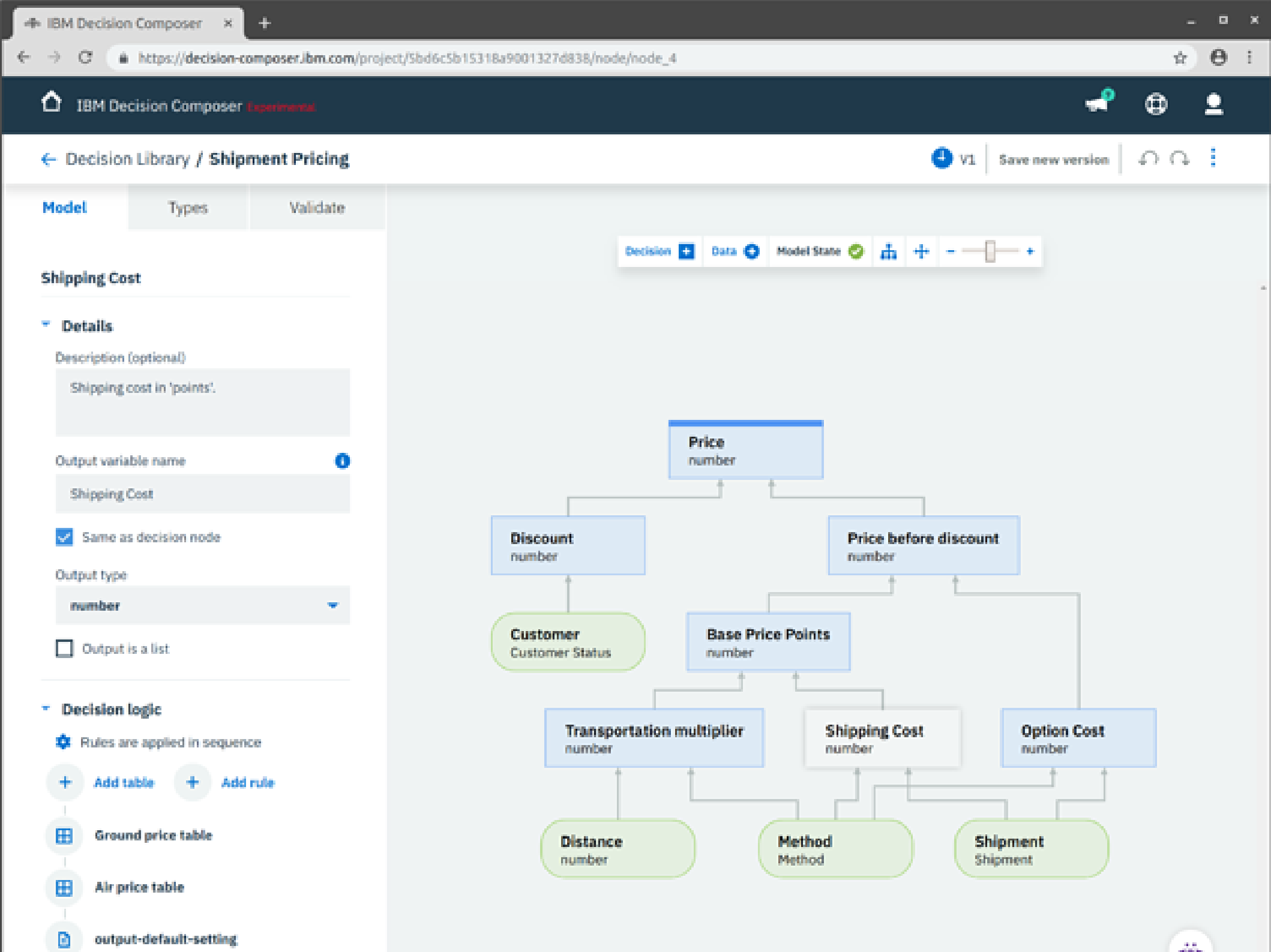
IBM Decision Composer

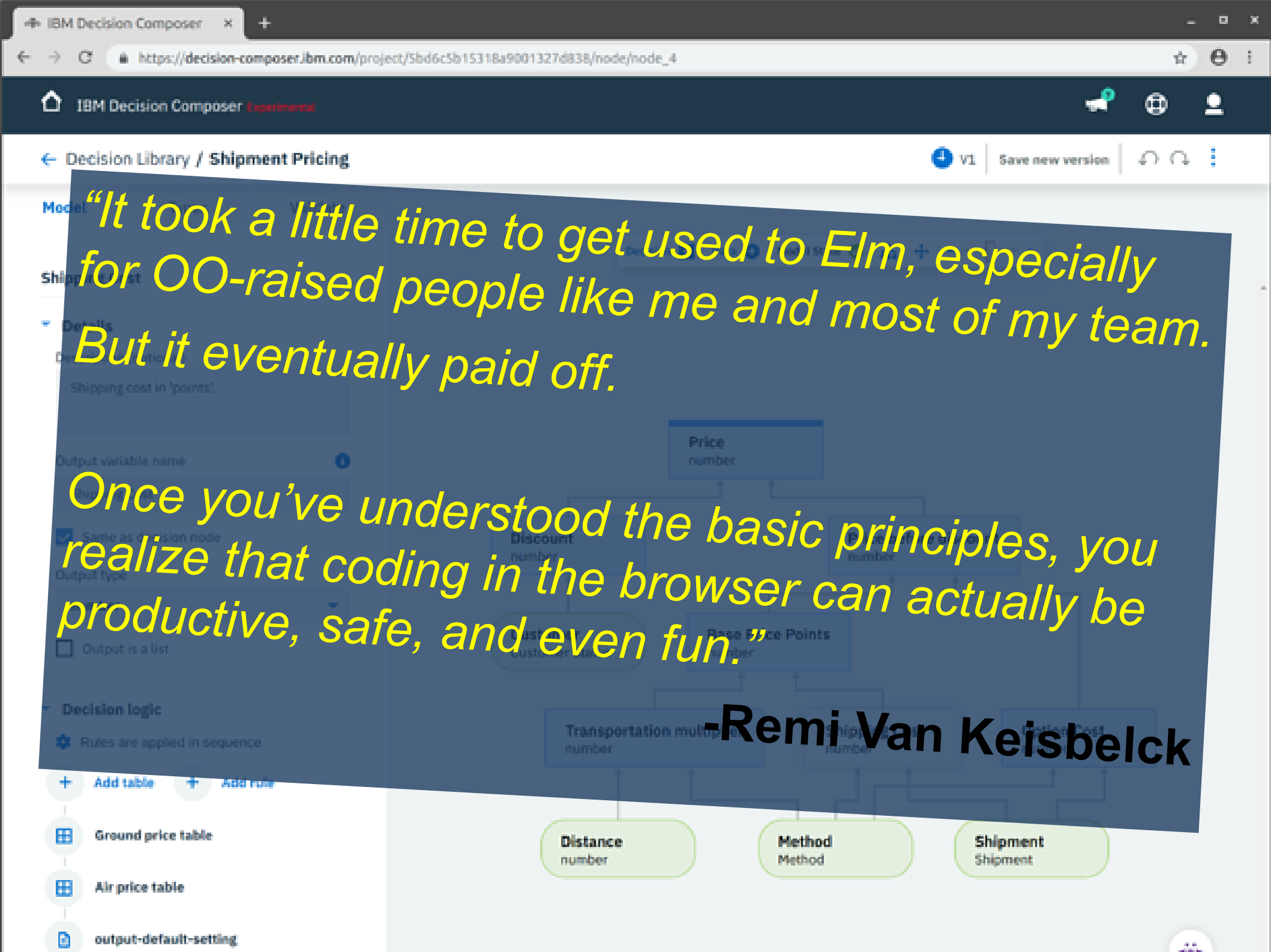
An intuitive, cloud-based decision automation tool, that helps you discover and learn the essentials of business rules and IBM Operational Decision Manager. Decision Composer is a no-code environment, where business users can model, author, validate, and share business rules. Developers can then invoke authored decisions right away from any enterprise, cloud or mobile application. If you're new to business rules, you'll find many examples, tutorials and videos that will guide you through creating and editing simple decisions, allowing you to learn decision automation in minutes.

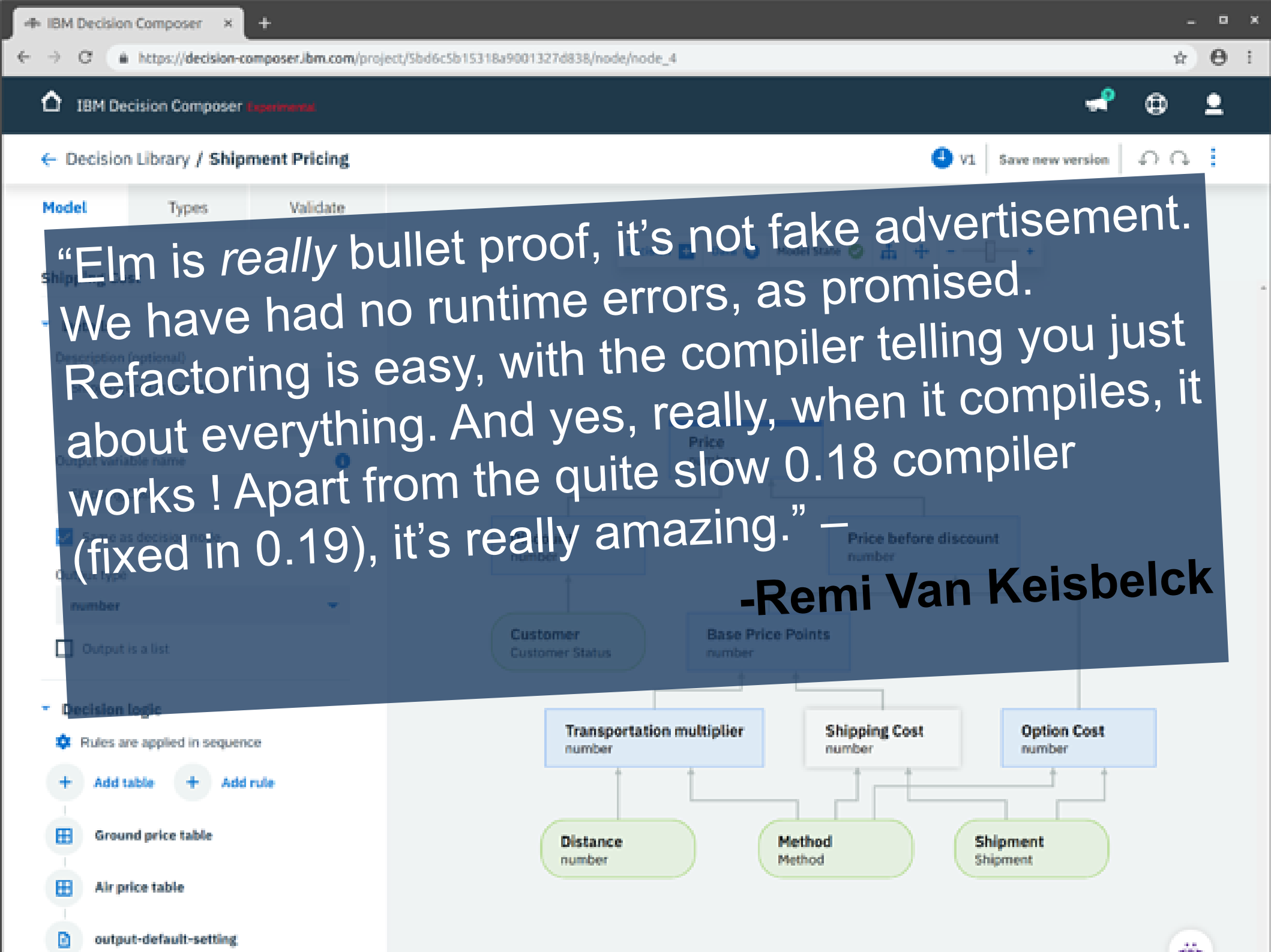
Read more

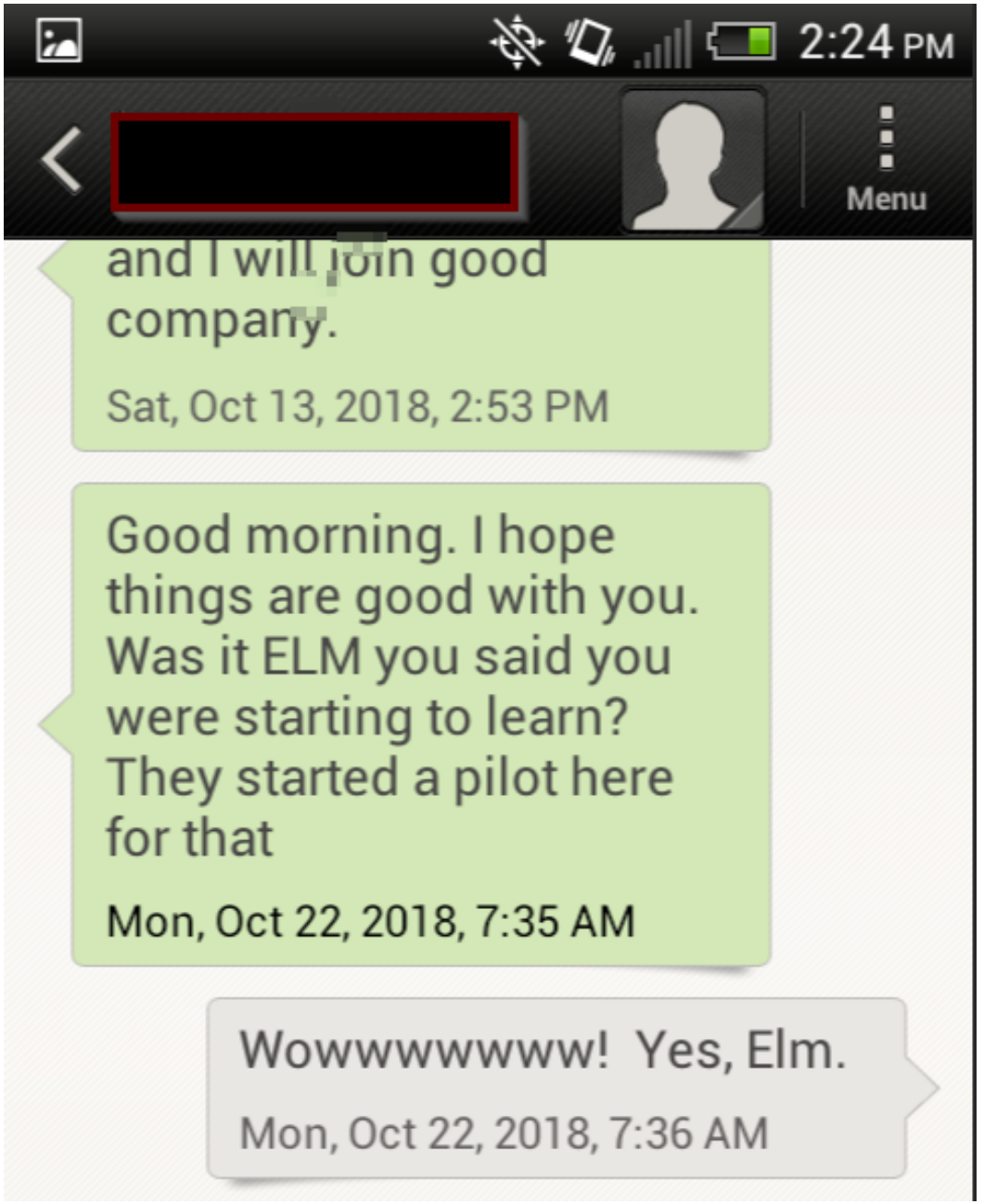
IBM Decision Compo
enables you to run up
per month.
If you have already si
Composer, just sign i
Otherwise, sign up fo
it's free!

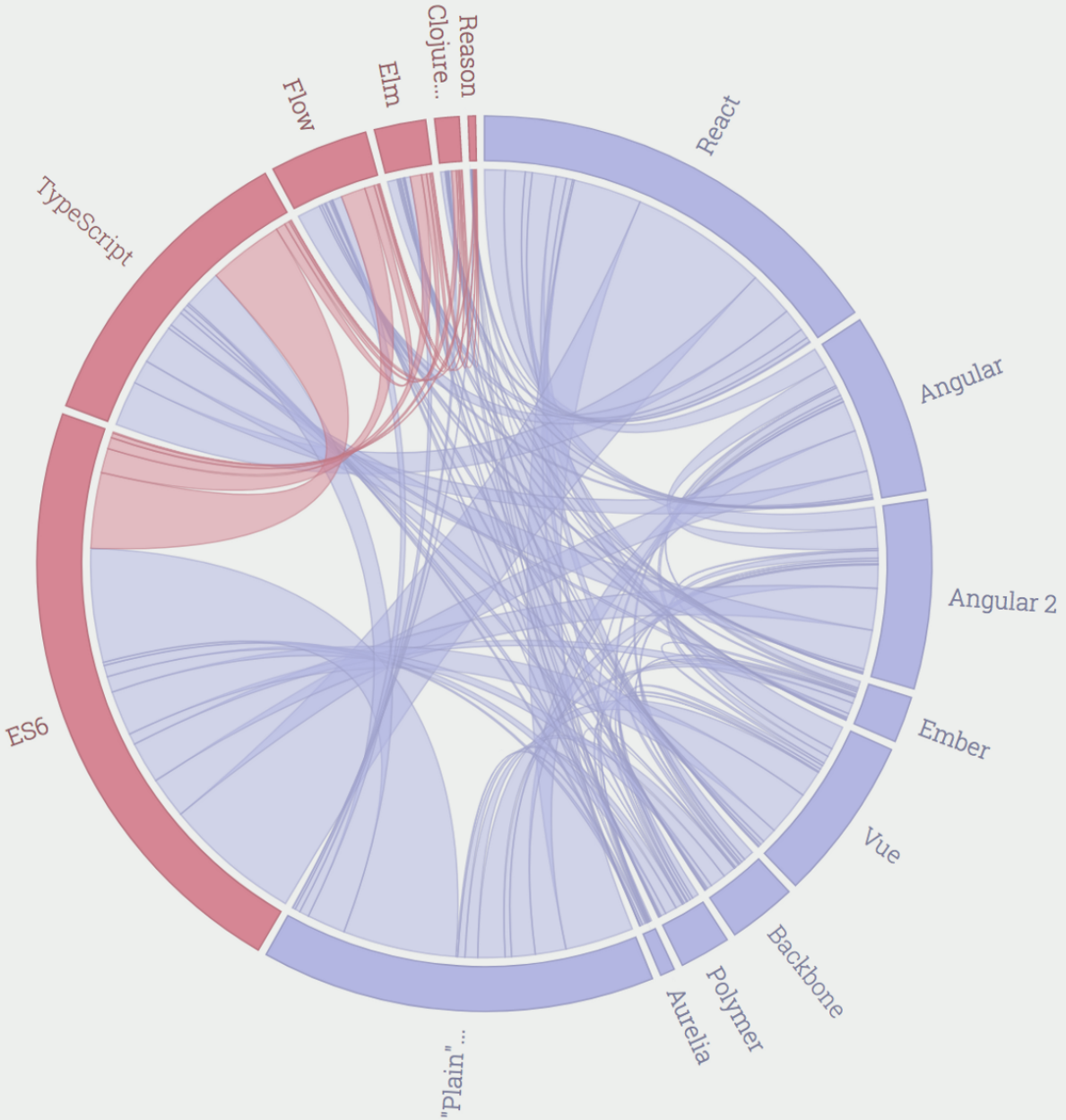
Sign in


IBM Decision Composer
https://decision-composer.ibm.com/project/5bd6c5b15318a9001327d838/node/node_4
IBM Decision Composer Experimental
Decision Library / Shipment Pricing
V1
Save new version
Model
Types
Validate
Shipping Cost
Details
Description (optional)
Shipping cost in 'points'.
Output variable name
Shipping Cost
Same as decision node
Output type
number
Output is a list
Decision logic
Rules are applied in sequence
Add table
Add rule
Ground price table
Air price table
output-default-setting
Decision
Data
Model State
Price
number
Discount
number
Price before discount
number
Customer
Customer Status
Base Price Points
number
Transportation multiplier
number
Shipping Cost
number
Option Cost
number
Distance
number
Method
Method
Shipment
Shipment


IBM Decision Composer
https://decision-composer.ibm.com/project/5bd6c5b15318a9001327d838/node/node_4
IBM Decision Composer Experimental
Decision Library / Shipment Pricing
V1
Save new version
Model
Details
Shipping cost in 'points'.
Output variable name
Same as decision node
Output type
Output is a list
Decision logic
Rules are applied in sequence
Add table
Add rule
Ground price table
Air price table
output-default-setting
Price
number
Discount
number
Base Price Points
number
Transportation multiplier
number
Distance
number
Method
Method
Shipment
Shipment
"It took a little time to get used to Elm, especially for OO-raised people like me and most of my team.
But it eventually paid off.
Once you've understood the basic principles, you realize that coding in the browser can actually be productive, safe, and even fun."
-Remi Van Keisbelck


IBM Decision Composer
https://decision-composer.ibm.com/project/5bd6c5b15318a9001327d838/node/node_4
IBM Decision Composer Experimental
Decision Library / Shipment Pricing
V1
Save new version
Model
Types
Validate
"Elm is *really* bullet proof, it's not fake advertisement. We have had no runtime errors, as promised. Refactoring is easy, with the compiler telling you just about everything. And yes, really, when it compiles, it works ! Apart from the quite slow 0.18 compiler (fixed in 0.19), it's really amazing." –
-Remi Van Keisbelck
Price
Price before discount
number
Customer
Customer Status
Base Price Points
number
Transportation multiplier
number
Shipping Cost
number
Option Cost
number
Distance
number
Method
Method
Shipment
Shipment
Decision logic
Rules are applied in sequence
Add table
Add rule
Ground price table
Air price table
output-default-setting


2:24 PM
[redacted]
Menu
and I will join good company.
Sat, Oct 13, 2018, 2:53 PM
Good morning. I hope things are good with you. Was it ELM you said you were starting to learn? They started a pilot here for that
Mon, Oct 22, 2018, 7:35 AM
Wowwwwwww! Yes, Elm.
Mon, Oct 22, 2018, 7:36 AM


Reason
Clojure...
Elm
Flow
TypeScript
ES6
"plain ...
Aurelia
Polymer
Backbone
Vue
Ember
Angular 2
Angular
React


©2017 Google

why elm

WHY ELM?

Coding Tech · 29K views · 1 year ago

Watch this talk to explore Elm, the programming language that brings an entirely new approach to front-end development. You will ...

"Compilers as Therapists, or Why Elm is Good for ADHD" by Luke Westby

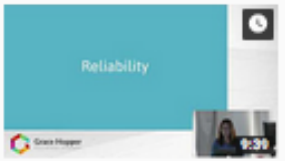
elm-conf · 4.5K views · 2 years ago

I have ADHD and struggle to stay focused on things. This has actually been helpful in learning JS since things change as quickly ...

React and ELM In Production

Coding Tech · 4.5K views · 9 months ago

At NoRedInk, we've been heavily using Elm and React side-by-side in production for over a year. After 35000 lines of Elm code ...



Elm Tutorial - Why use Elm?

Fullstack Academy · 634 views · 1 year ago

Learn more advanced front-end and full-stack development at: https://www.fullstackacademy.com Elm is a functional programming ...

Why Elm is Different / Fort Collins Internet Professionals, Nov 2016

Daniel Walker · 1.5K views · 2 years ago

Start at Part 3 to avoid JS background and simple Elm overview.... · https://youtu.be /YTfS_IJHixU?t=1h14m29s JavaScript ...

Elm crash course - Building unbreakable webapps fast

freeCodeCamp.org · 6K views · 4 months ago

Elm is a delightful functional language for reliable webapps. It compiles to JavaScript, has great performance, no runtime ...

Why Elm Uses Ports

BEAM Channel · Erlang & Elixir · 253 views · 1 year ago

Ports are a strange way to setup a FFI. Learn why elm uses ports as a way to interface with the outside world when other ...

Elm at Scale: More Surprises, More Pain Points

Kevin Yank · 2.7K views · 5 months ago

For nearly two years, Culture Amp has been building increasingly large amount of its user interfaces in Elm, a new, delightful ...

Richard Feldman Discusses Elm and How It Compares to React.js for Front-End Programming

InfoQ · 1.6K views · 1 year ago

README.md

A Compiler for the Front End: Intro to Elm

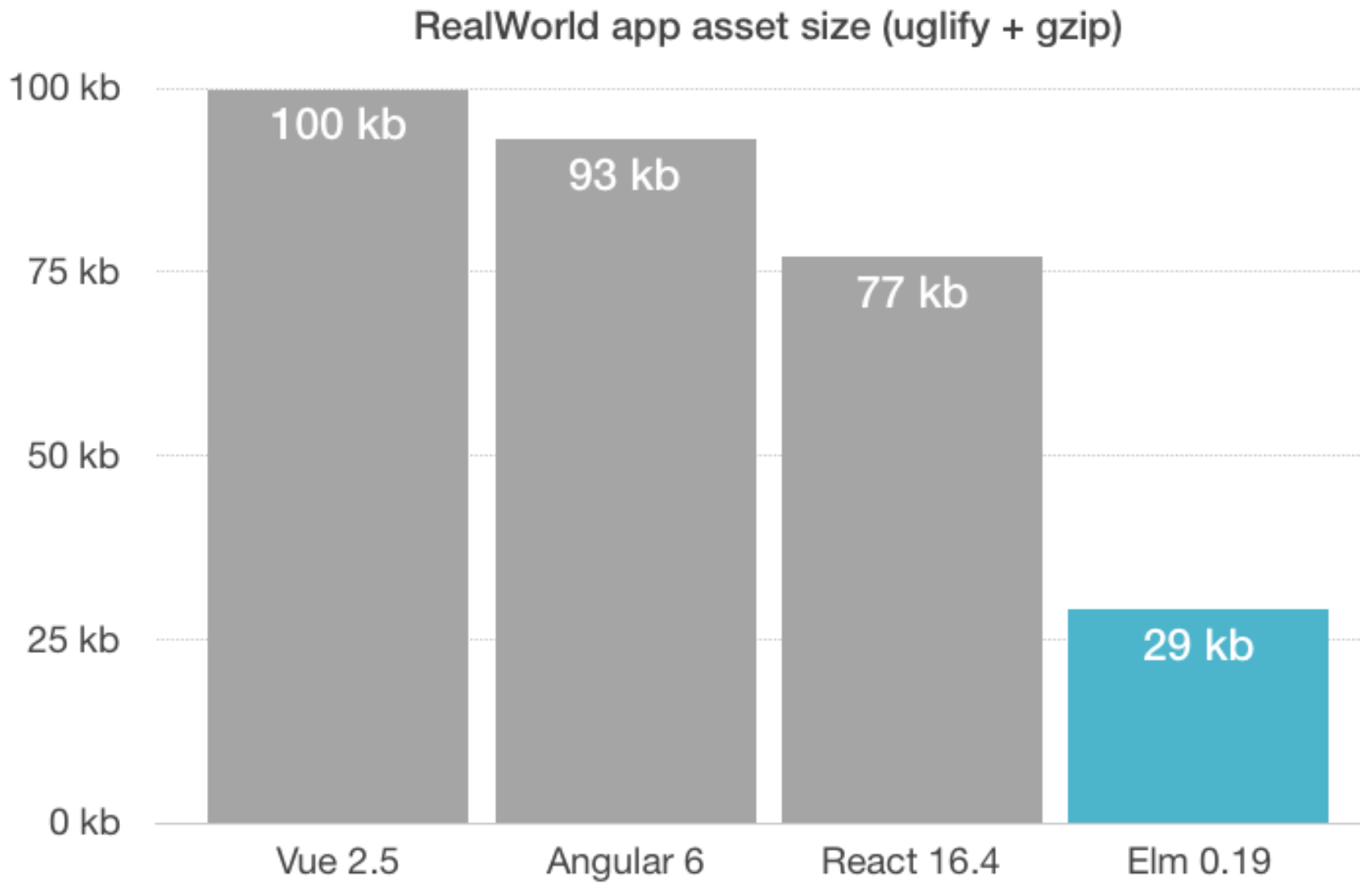
Handouts are near the door.

You can try installing Elm now:

```
`npm install -g elm elm-format elm-repl`
```

Resources

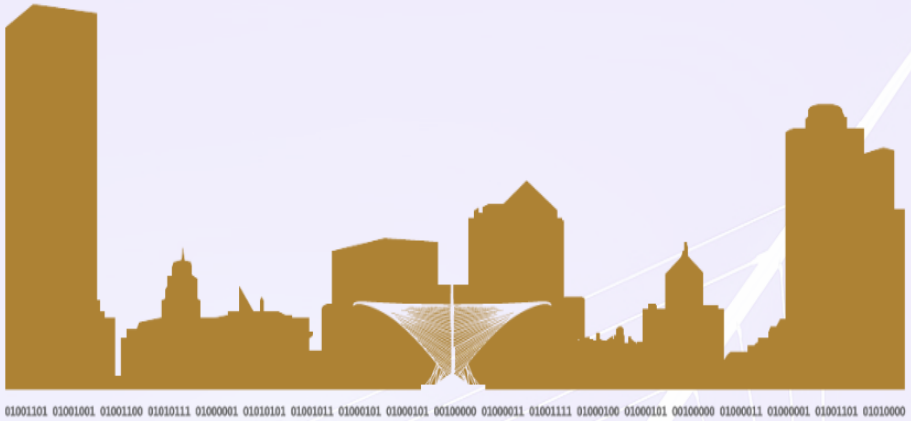
Overview: http://elm-lang.org/
Examples: https://github.com/evancz/elm-architecture-tutorial
Beginner: https://elmprogramming.com/
Beginner: https://css-tricks.com/introduction-elm-architecture-build-first-application/
Intermediate: https://guide.elm-lang.org/
Advanced: https://github.com/izdi/elm-cheat-sheet
Connection to Elixir: https://hackernoon.com/elmchemy-write-type-safe-elixir-code-with-elms-syntax-part-1-i
8968b76d721d
Bruce Tate: https://pragprog.com/book/7lang/seven-more-languages-in-seven-weeks
Elm, in production, at IBM: https://discourse.elm-lang.org/t/ibm-releases-elm-powered-app/2364
Try Elm, without installing anything: https://ellie-app.com/new
Installing Elm: the tutorials above have more details, but, if you already have Node.js and NPM, try typing npm
Videos: search online "Why Elm?"



The Elm version is quite small! (Smaller is better. Smaller assets means faster downloads!) Note that the React library itself is 32kb. Just the library without any application code. The entire Elm RealWorld App is 29kb, so no amount of code splitting can make the React version smaller than the Elm version!

summary

1)Elm is very fast and very small when compared with React, Angular, Ember, etc.
2)Elm is a programming language that compiles to JavaScript.
3)It is known for its friendly error messages, helping you find issues quickly and refactor large projects with confidence.
4)It has static types.
5)Elm is purely functional.



01001101 01001001 01001100 01010111 01000001 01010101 01001011 01000101 01000101 00100000 01000011 01001111 01000100 01000101 00100000 01000011 01000001 01001101 01010000

MILWAUKEE CODE CAMP

SKYLINE

Northwestern Mutual®

UNIVERSITY of WISCONSIN
UWMILWAUKEE®

Thank you, sponsors!

01001101 01001001 01001100 01010111 01000001 01010101 01001011 01000101 01000101 00100000 01000011 01001111 01000100 01000101 00100000 01000011 01000001 01001101 01010000

MILWAUKEE CODE CAMP

SKYLINE

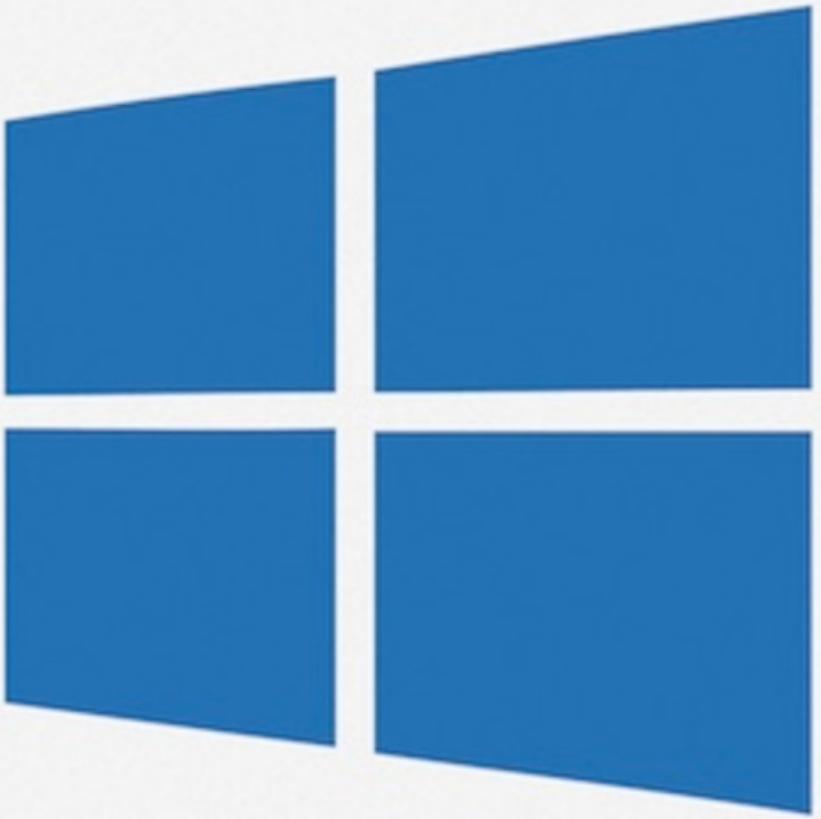
Please clean up your own trash in the rooms today.

Thank you, sponsors!

Northwestern Mutual®

UNIVERSITY of WISCONSIN
UWMILWAUKEE


Javascript ecosystem
jQuery
node
Gulp
React
Knockout.
npm
GRUNT
ember
ANGULARJS
by Google




UBS


JS


Java™