Live Programming and Designing of Dynamic Web Applications

Towards a totally RAD Development Experience

Linus Hagemann at FrOSCon 2023

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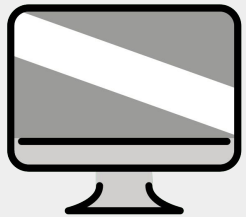

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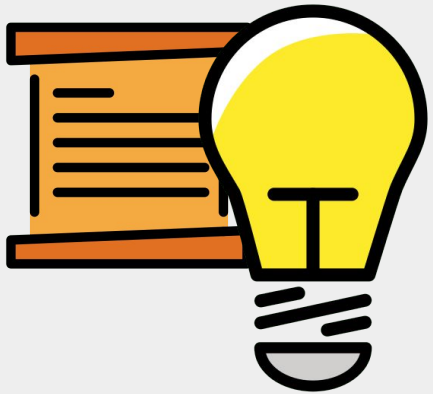

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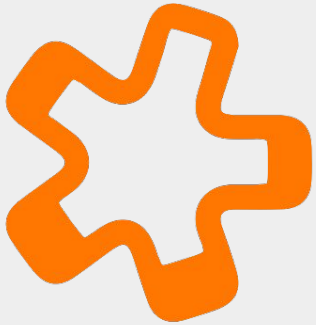

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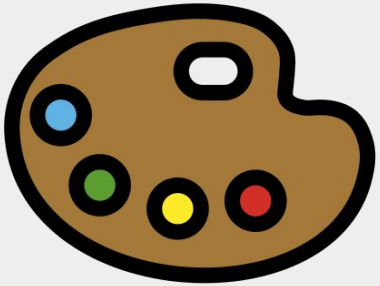
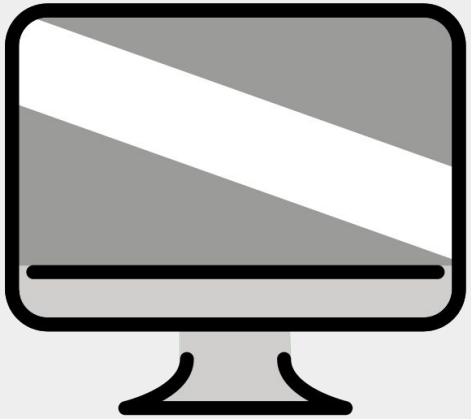
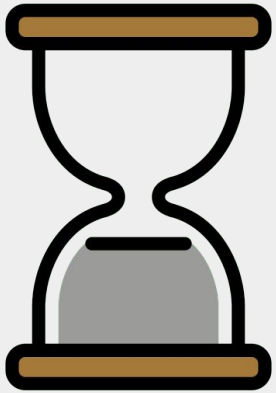
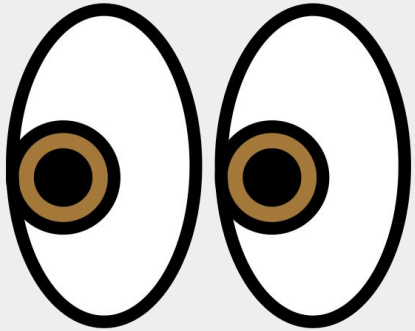
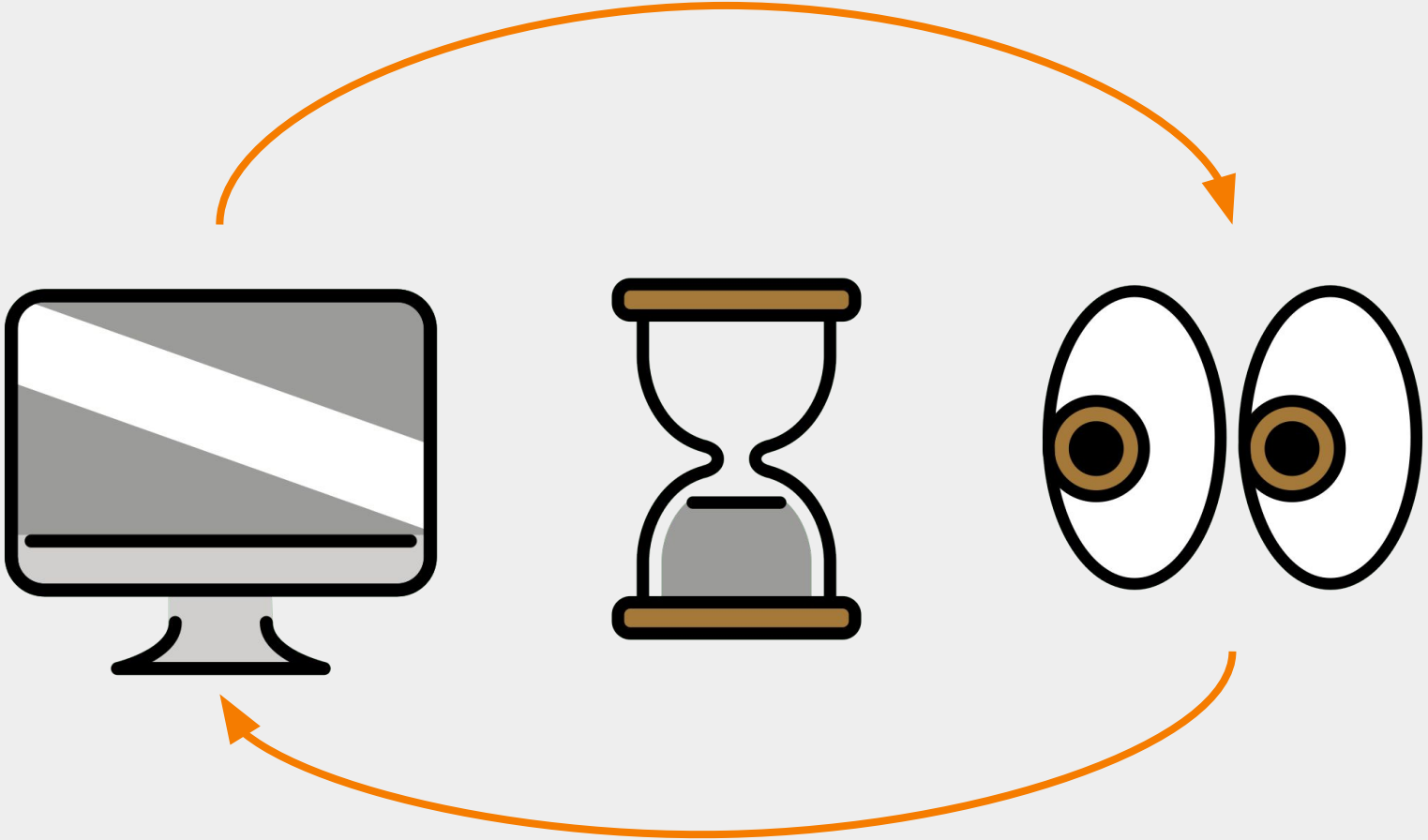


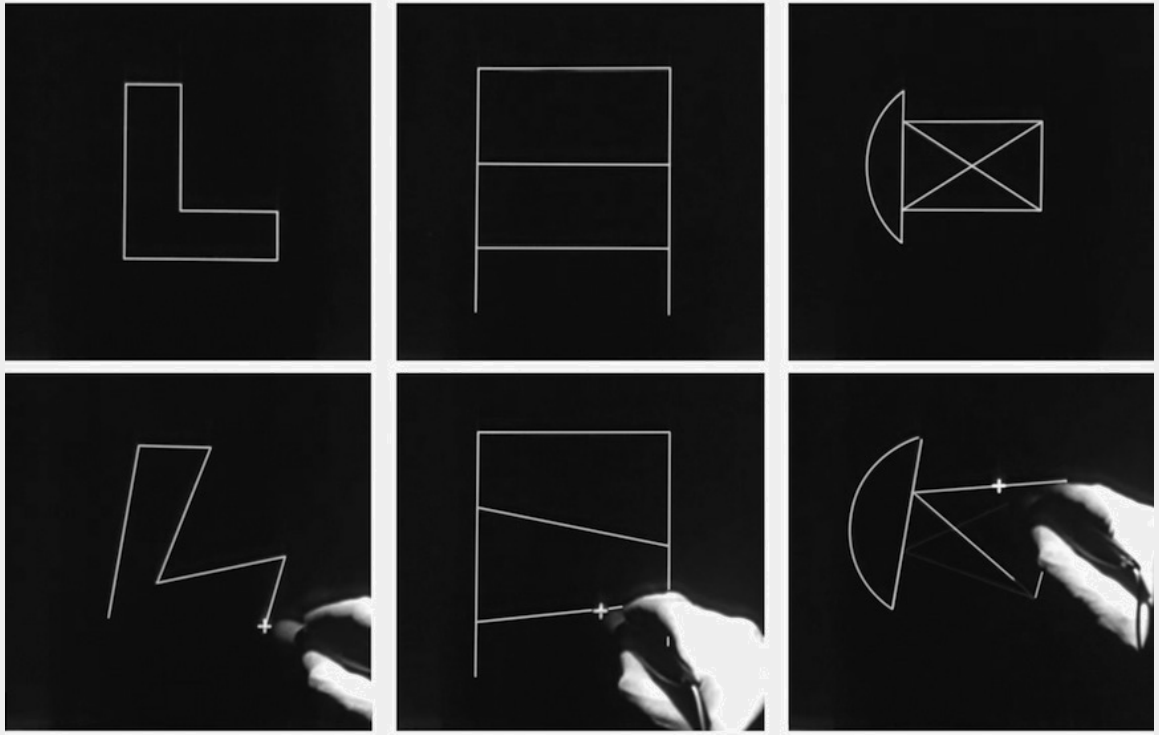
How do we write Software?











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Sketchpad (1963)
by Ivan Sutherland

direct manipulation

direct feedback

Sketchpad (1963)
by Ivan Sutherland

direct manipulation

direct feedback

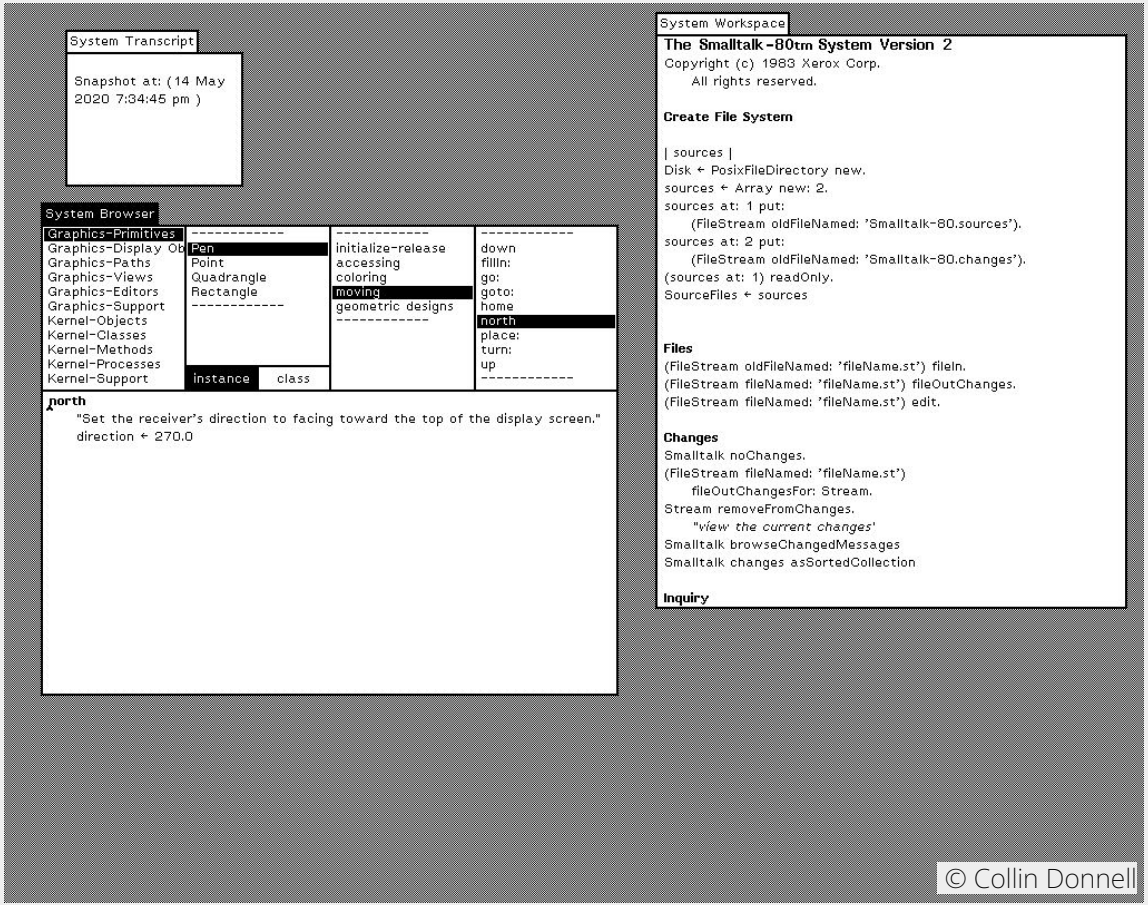
Smalltalk (1972)
Xerox PARC

(OOP)

GUIs

self contained

fully live



Smalltalk (1972)
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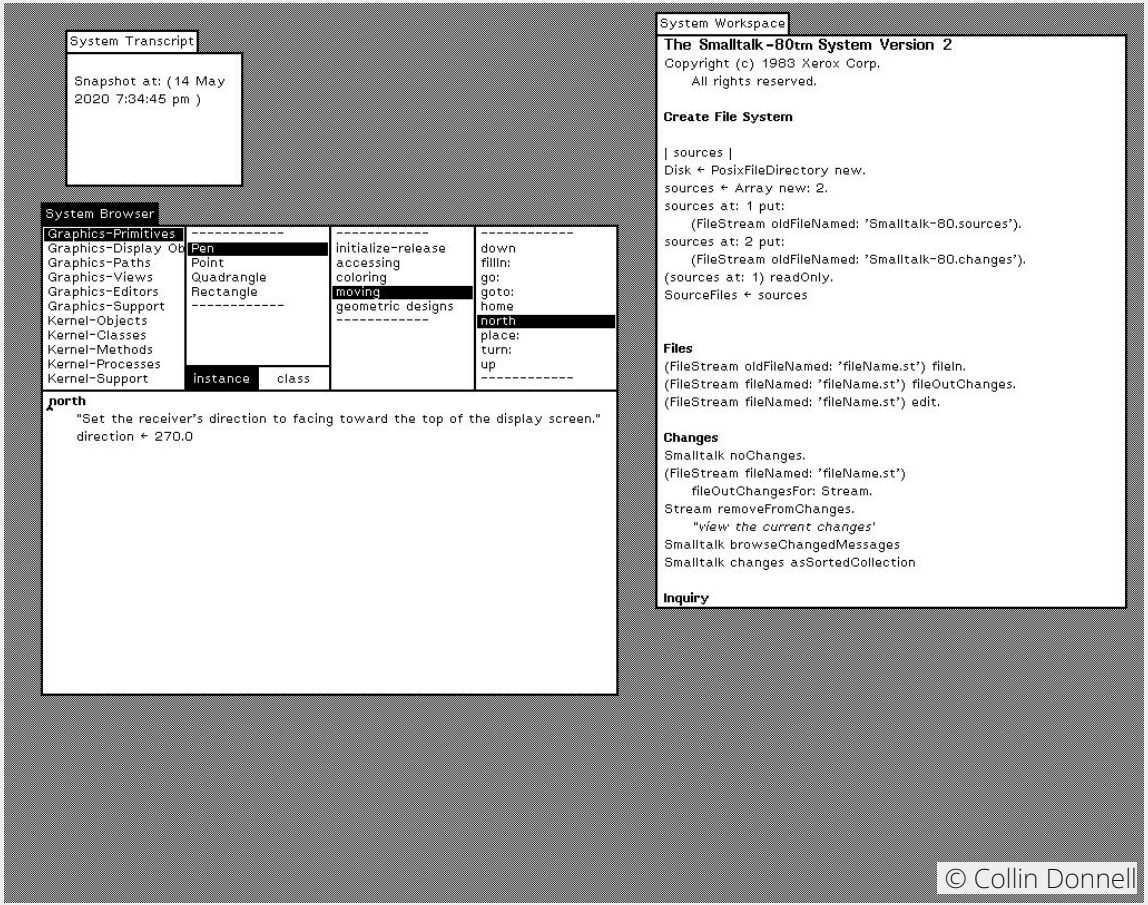
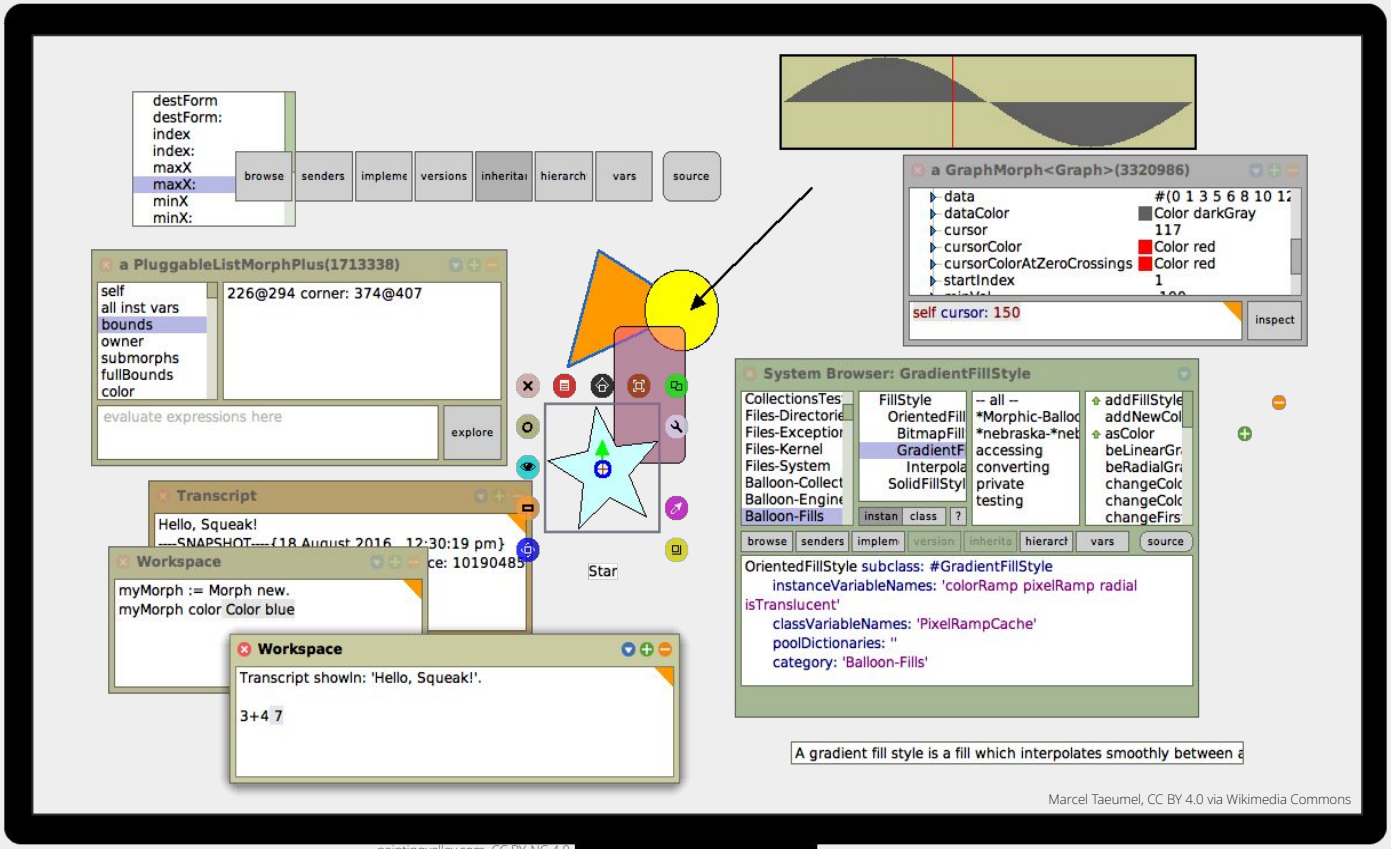


Squeak/Smalltalk



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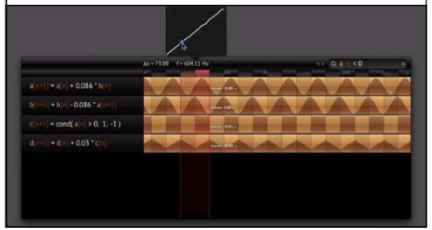
> Creators need an immediate connection to what they create... So much of creation is discovery, and you can't discover anything if you can't see what you are doing.

Bret Victor

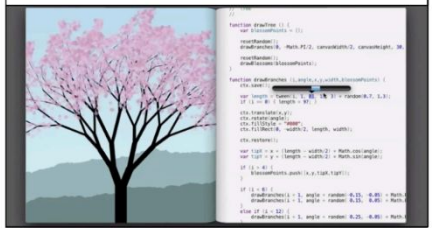
Inventing on Principle

SOFTWARE-BASED TOOLS ARE TRAPPED IN TINY RECTANGLES.

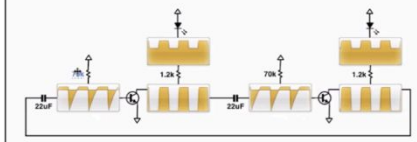
FOR YEARS, I'VE BEEN DESIGNING TOOLS.



TOOLS FOR PEOPLE MAKING SOFTWARE...

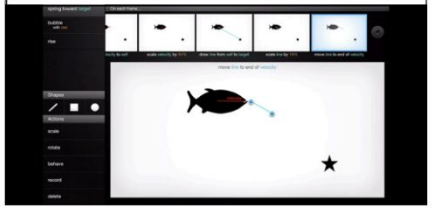


... ELECTRONICS, MUSIC, ANIMATION, MATHEMATICAL SYSTEMS...

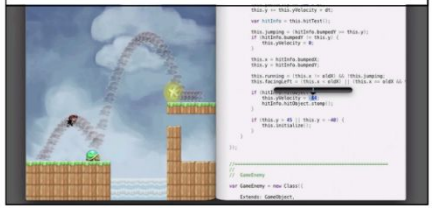


THINGS WITH *COMPLEX BEHAVIOR.*

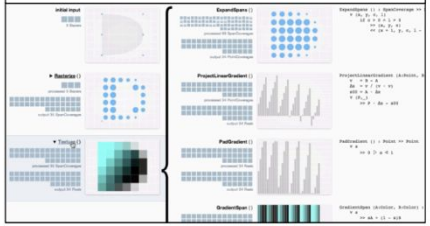
MY FOCUS HAS ALWAYS BEEN — HOW CAN CREATORS *SEE* THAT BEHAVIOR?



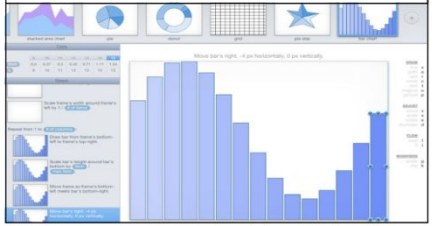
HOW CAN THEY SEE WHAT THE THING THEY'RE BUILDING IS *ACTUALLY DOING?*



AND WHAT ARE *POWERFUL WAYS OF SEEING*



SO THEY CAN *UNDERSTAND* WHAT IT'S DOING?



THESE HAVE GENERALLY BEEN SOFTWARE-BASED TOOLS.

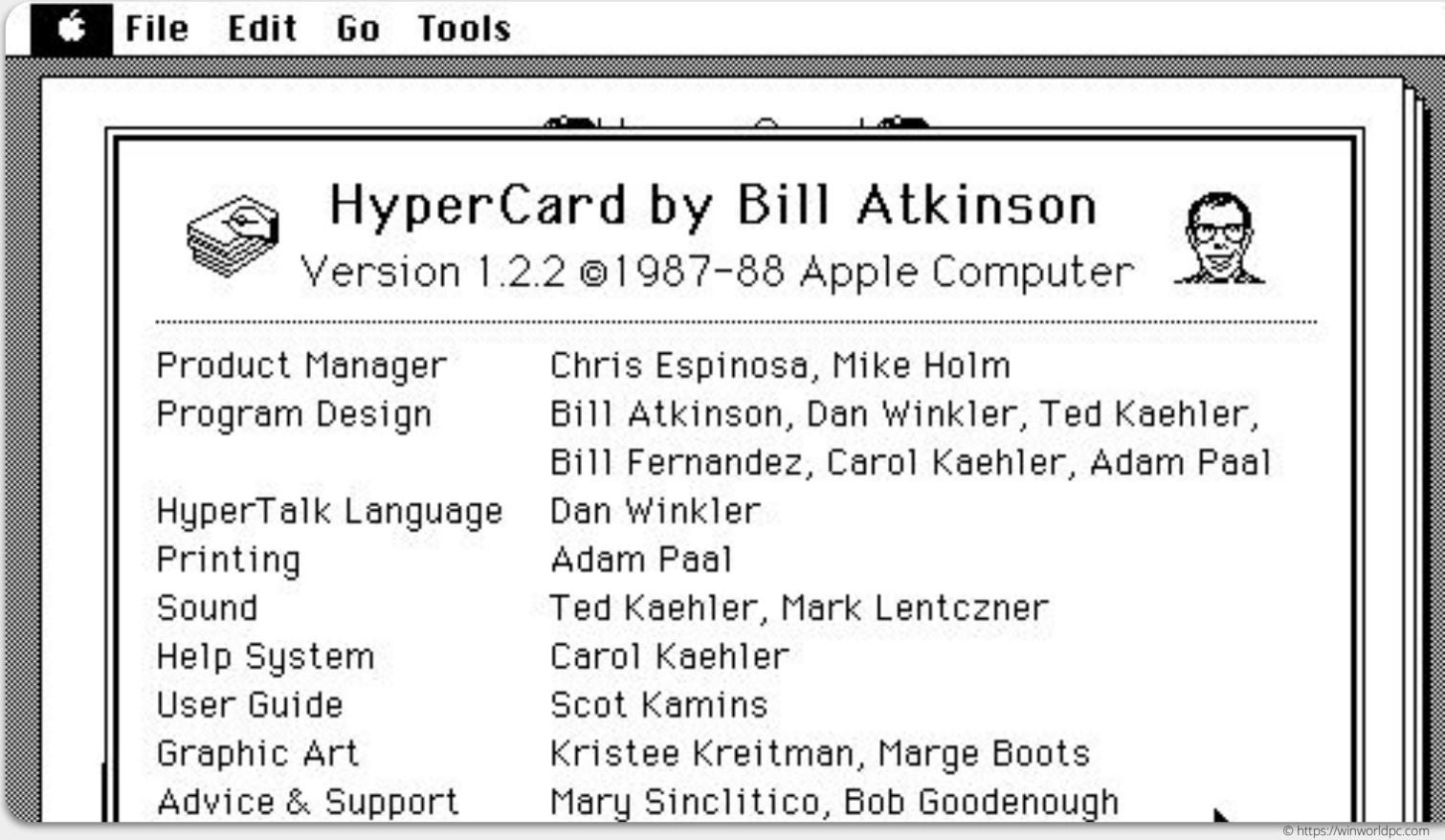
WHAT "SOFTWARE-BASED" MEANS TODAY IS THAT THESE TOOLS ARE TRAPPED INSIDE A *TINY RECTANGLE* THAT SITS ON YOUR DESK.

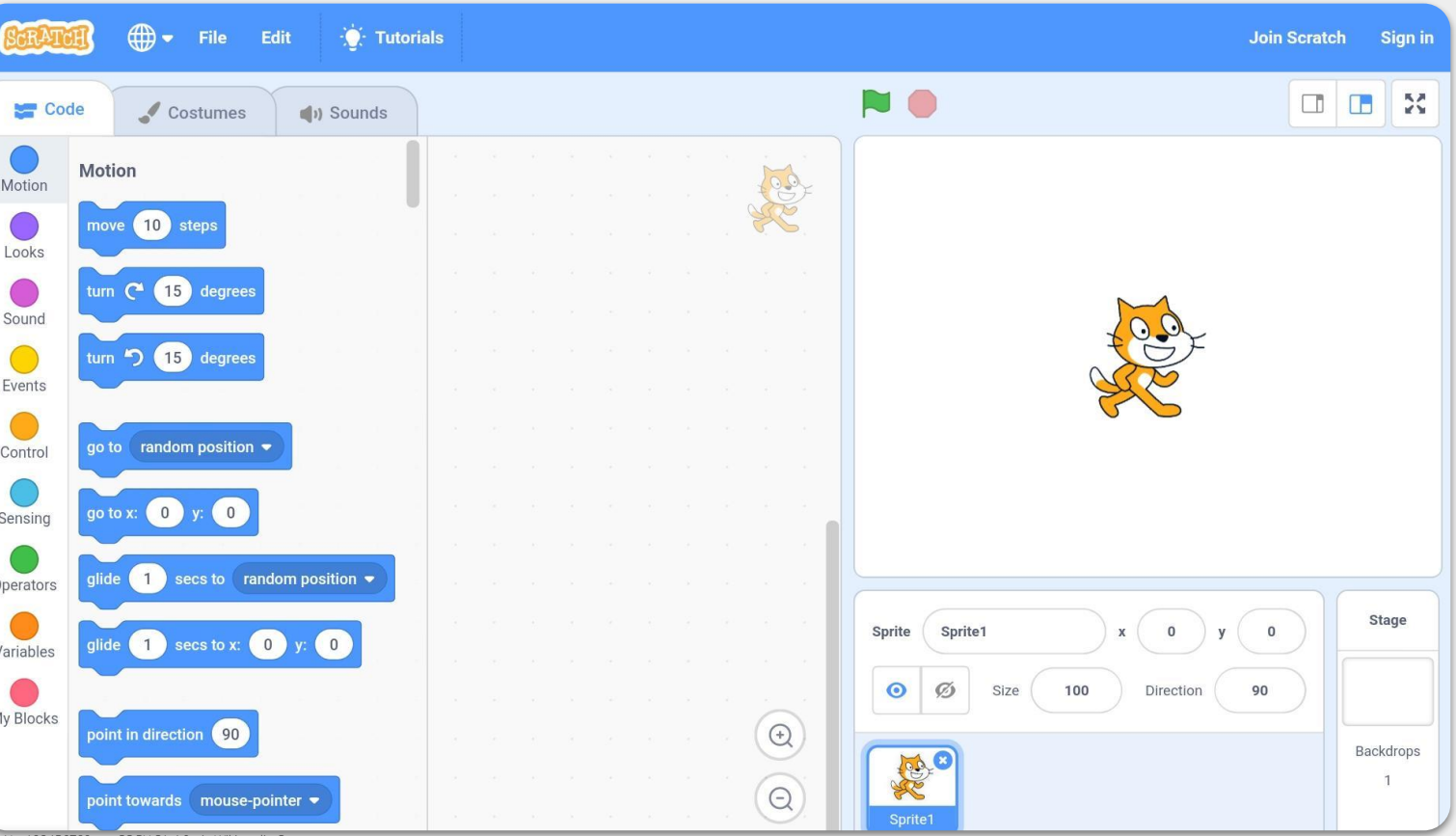
TO DO YOUR WORK, YOU SIT AT YOUR DESK AND YOU STARE AT THIS *TINY RECTANGLE.*

AND THIS FRUSTRATES ME.

Dynamicland

HyperCard





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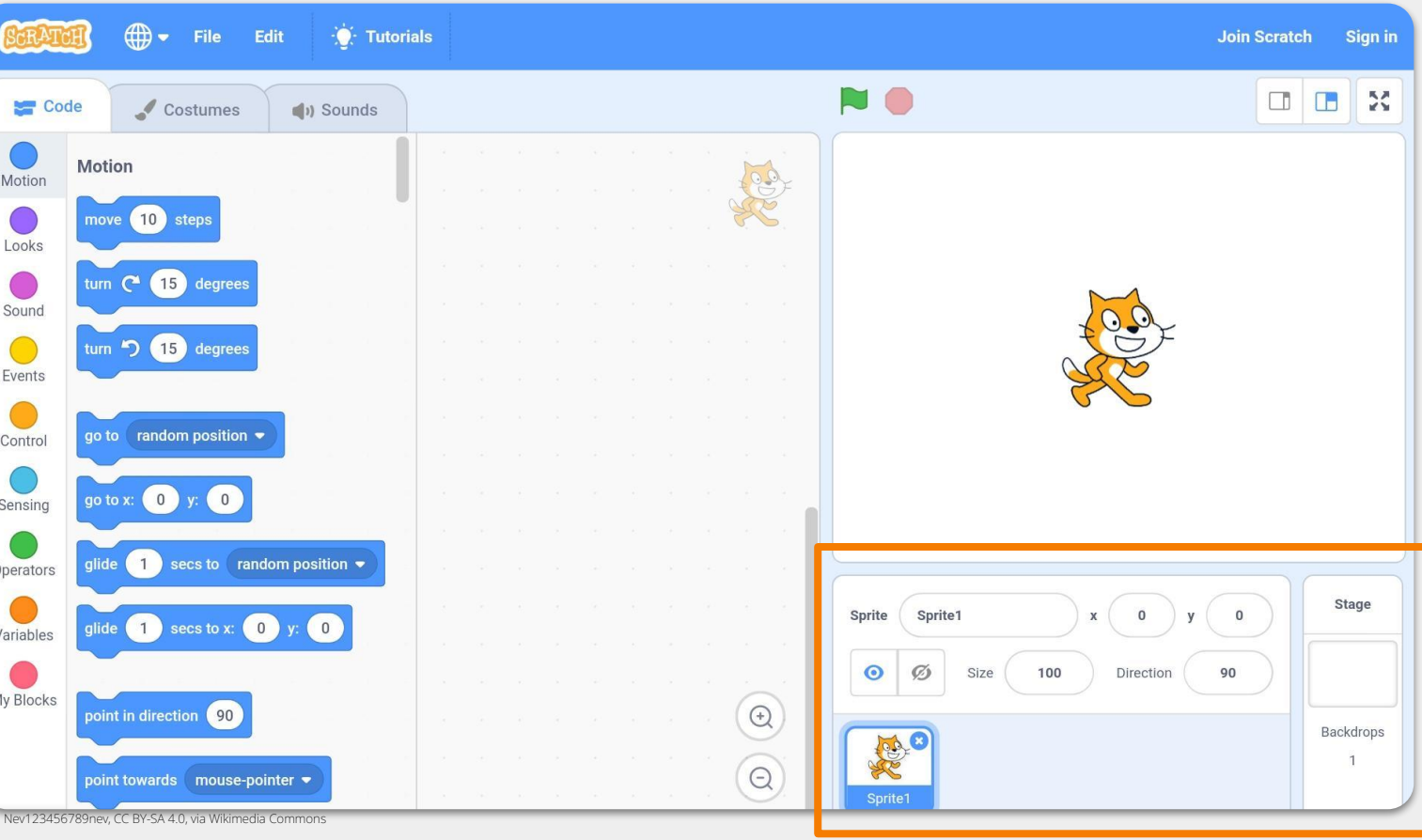
Scratch



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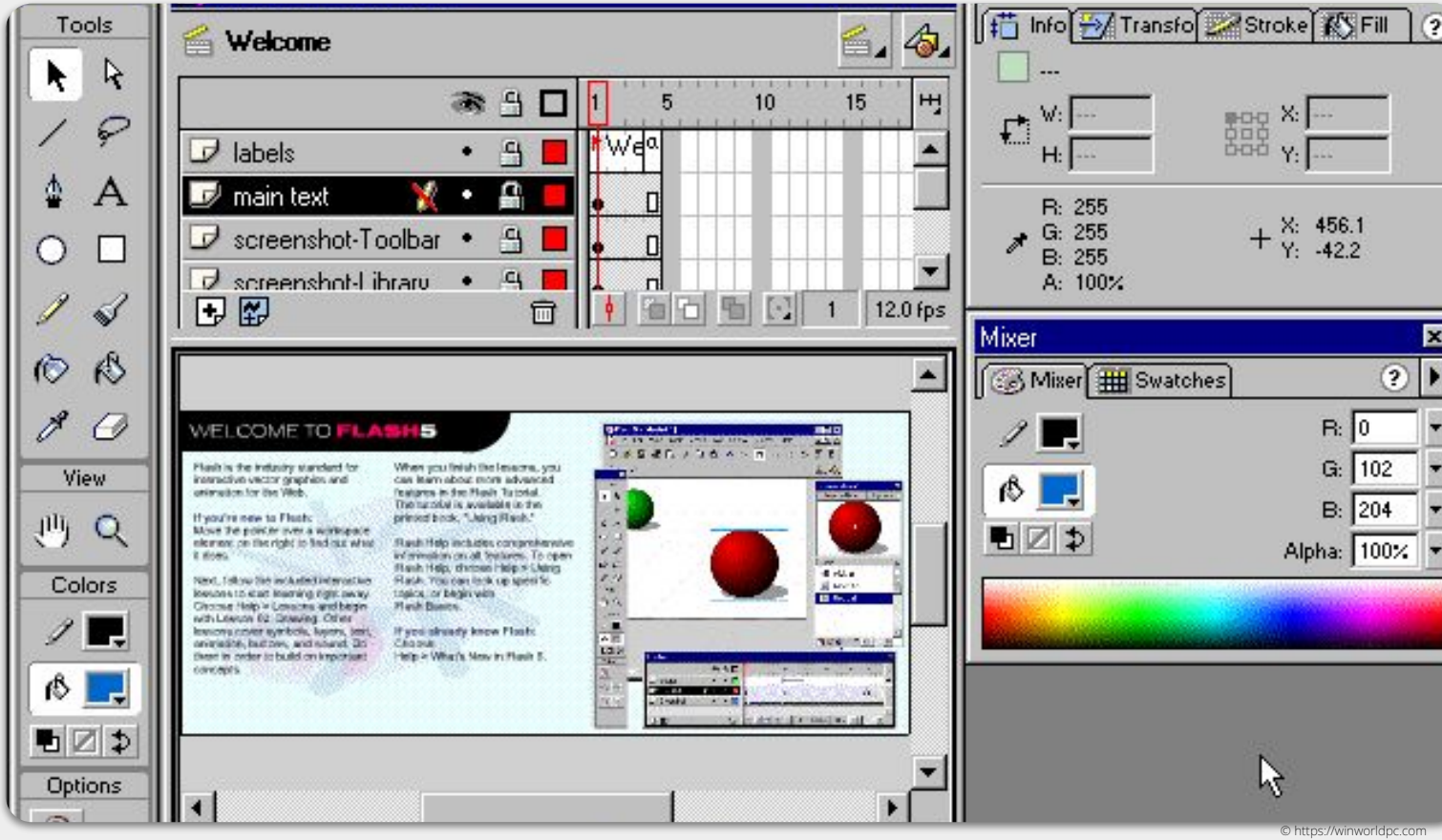
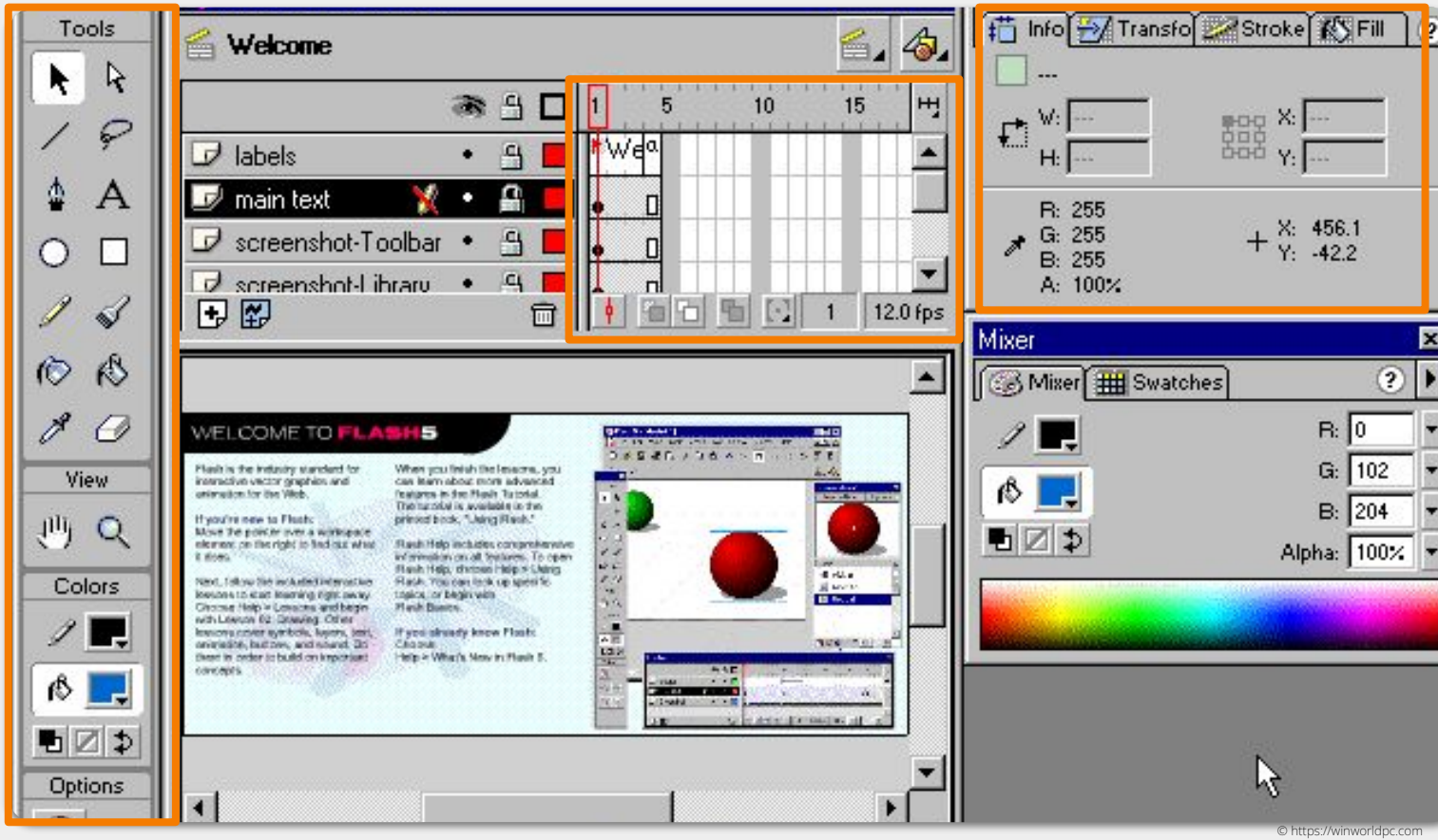
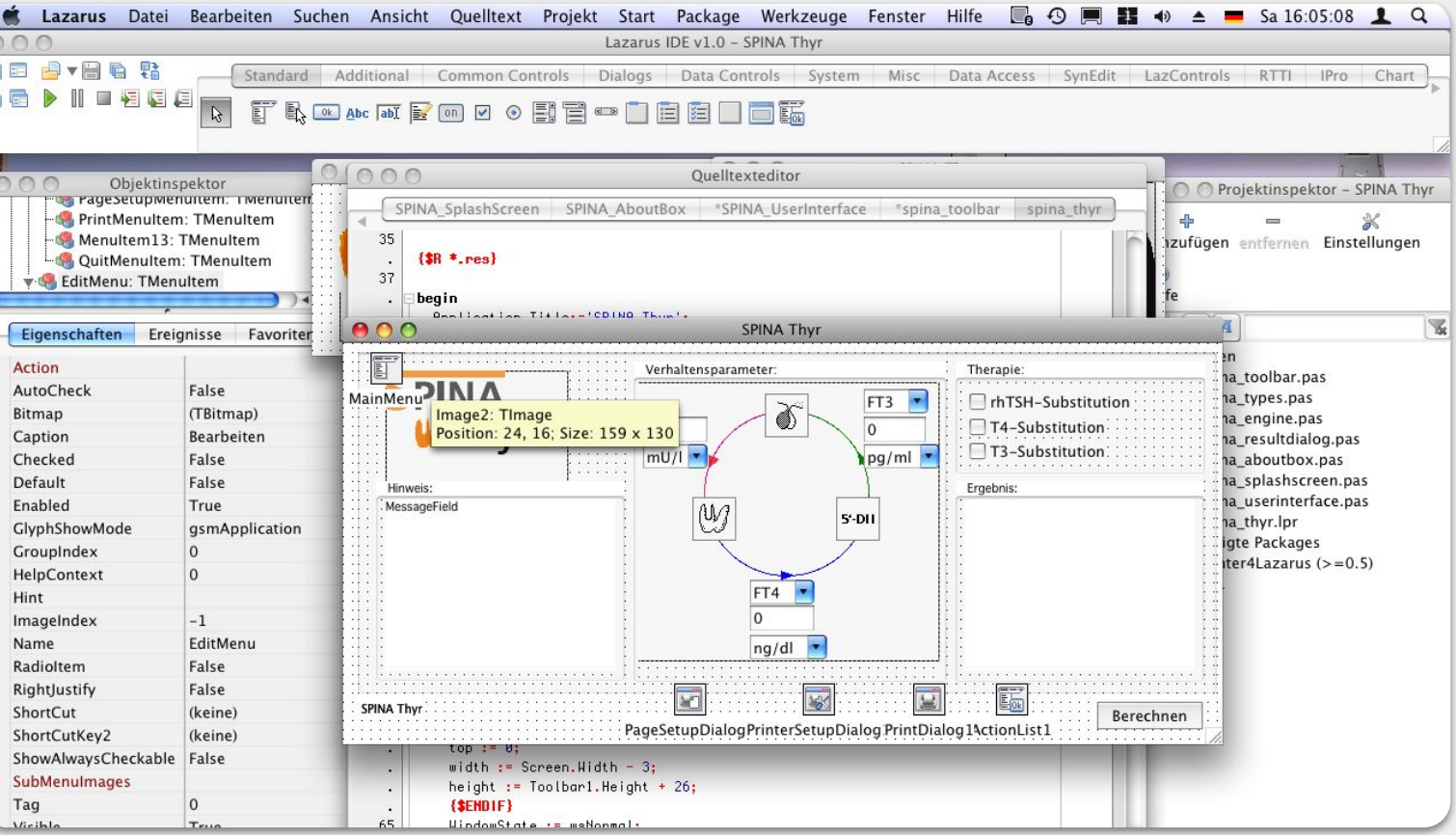
Scratch

Flash



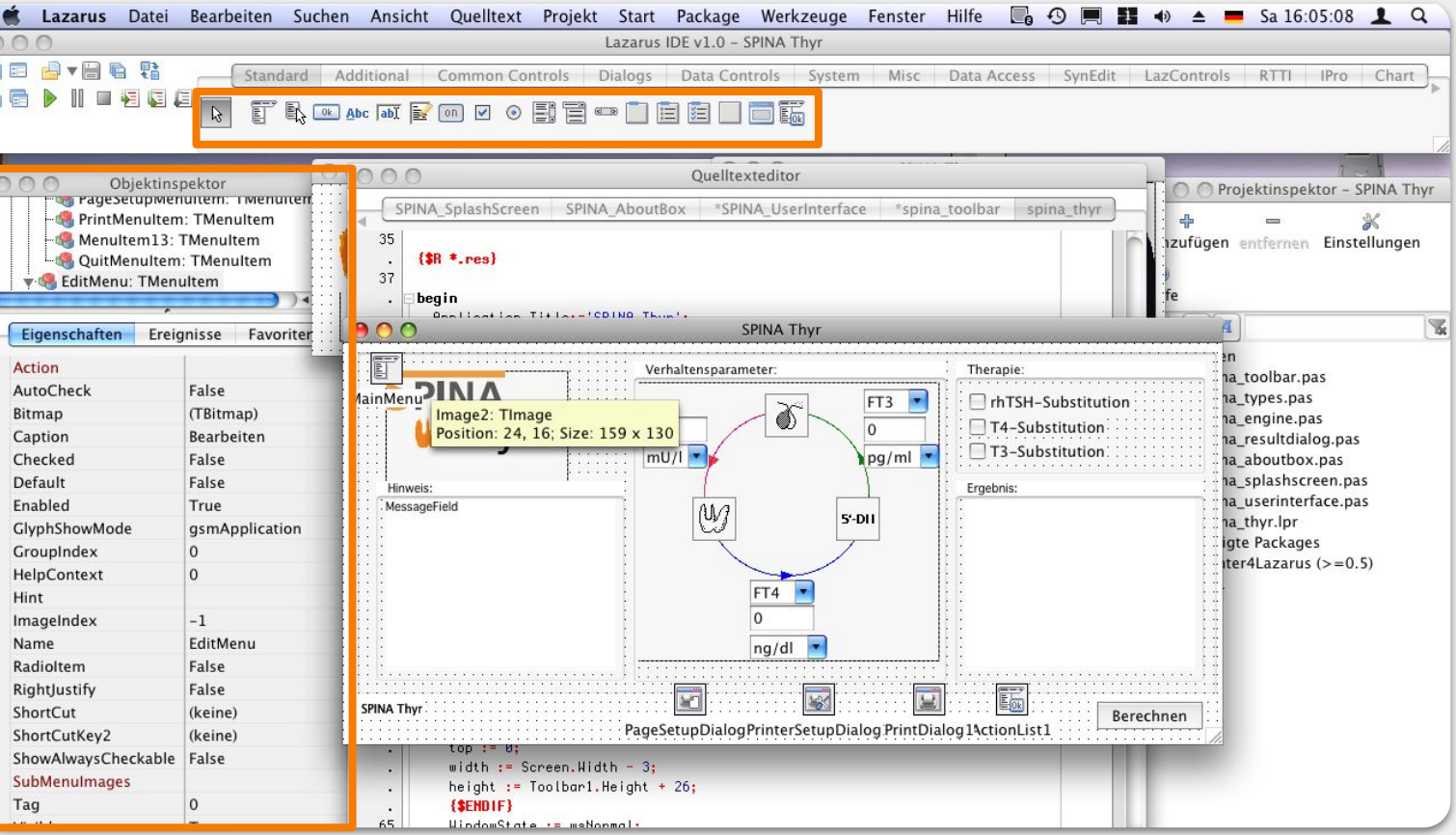
Flash





Lazarus team and J. W. Dietrich, LGPL, via Wikimedia Commons

Lazarus (Delphi)



Lazarus team and J. W. Dietrich, LGPL, via Wikimedia Commons

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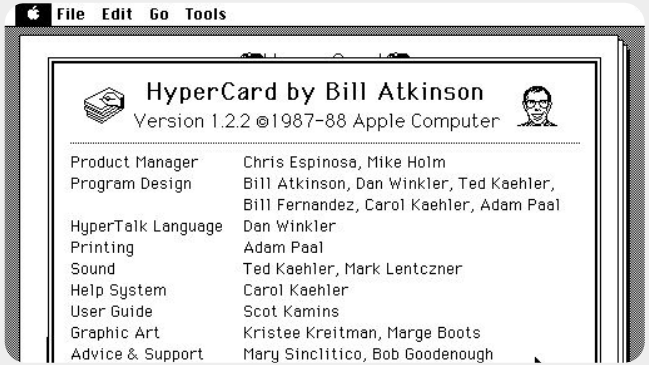
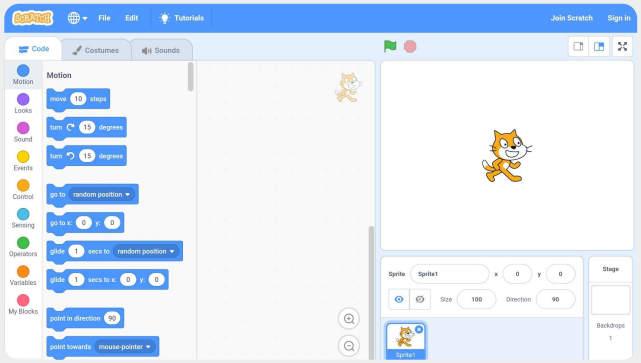
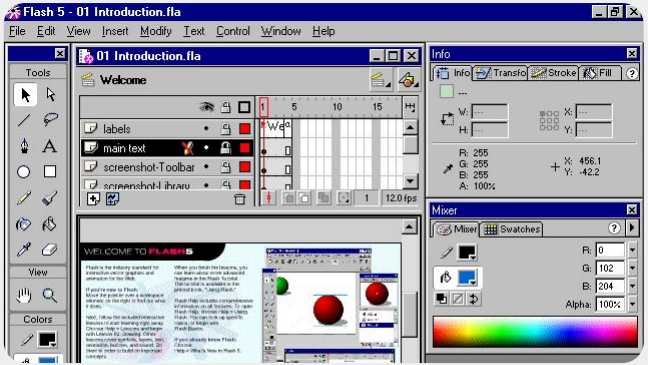
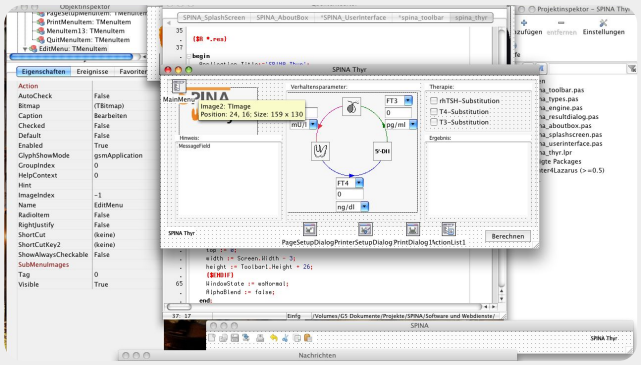
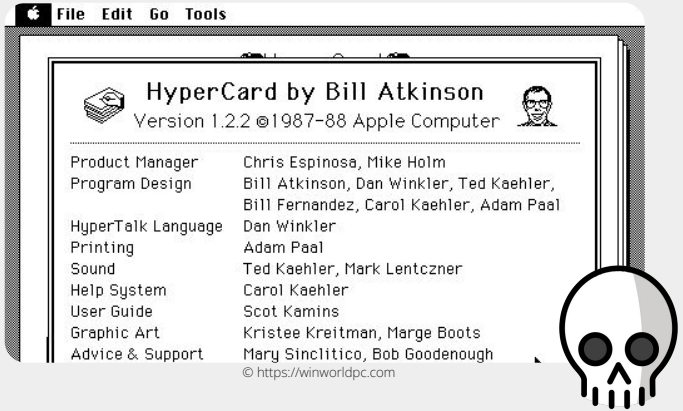
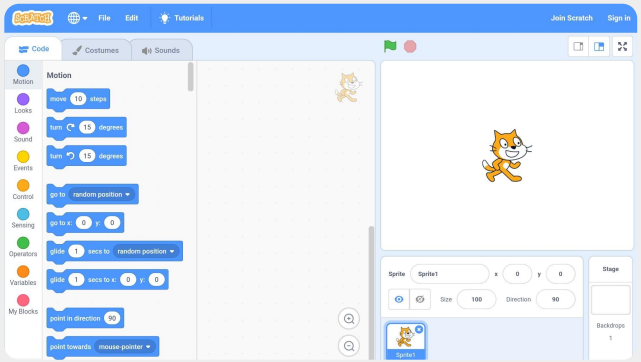


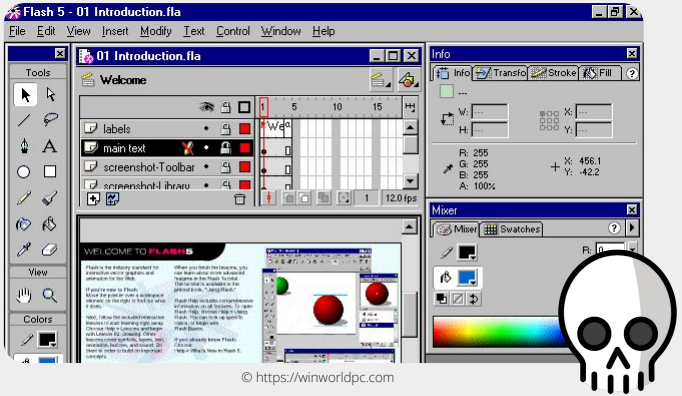


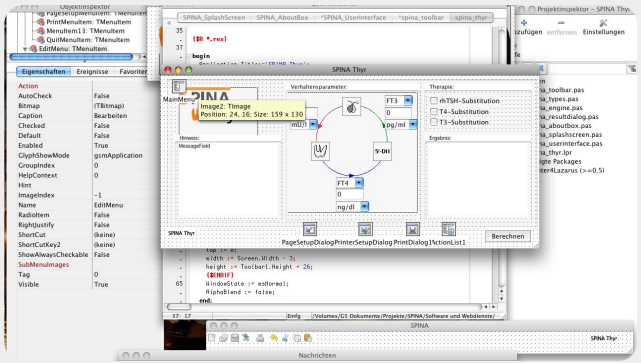


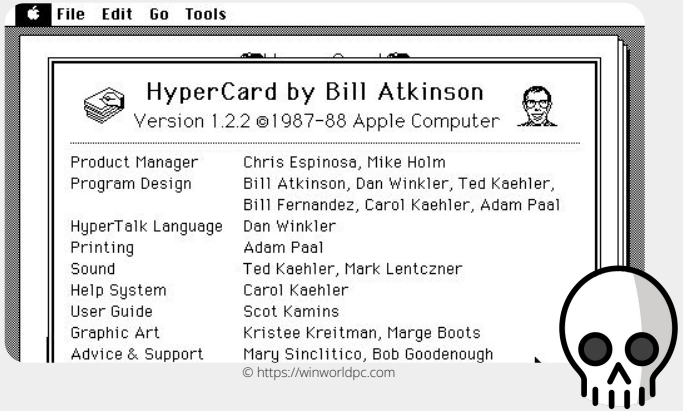


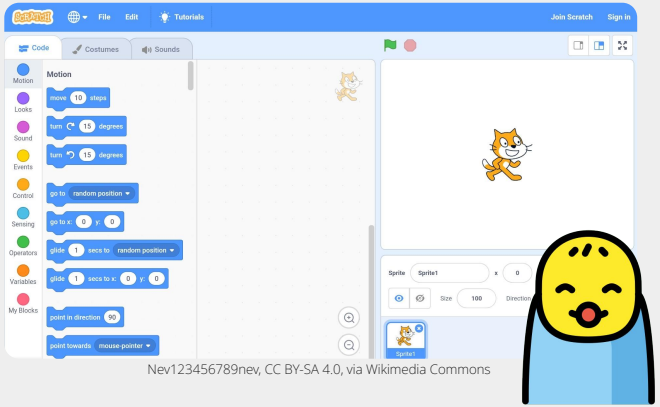


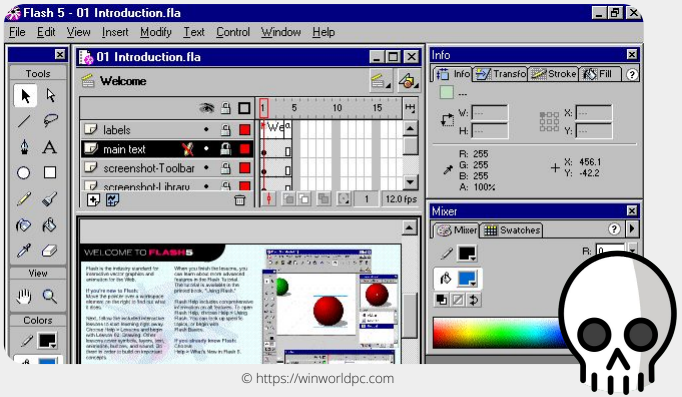


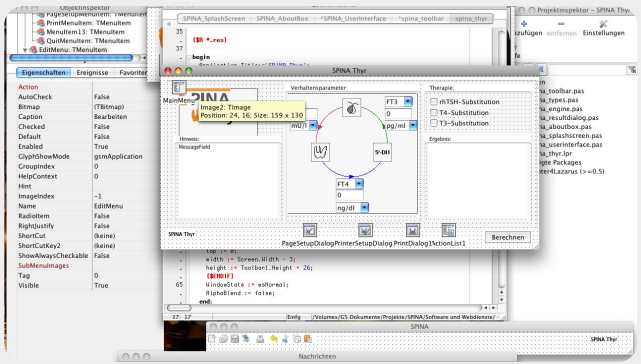


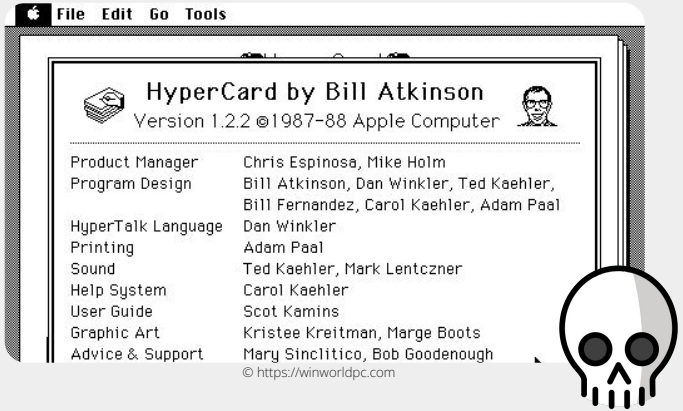


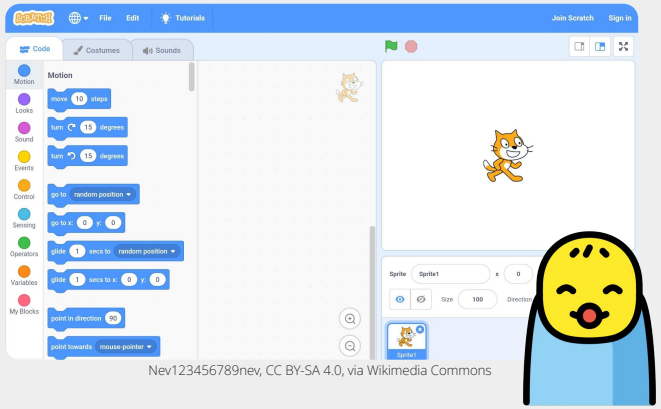


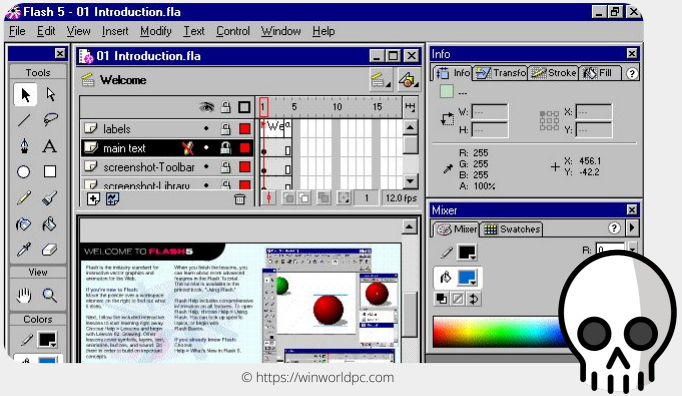


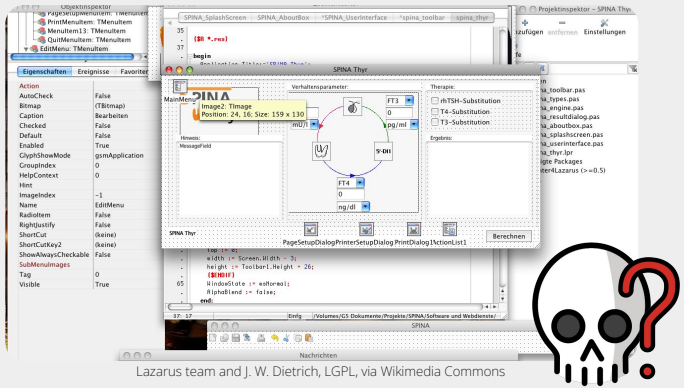






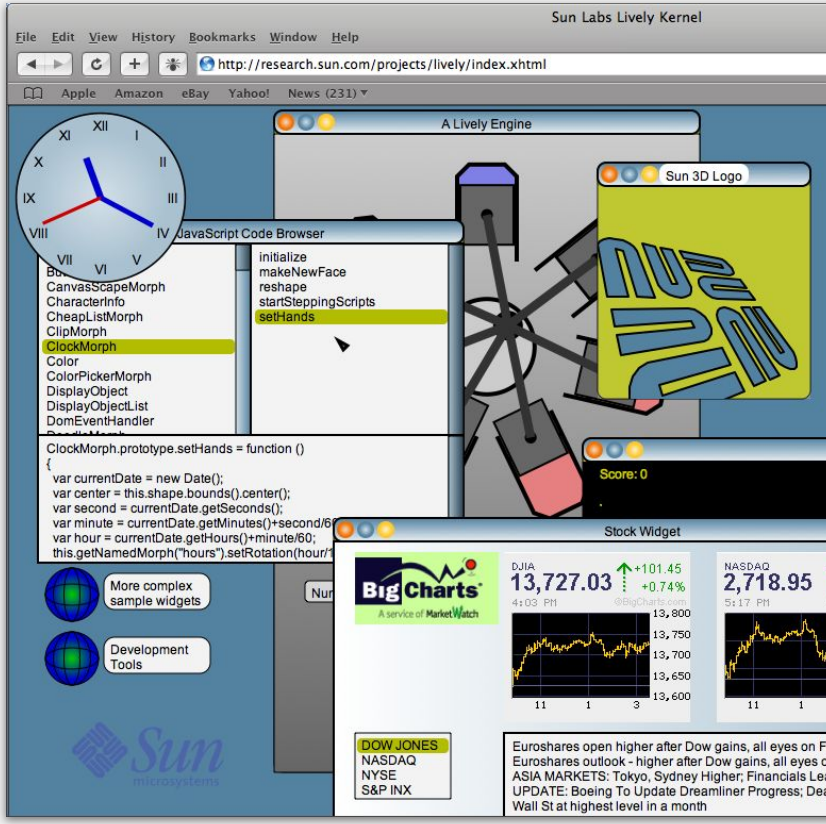






Dan Ingalls

Lively Kernel (2006)

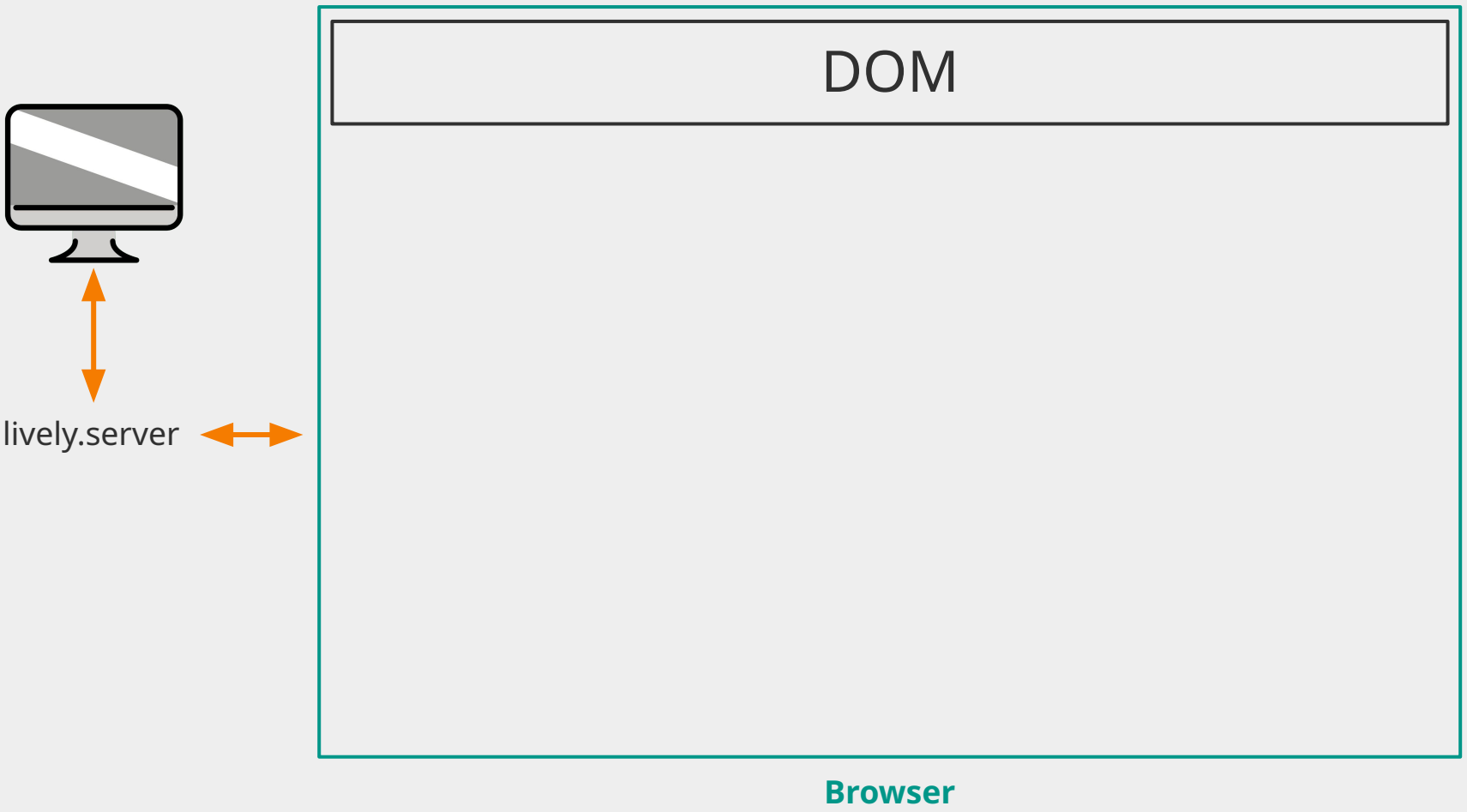


- self contained
- fully live
- direct manipulation driven

DEMO TIME

- morphic
- live evaluation & inspection
- all time is runtime

How does that work?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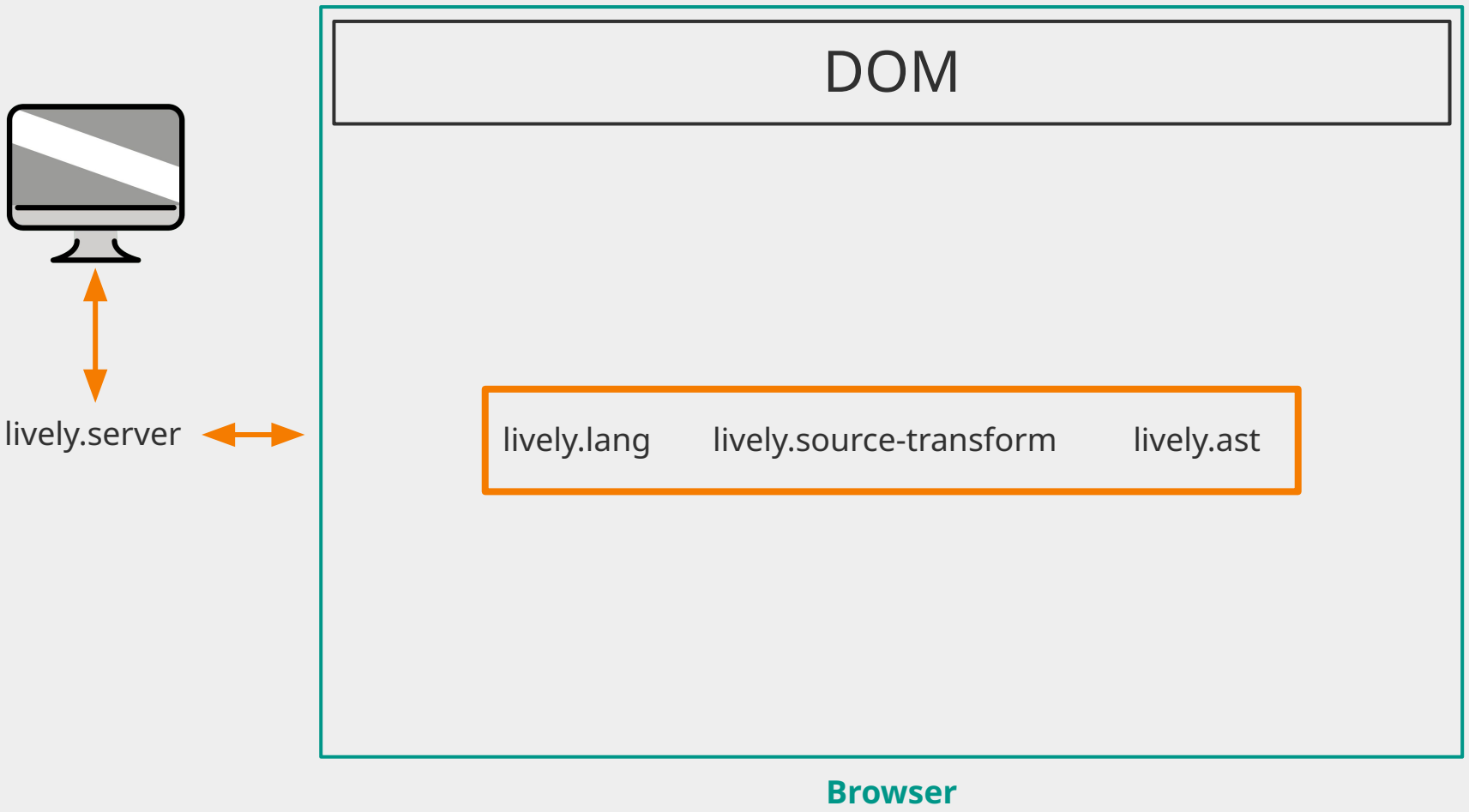
Browser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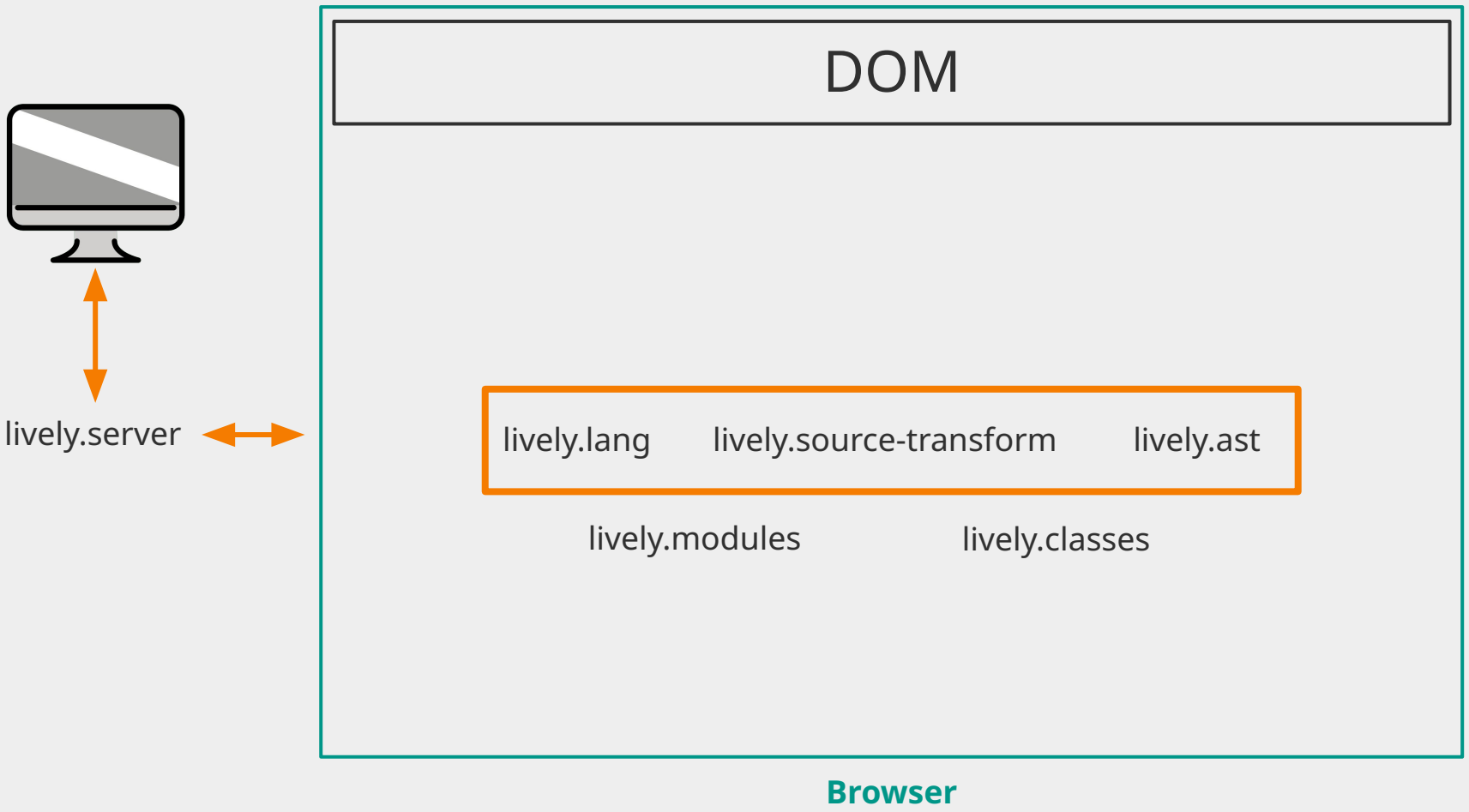
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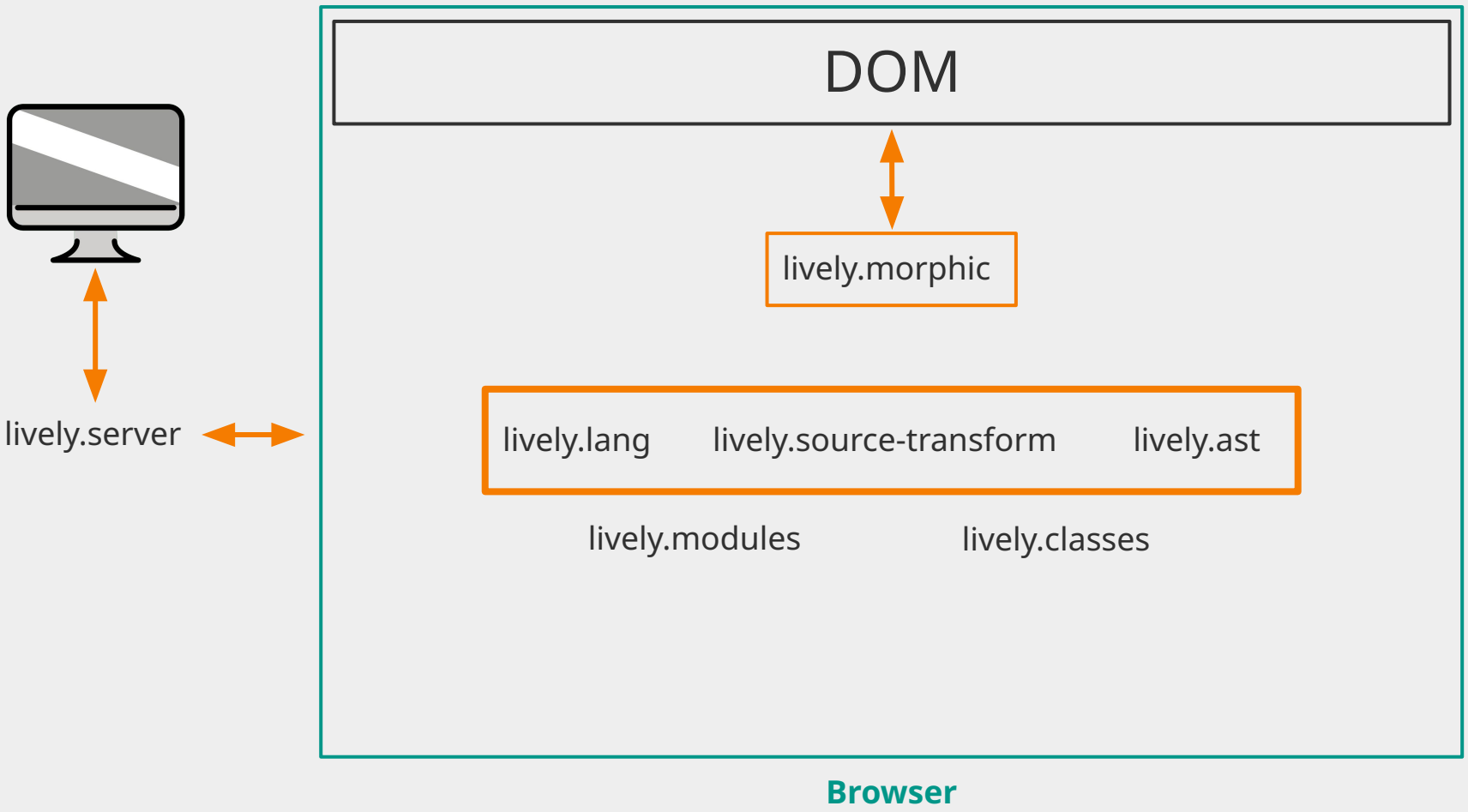
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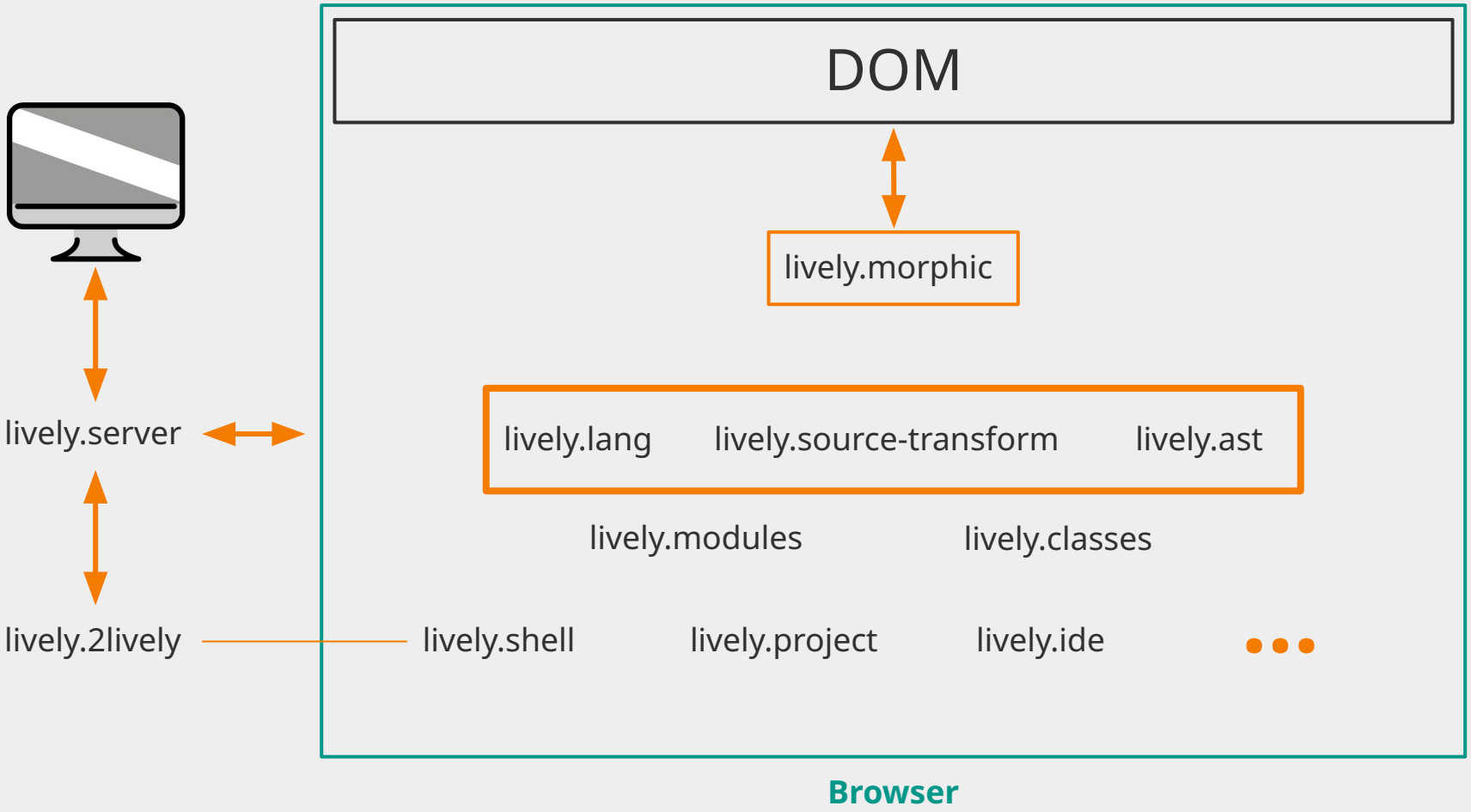
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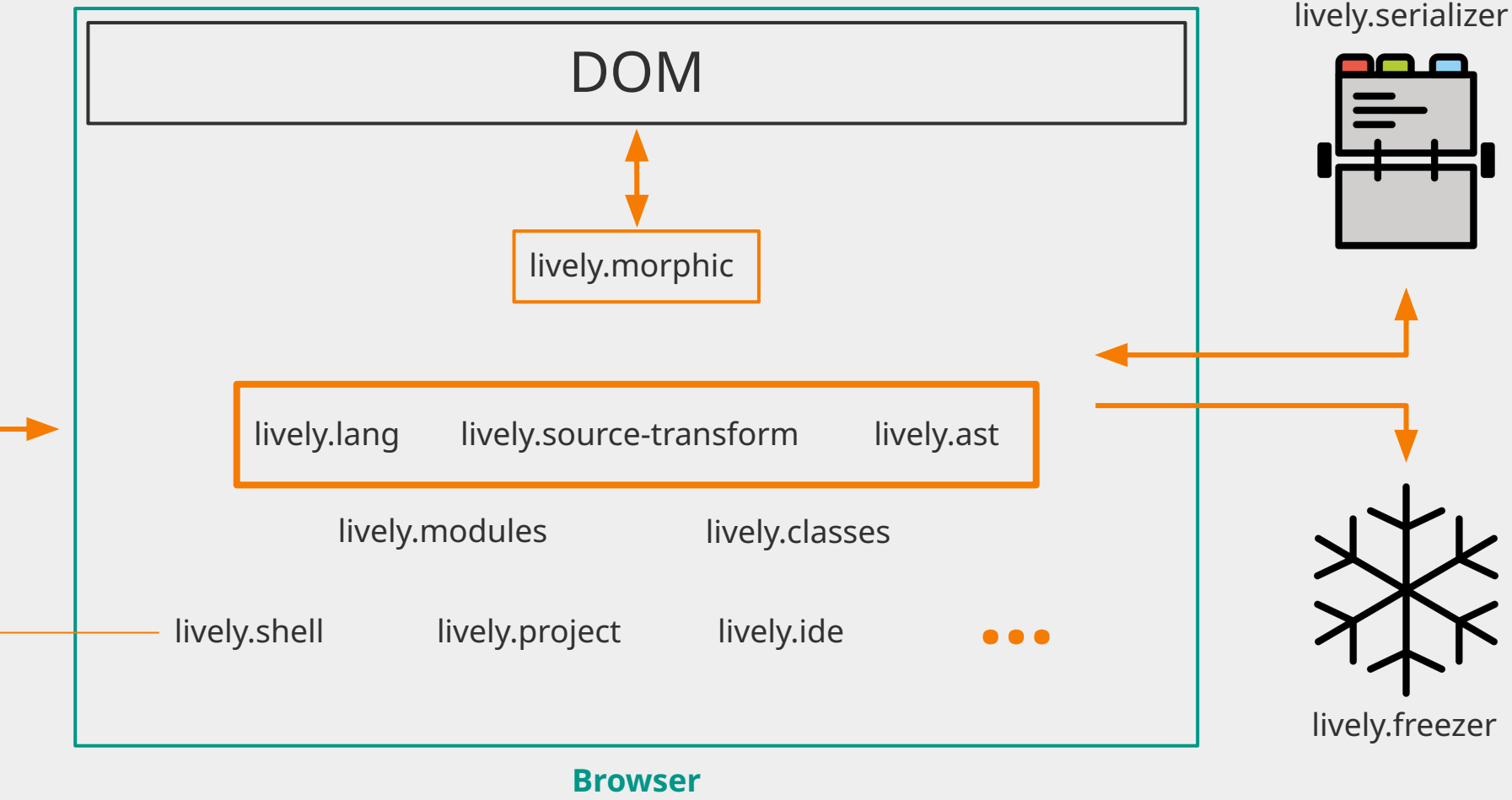
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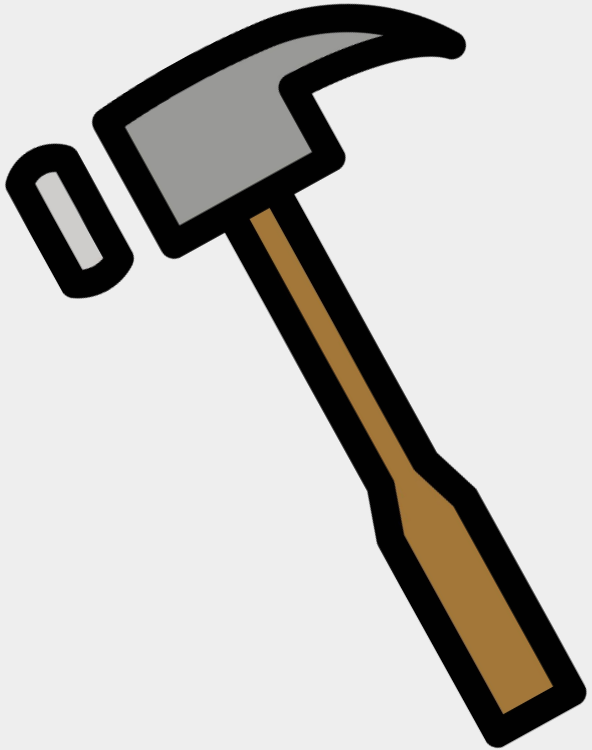
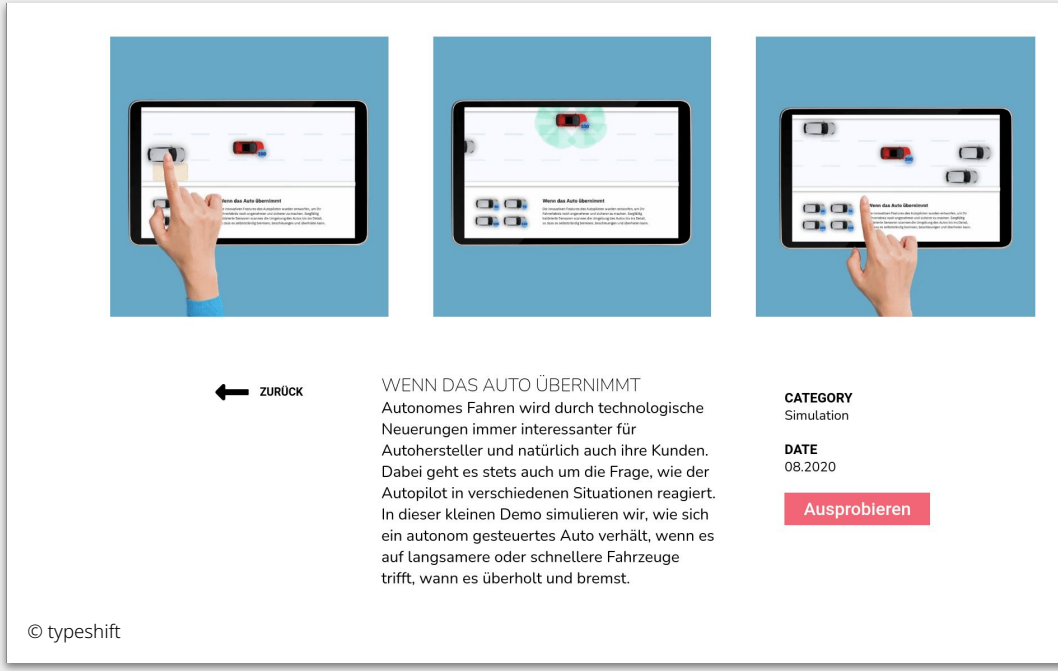
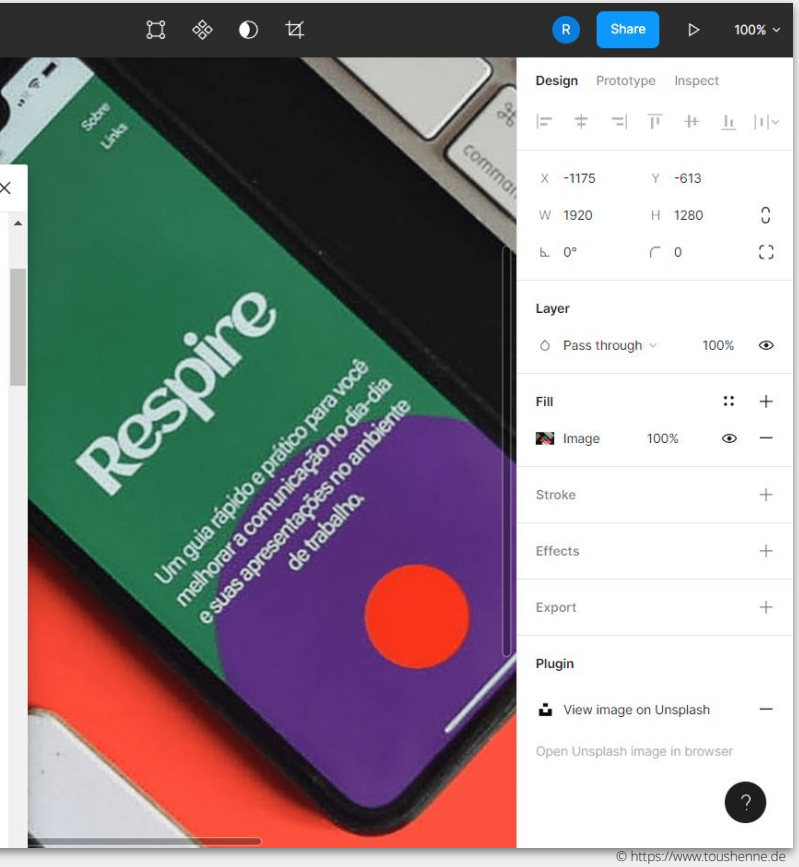
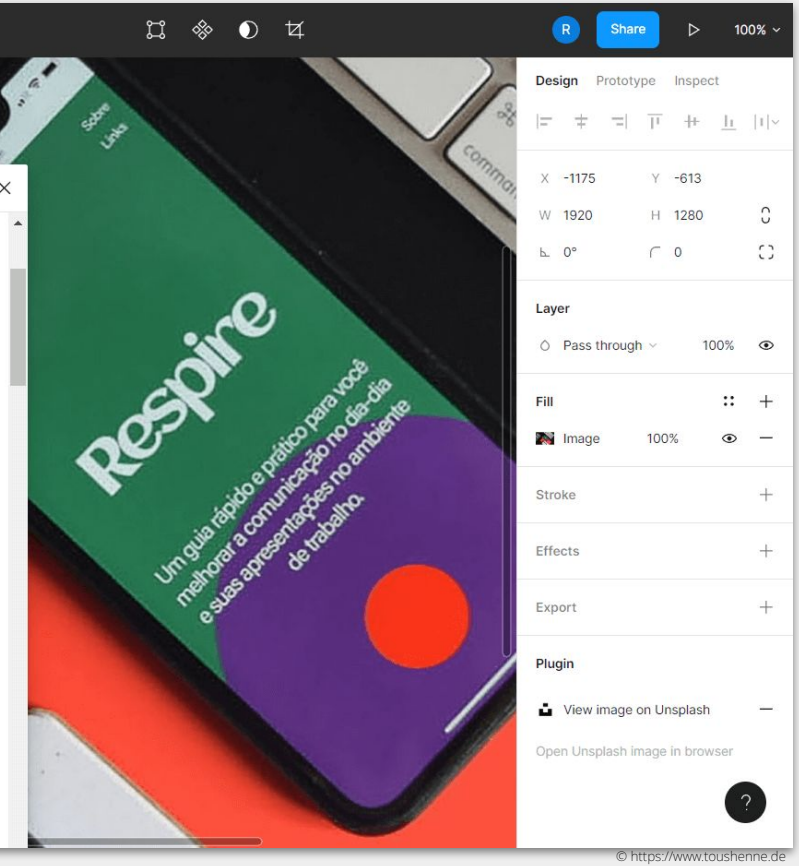
lively.serializer
lively.freezer



TYPE SHIFT


ZURÜCK
WENN DAS AUTO ÜBERNIMMT
Autonomes Fahren wird durch technologische Neuerungen immer interessanter für Autohersteller und natürlich auch ihre Kunden. Dabei geht es stets auch um die Frage, wie der Autopilot in verschiedenen Situationen reagiert. In dieser kleinen Demo simulieren wir, wie sich ein autonom gesteuertes Auto verhält, wenn es auf langsamere oder schnellere Fahrzeuge trifft, wann es überholt und bremst.
CATEGORY
Simulation
DATE
08.2020
Ausprobieren
© typeshift





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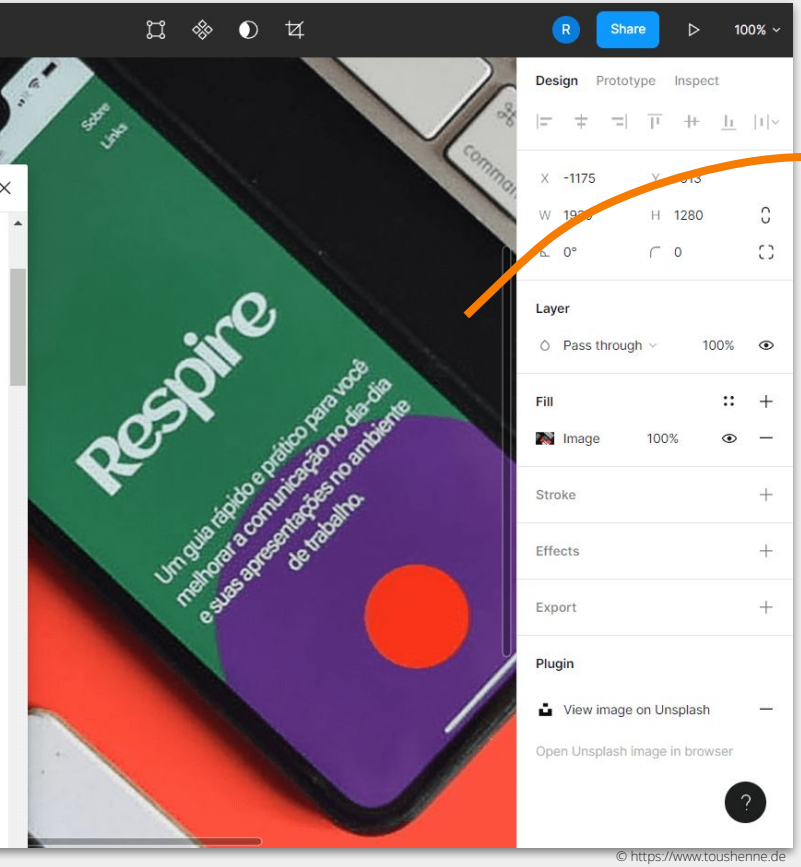

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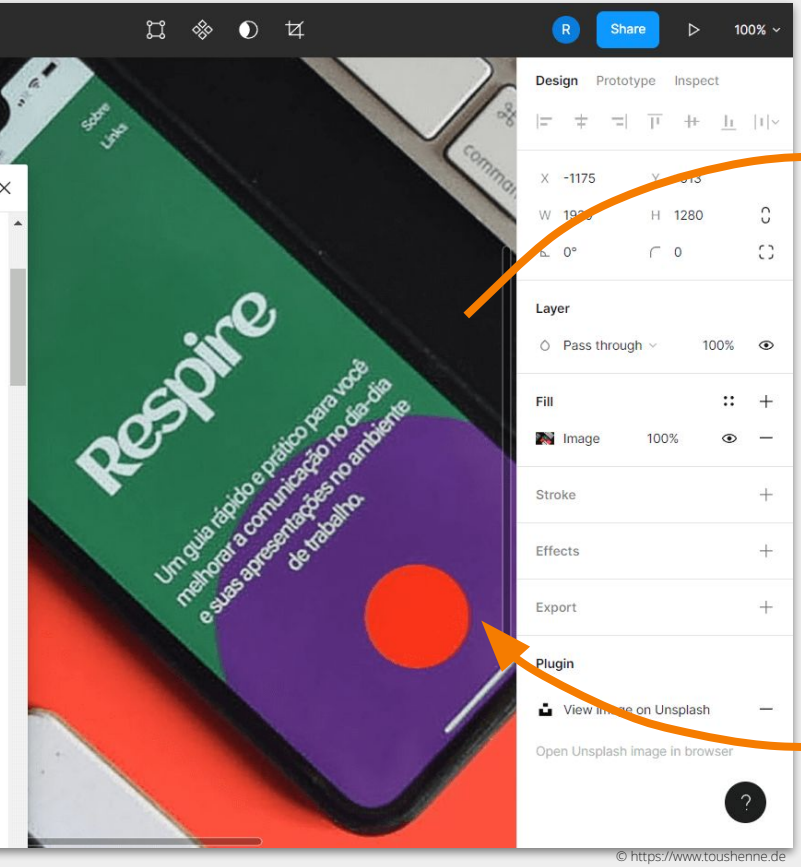

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Rapid

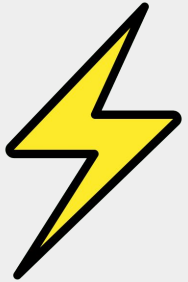
Application

Development

Rapid

Application

Development



1. Workflows for Designers and Coders with the same Artifact

2. Collaboration (git)

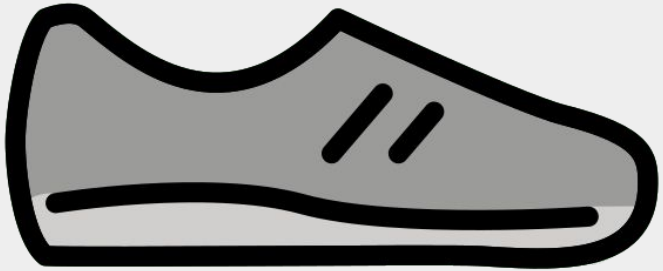
1. Workflows for Designers and Coders with the same Artifact
2. Collaboration (git)

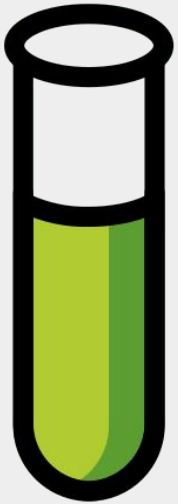
- generate declarative component definitions from direct manipulation operations
- provide means to attach behavior

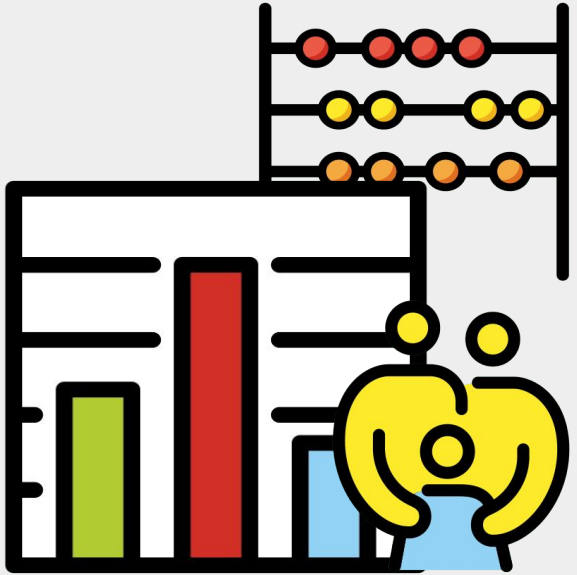
DEMO TIME

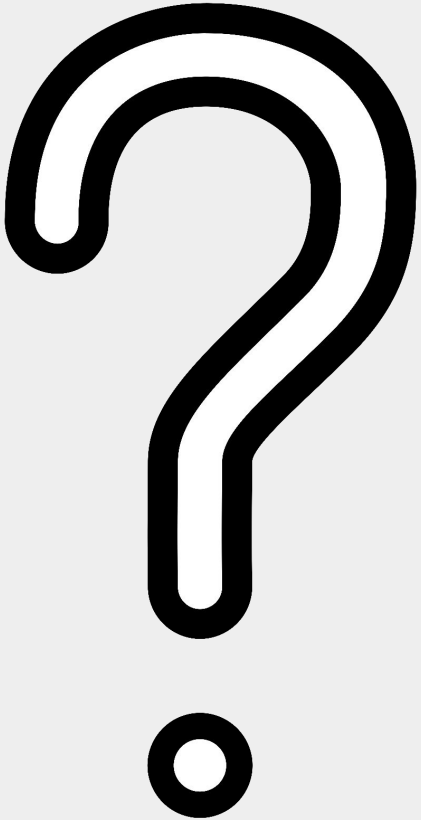
- reconciliation
- components & parts
- ViewModels & bindings

What next?









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