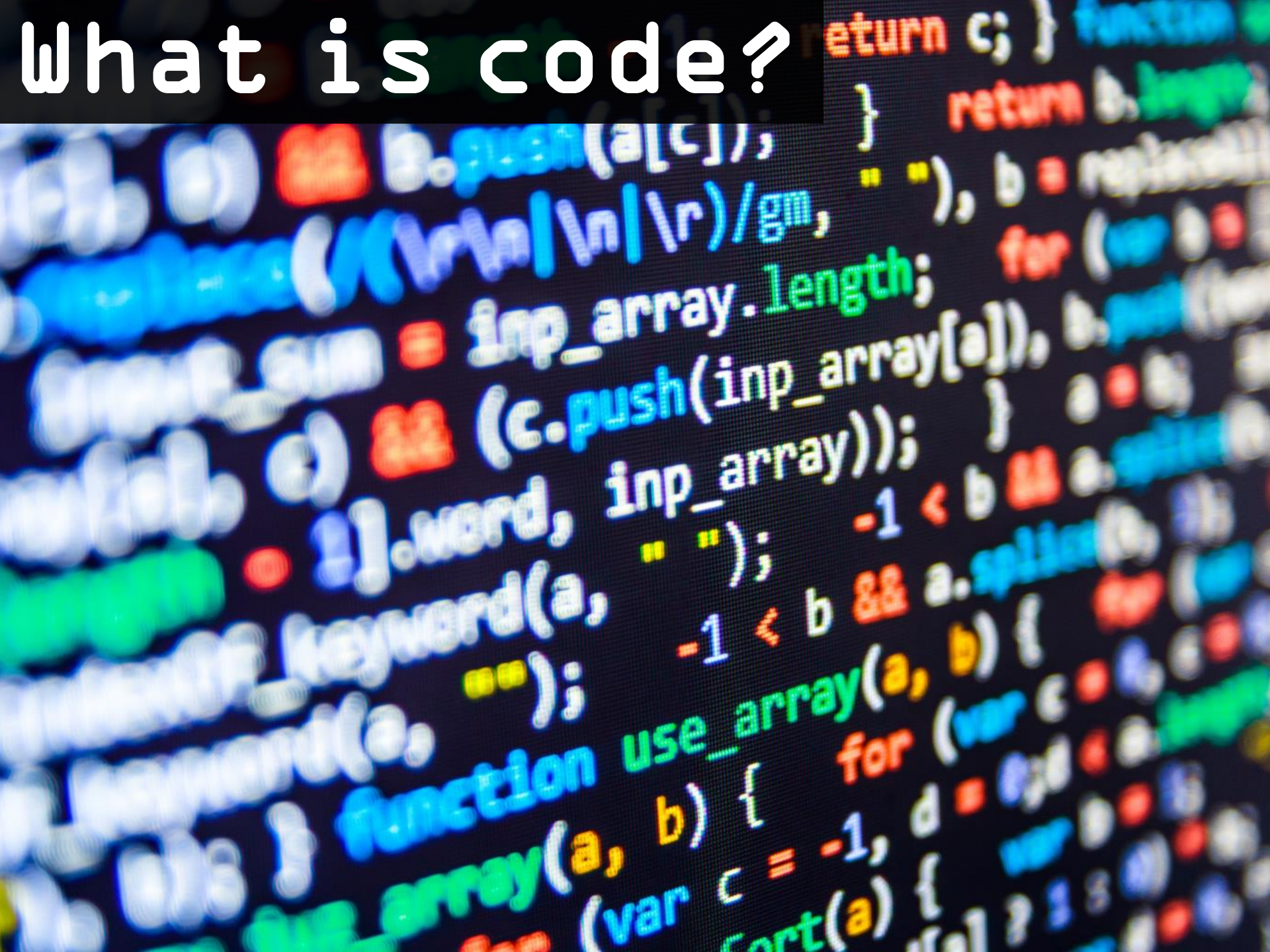
Is there life after code?

BALL STATE
UNIVERSITY

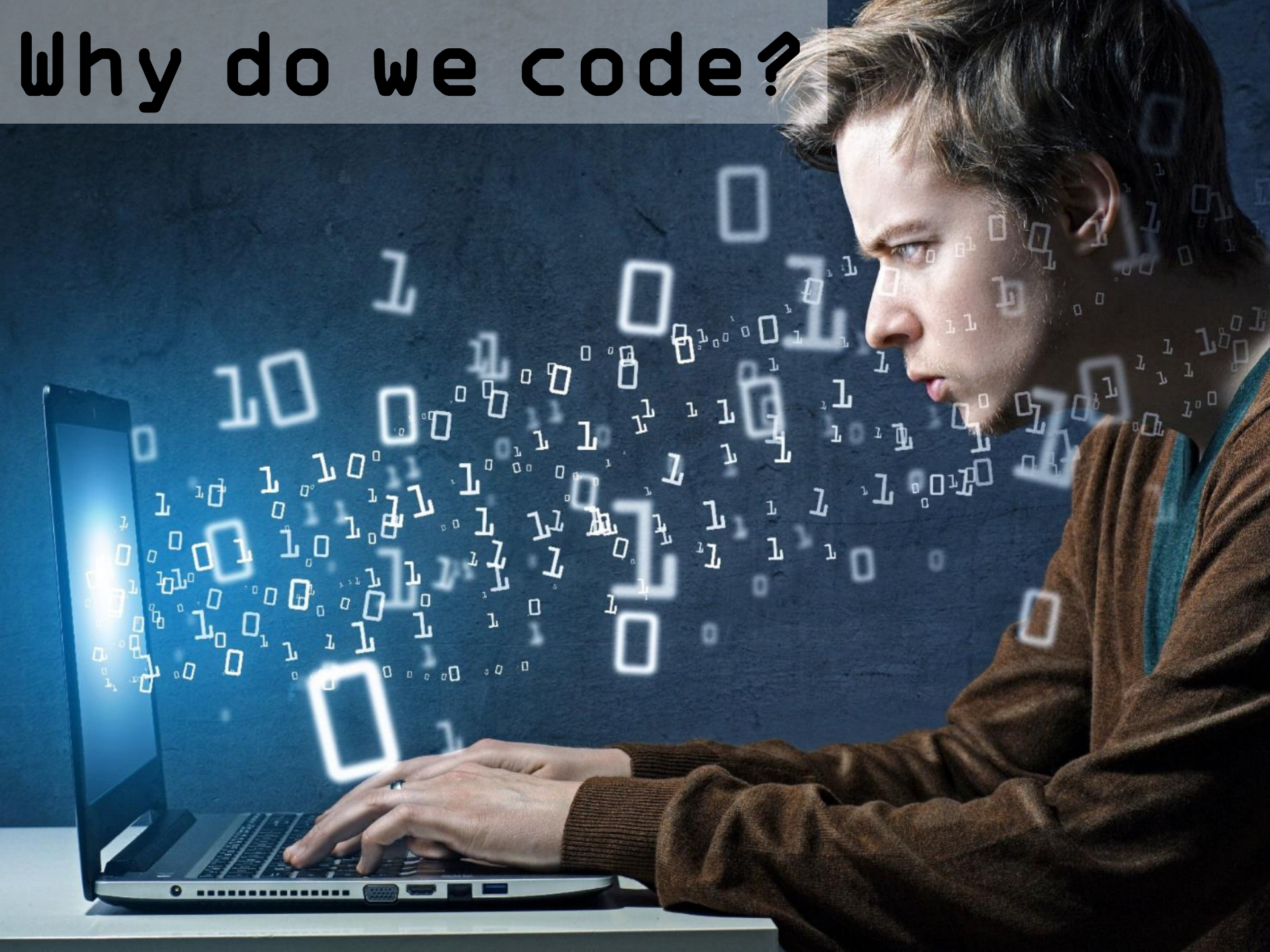
Computer Science Colloquium Series 2017-18:

Huseyin Ergin, PhD

What is code?


return c; }
} return
(/(\r\n|\n|\r)/gm, " "), b =
inp_array.length; for
(c.push(inp_array[a]),
inp_array)); }
keyword(a, " ");
"");
-1 < b &&
function use_array(a, b) {
for
array(a, b) {
(var c = -1,

Why do we code?



We want to change the world!

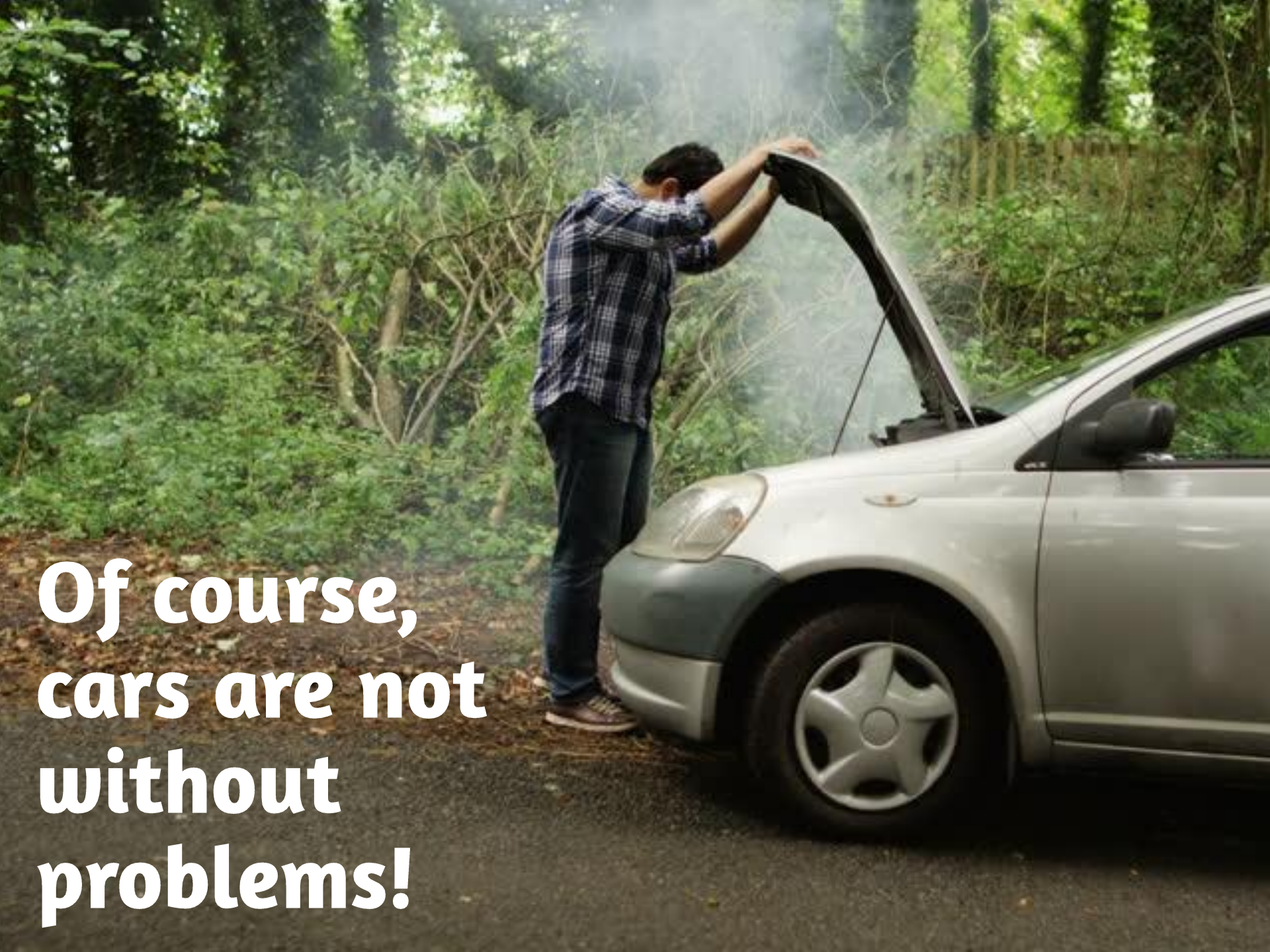

TAXI


PLAYBOY
BEAUTY
A BEAUTIFUL MIND
WITNESS
MACHINE GUN
DRESSES
BLACK SHEEP
PRETTY WOMAN
sherry baby
take the lead
THE DA VINCI CODE
NO WAY HOME

NETFLIX

Spotify®


GOTCHA!
1 message
received


Of course,
cars are not
without
problems!

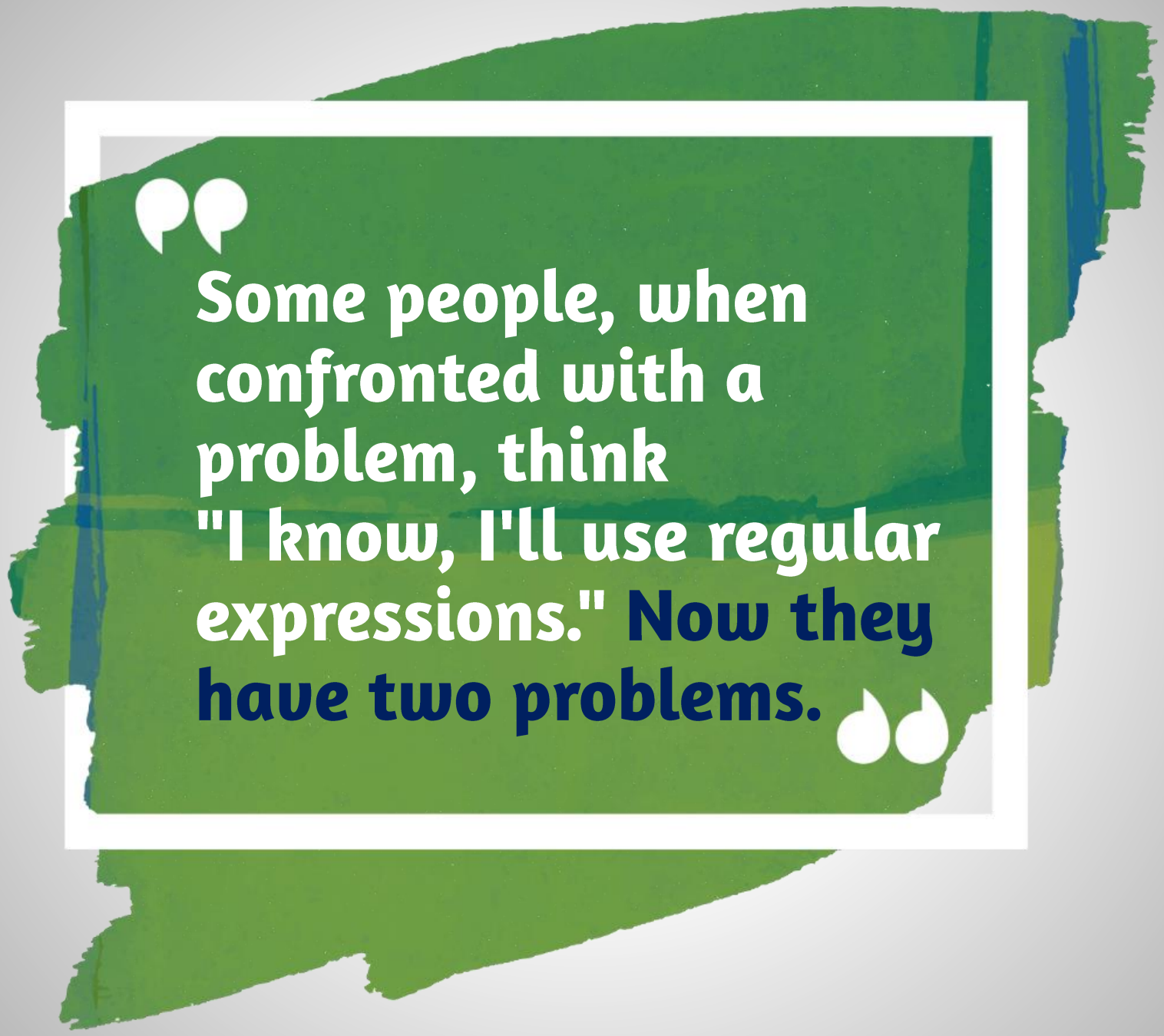

Also, planes have their
own problems, too.

Accidental

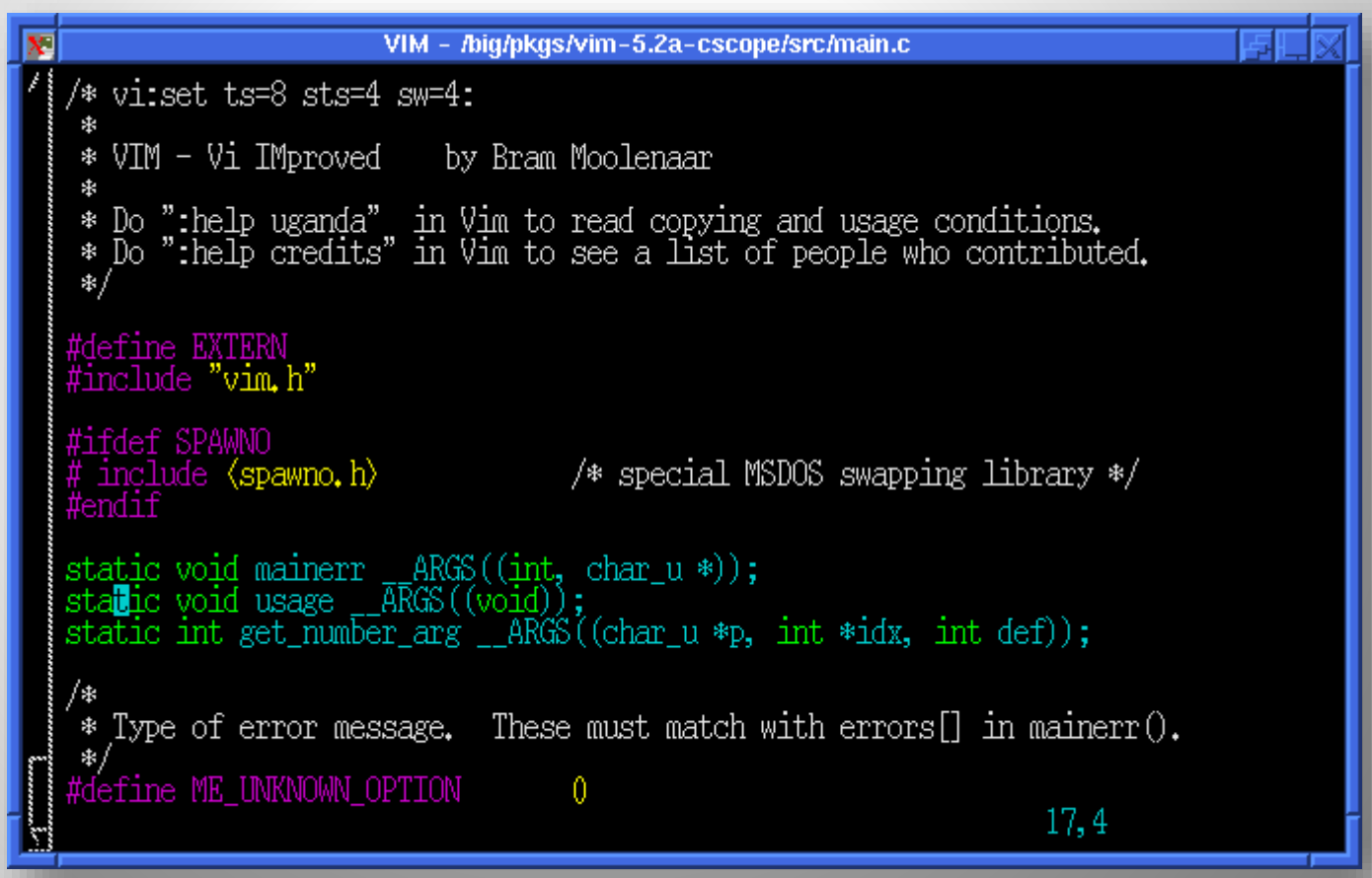
vs

ESSENTIAL

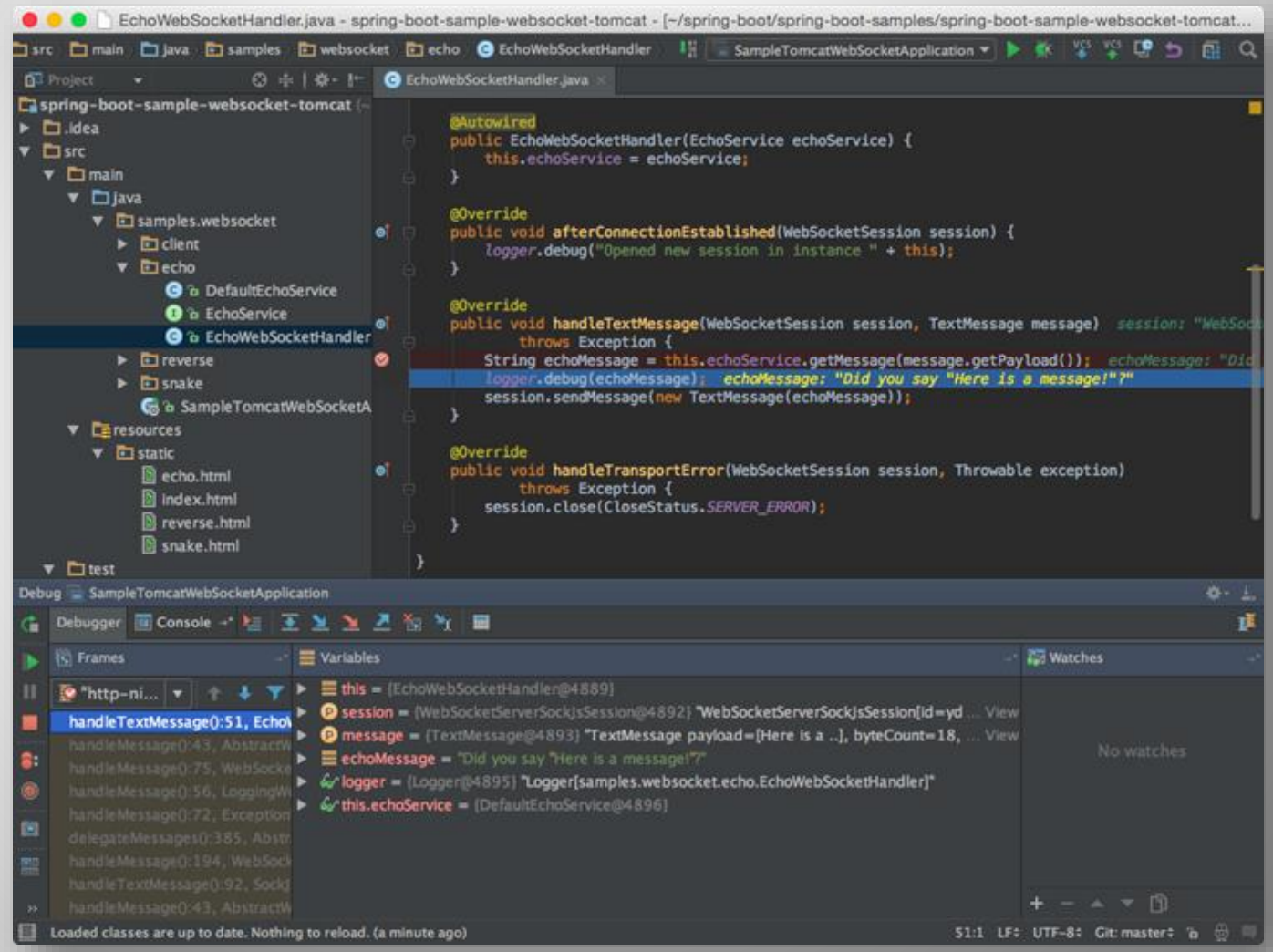

Tab
Caps Lock


Some people, when confronted with a problem, think "I know, I'll use regular expressions." Now they have two problems.

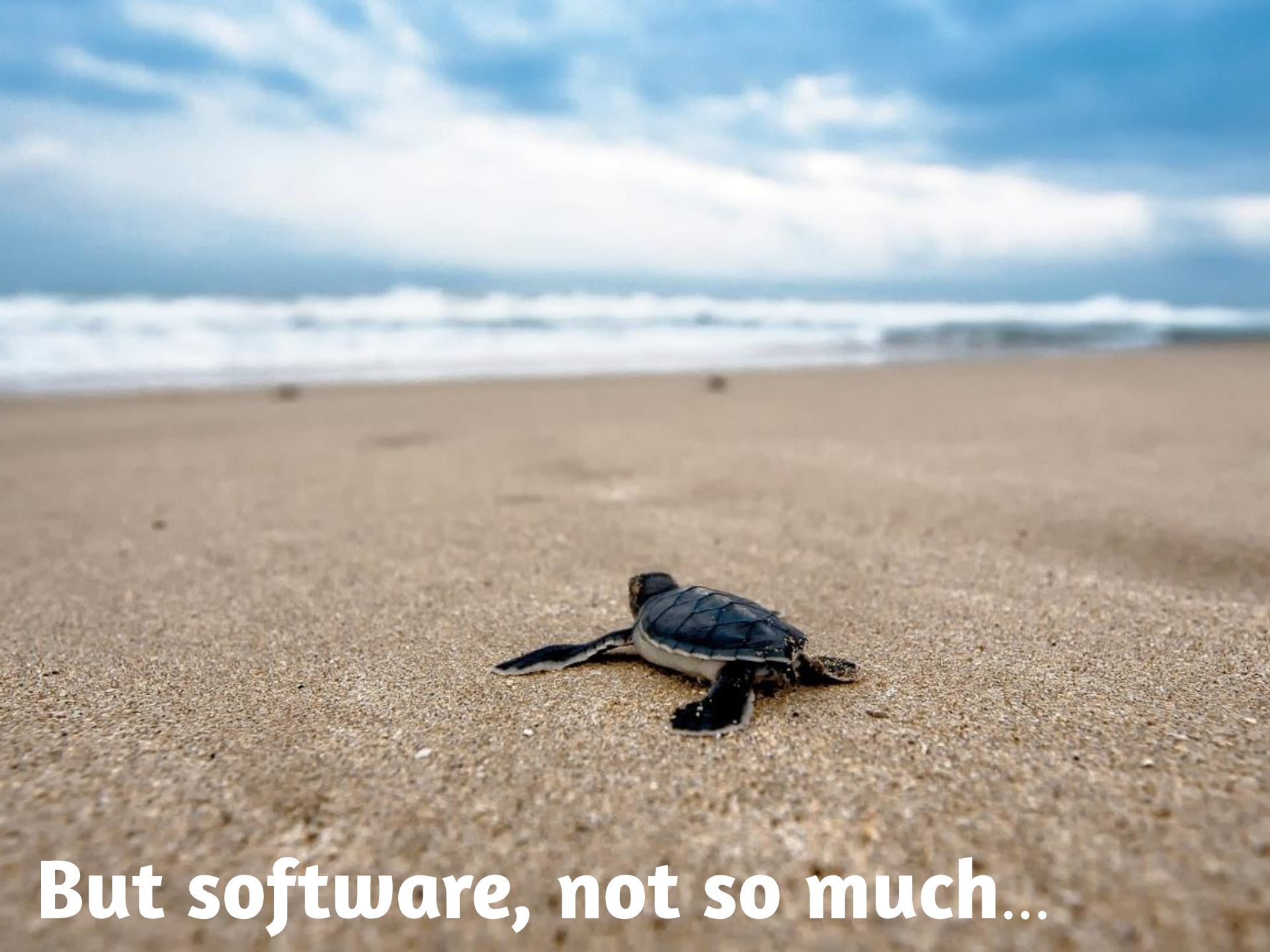
Coding in 80s & 90s



Coding today



Hardware skyrocketed...

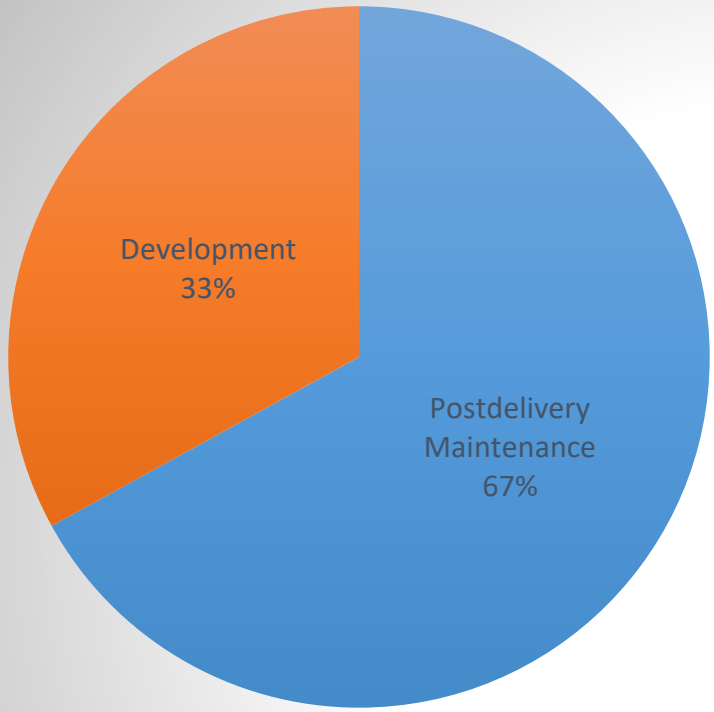

But software, not so much...

stop coding

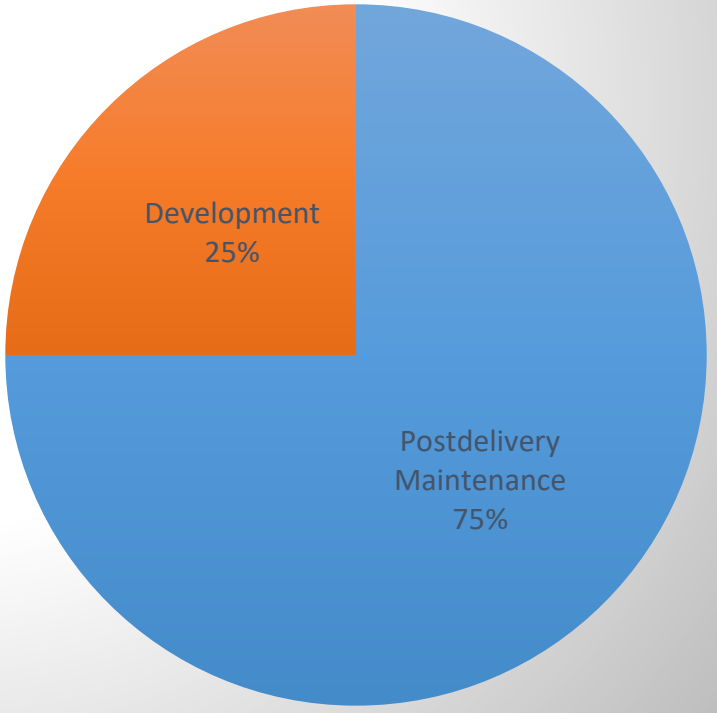
(phrasal verb)

a mystical action that would stop all kinds of programming errors at once and for good.

Between 1976-1981



Between 1992-1998



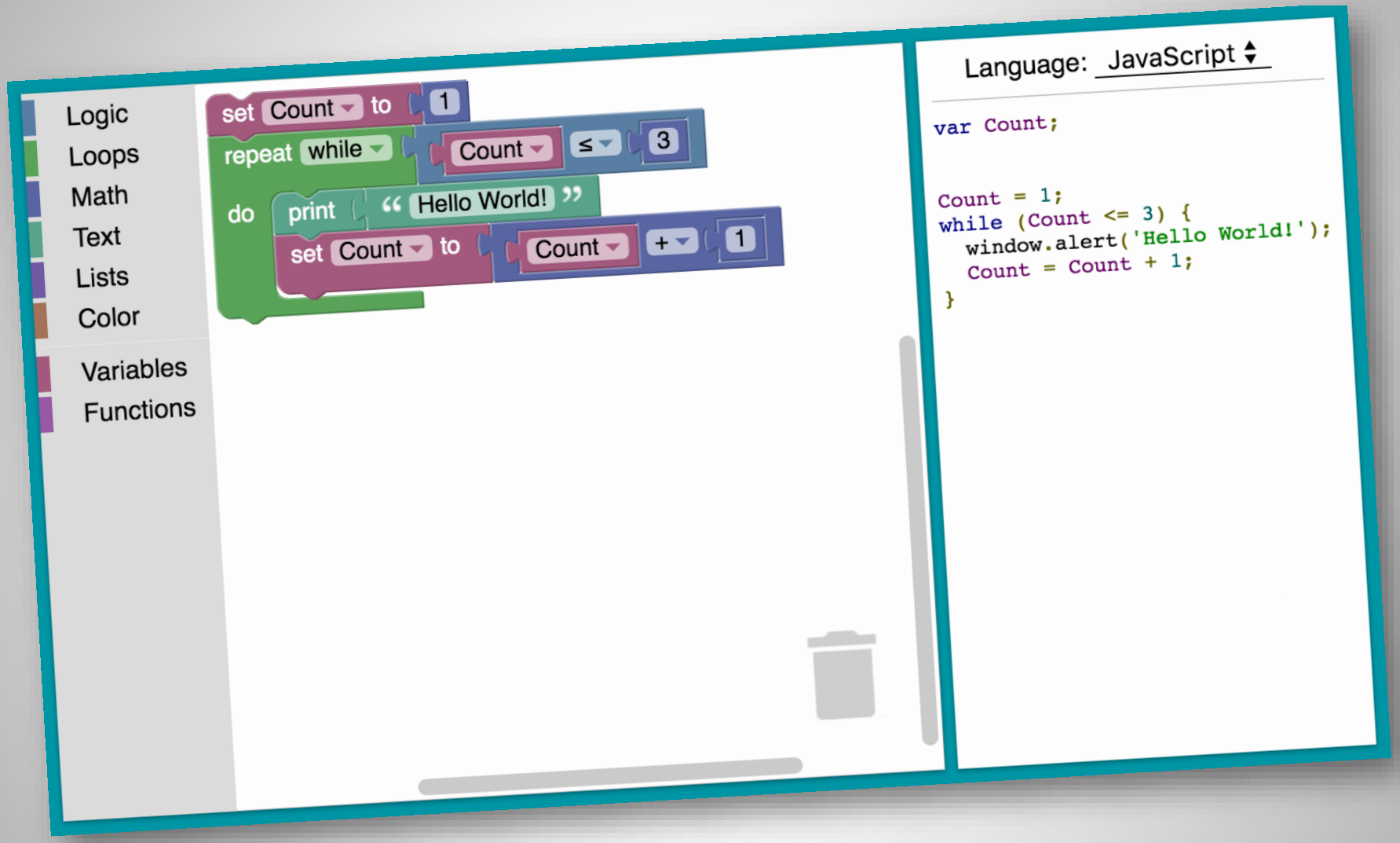
Costs*...

*Stephen R. Schach - Object-oriented and Classical Software Engineering (8th Edition) 2011, McGrawHill, Page 11

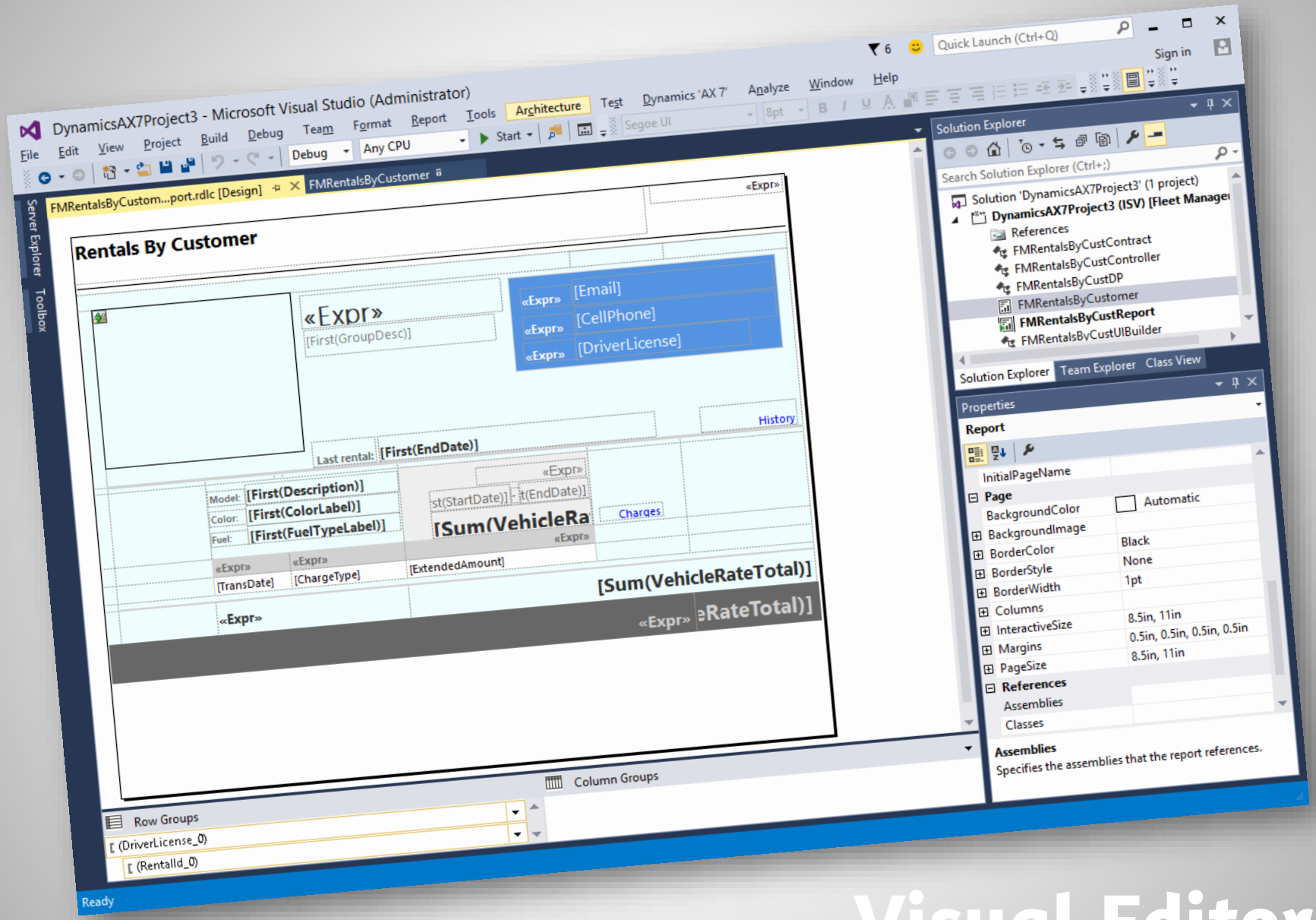

Software aging...

Signs are saying us something…

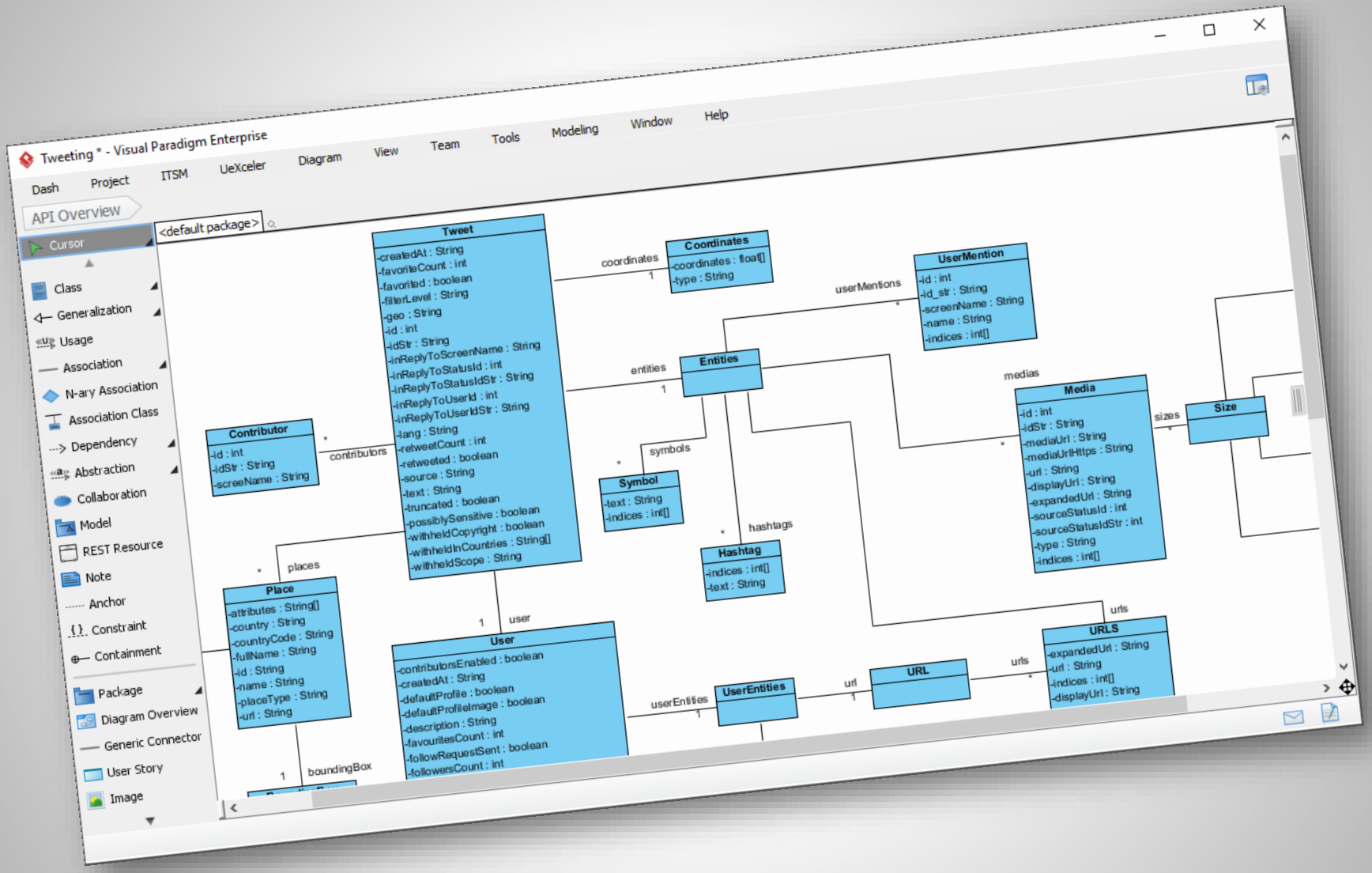

We have options.



Block-based languages



Visual Editors



Unified Modeling Language

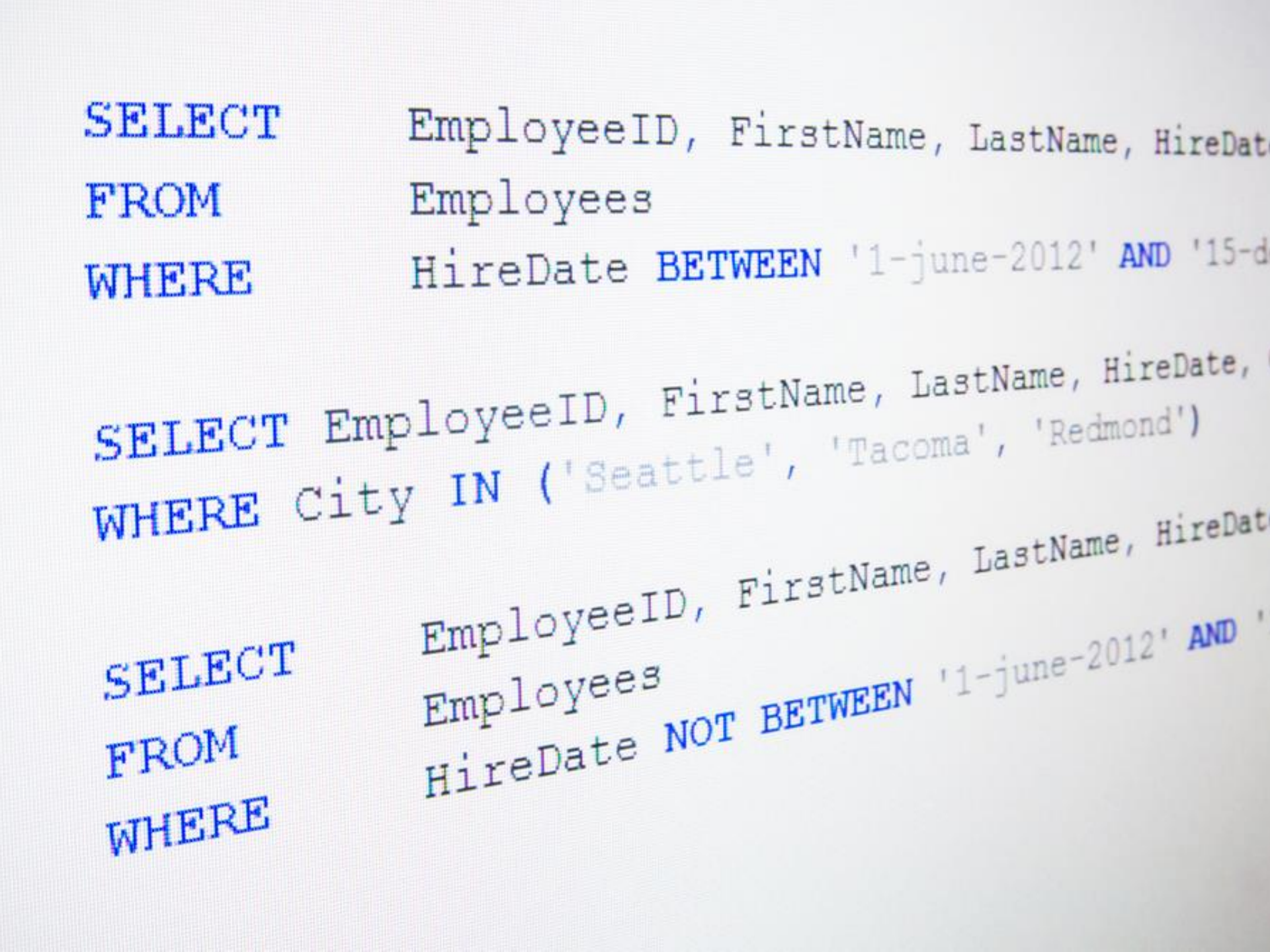

What is
beyond
code?

Accomplishing its intended purpose successfully!


Can be useless according to the domain!


The right tool
for this domain...


Time to
think

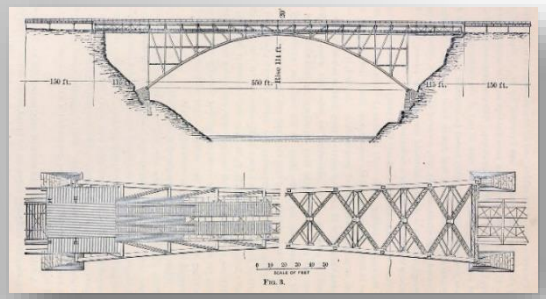


```
SELECT      EmployeeID, FirstName, LastName, HireDat
FROM        Employees
WHERE       HireDate BETWEEN '1-june-2012' AND '15-d

SELECT EmployeeID, FirstName, LastName, HireDate,
WHERE City IN ('Seattle', 'Tacoma', 'Redmond')

SELECT      EmployeeID, FirstName, LastName, HireDat
FROM        Employees
WHERE       HireDate NOT BETWEEN '1-june-2012' AND '
```

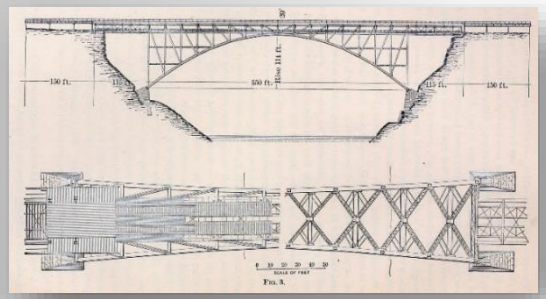

<!DOCTYPE HTML PUBLIC
<html>
<head>
<title>Untitled Page</
<meta http-equiv="
<meta http-equiv="
</head>
<body onLoad="
<div class="
<div class="


485004
21

To build a bridge…



We first build models.



Why do we model?


Wouldn't
it be nice?

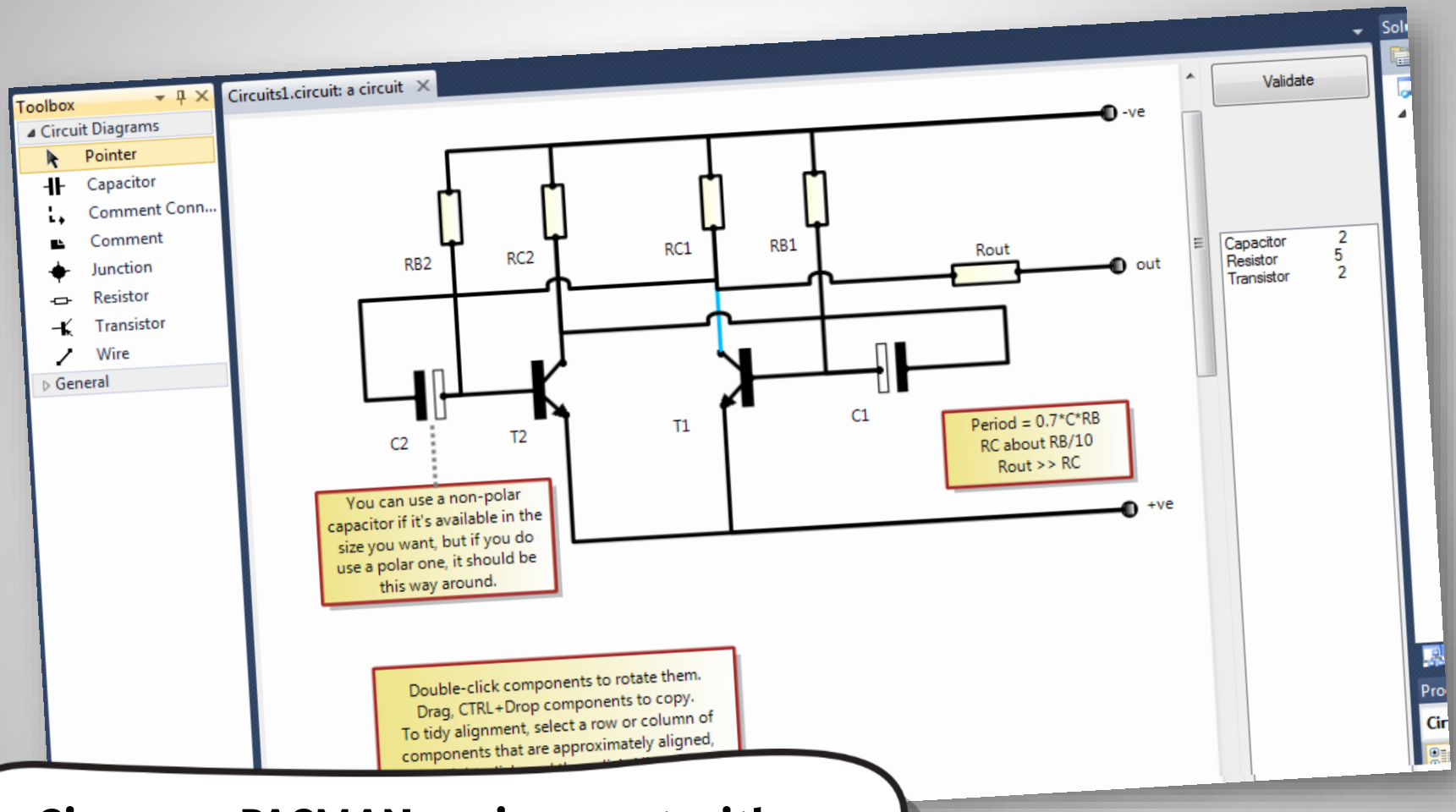

And end up with
the original product?

Software has the property that allows us to directly evolve models into full-fledged implementations without changing the engineering medium, tools, or methods!

Bran Selic

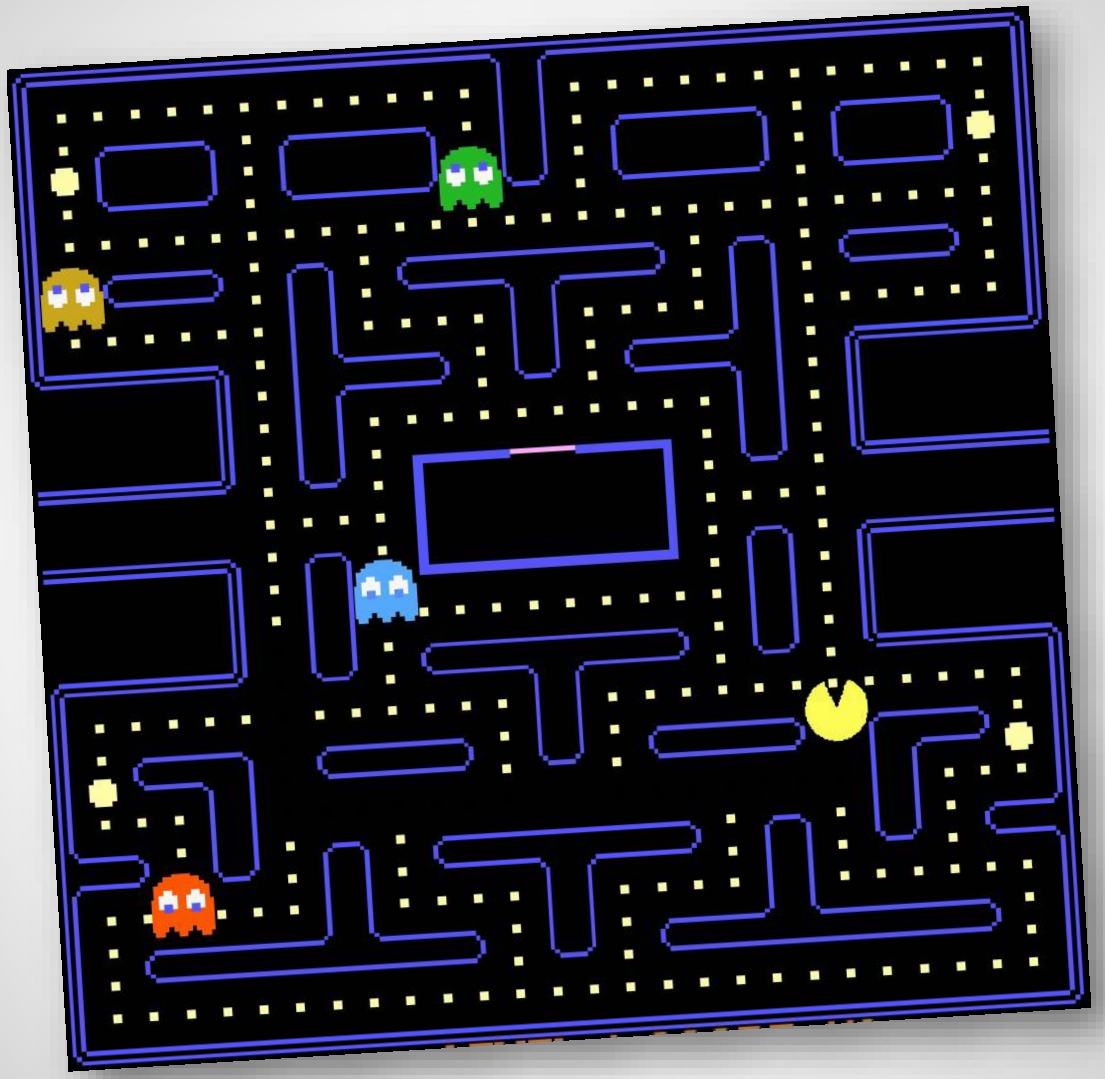
How does this help?

Give me a modeling environment with resistors, capacitors, transistors, wires…

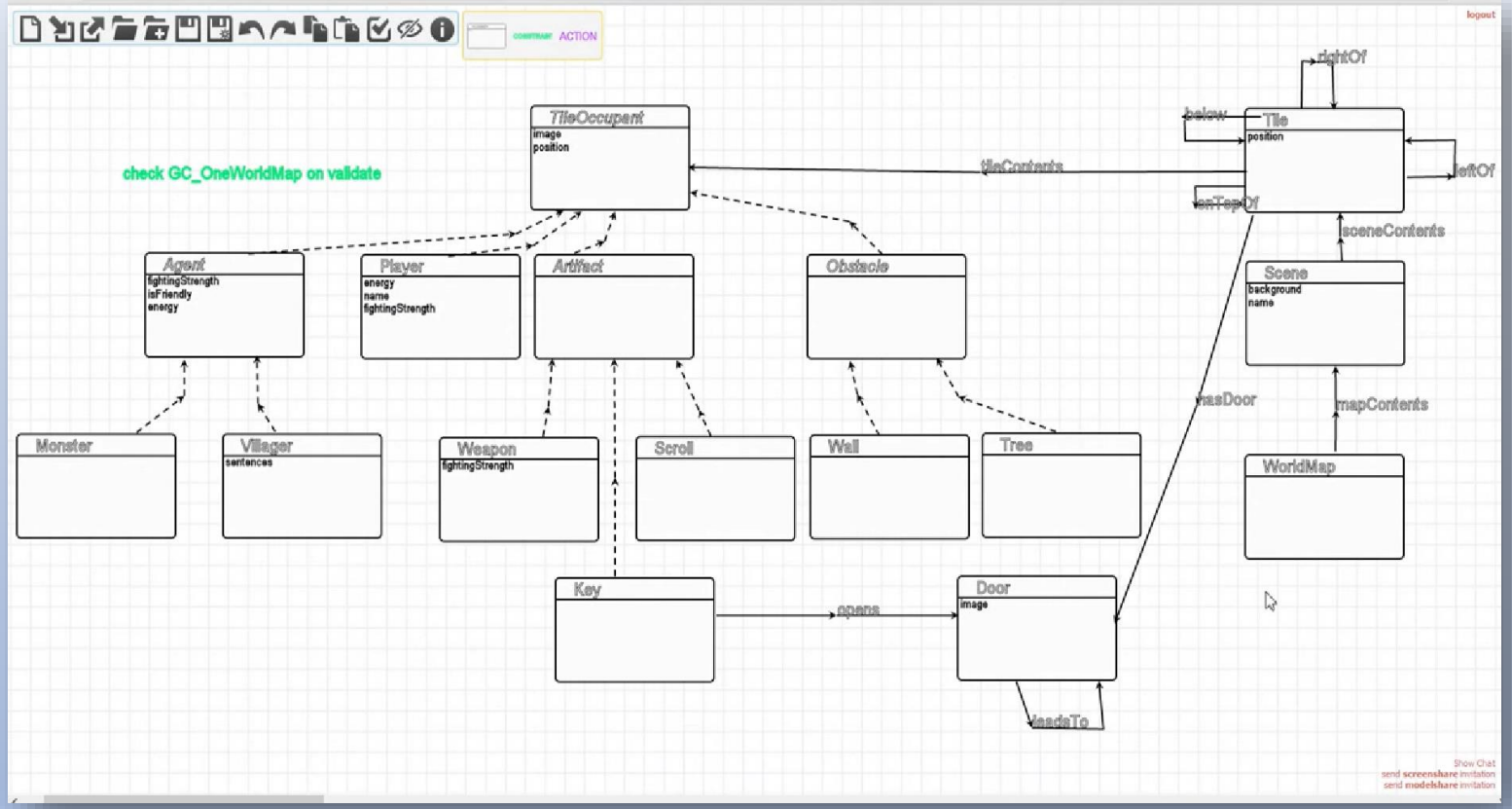


Give me a PACMAN environment with a pacman, dots (foods), ghosts, walls...

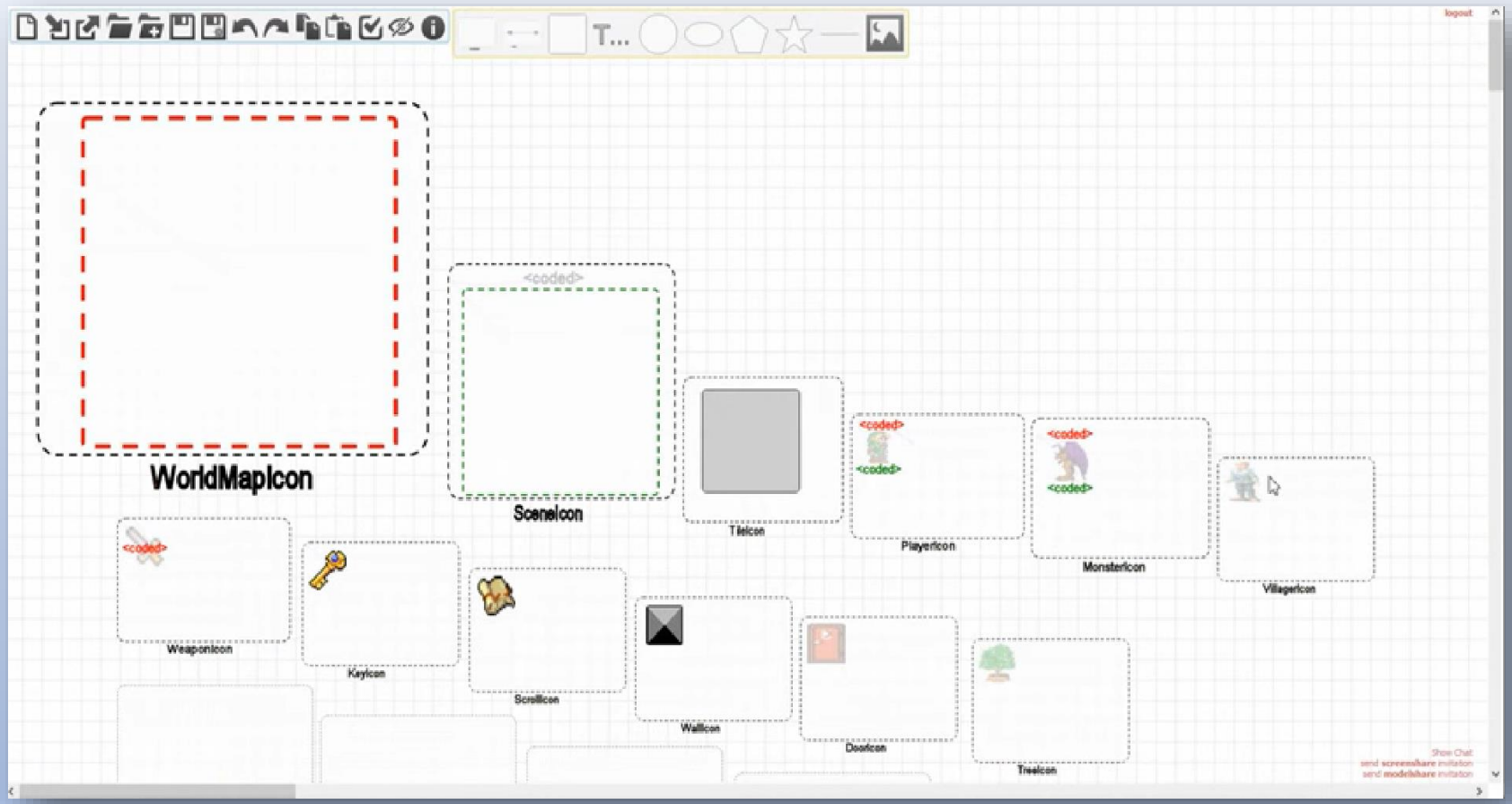
Electrical circuit environment



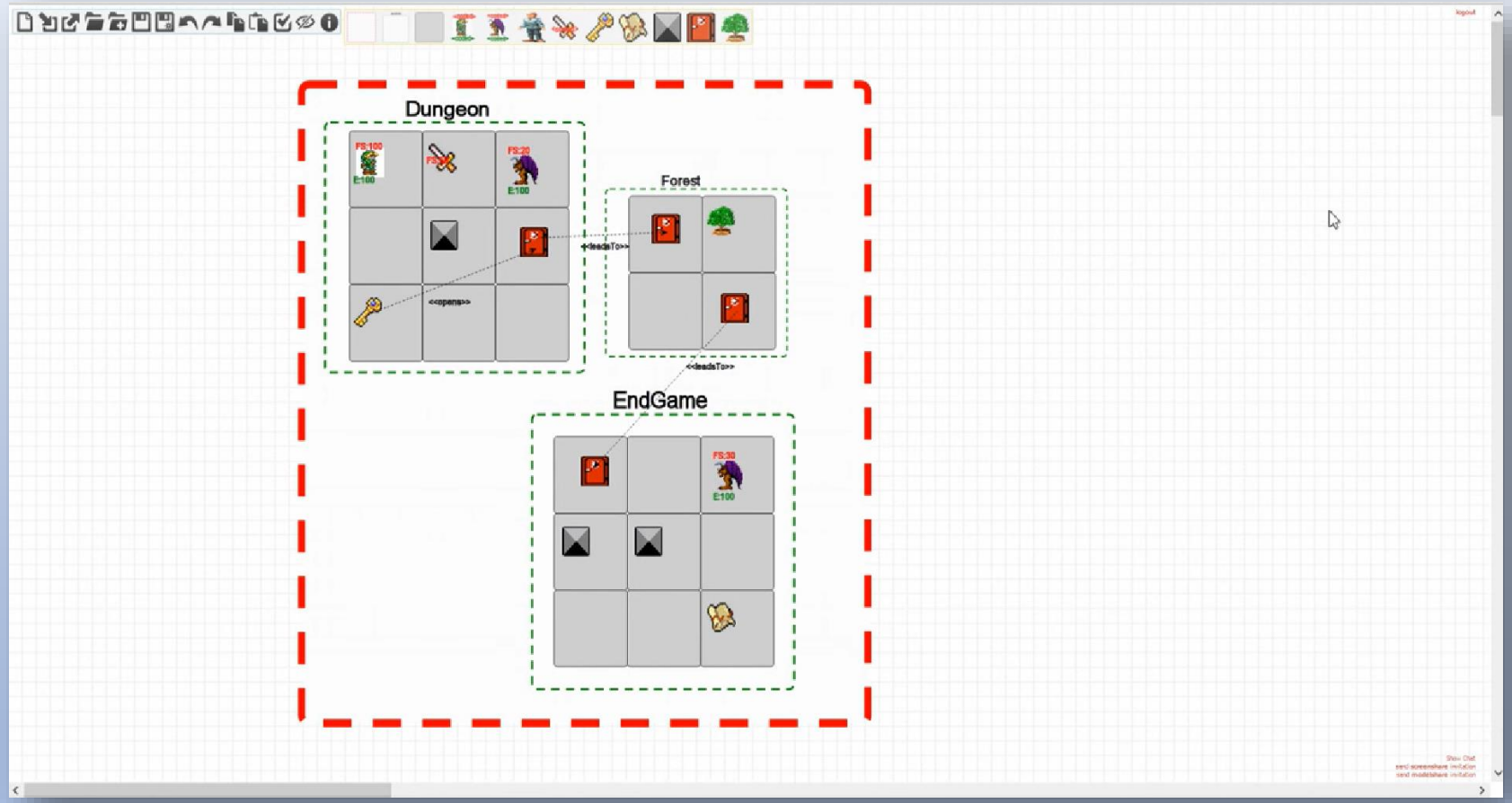
PACMAN enuironment



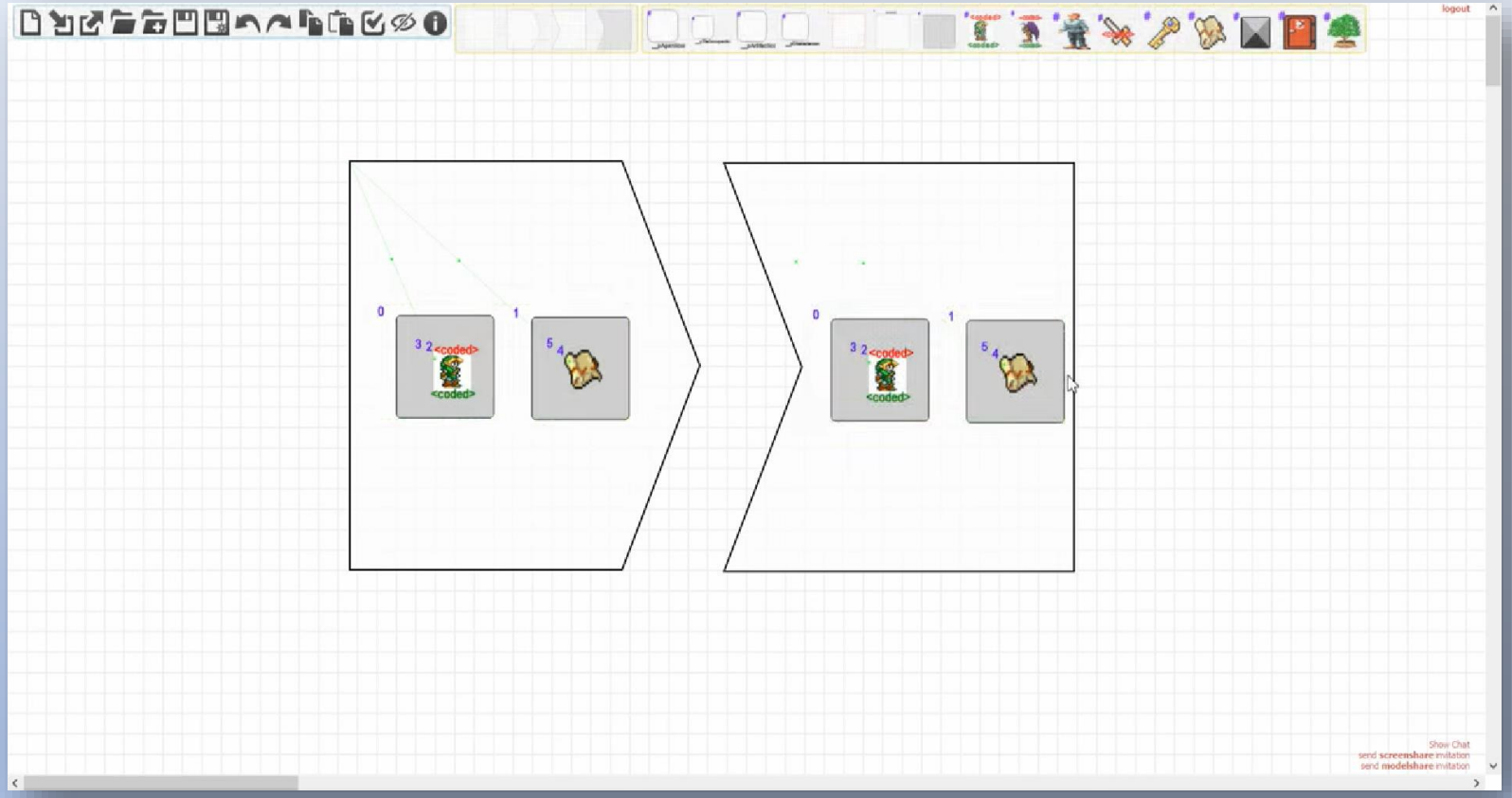
Define elements



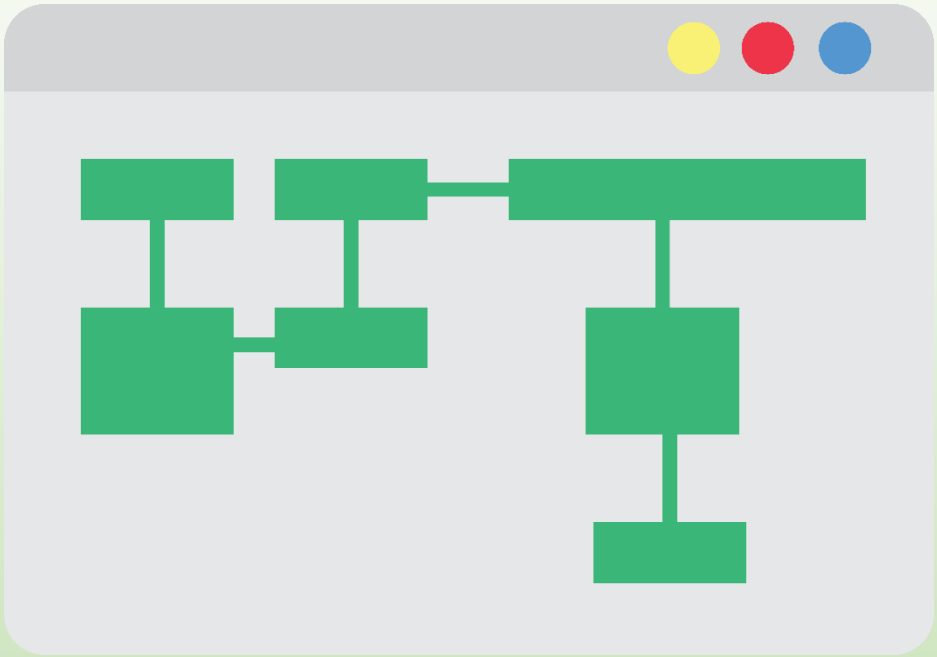
Design how they look like

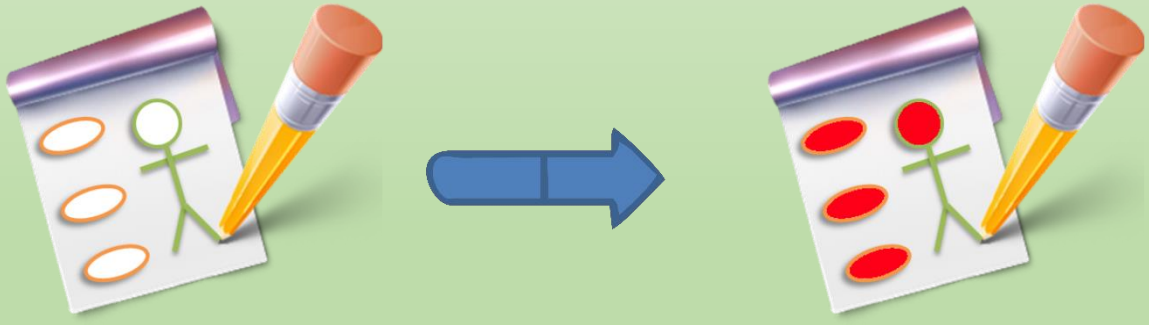


Your game environment is ready...



Behavior using model transformation...





A generic modeling environment…

Again,
how does this help?

They know their domain better than any developer!

onsequences

CONCLUSIONS

A.

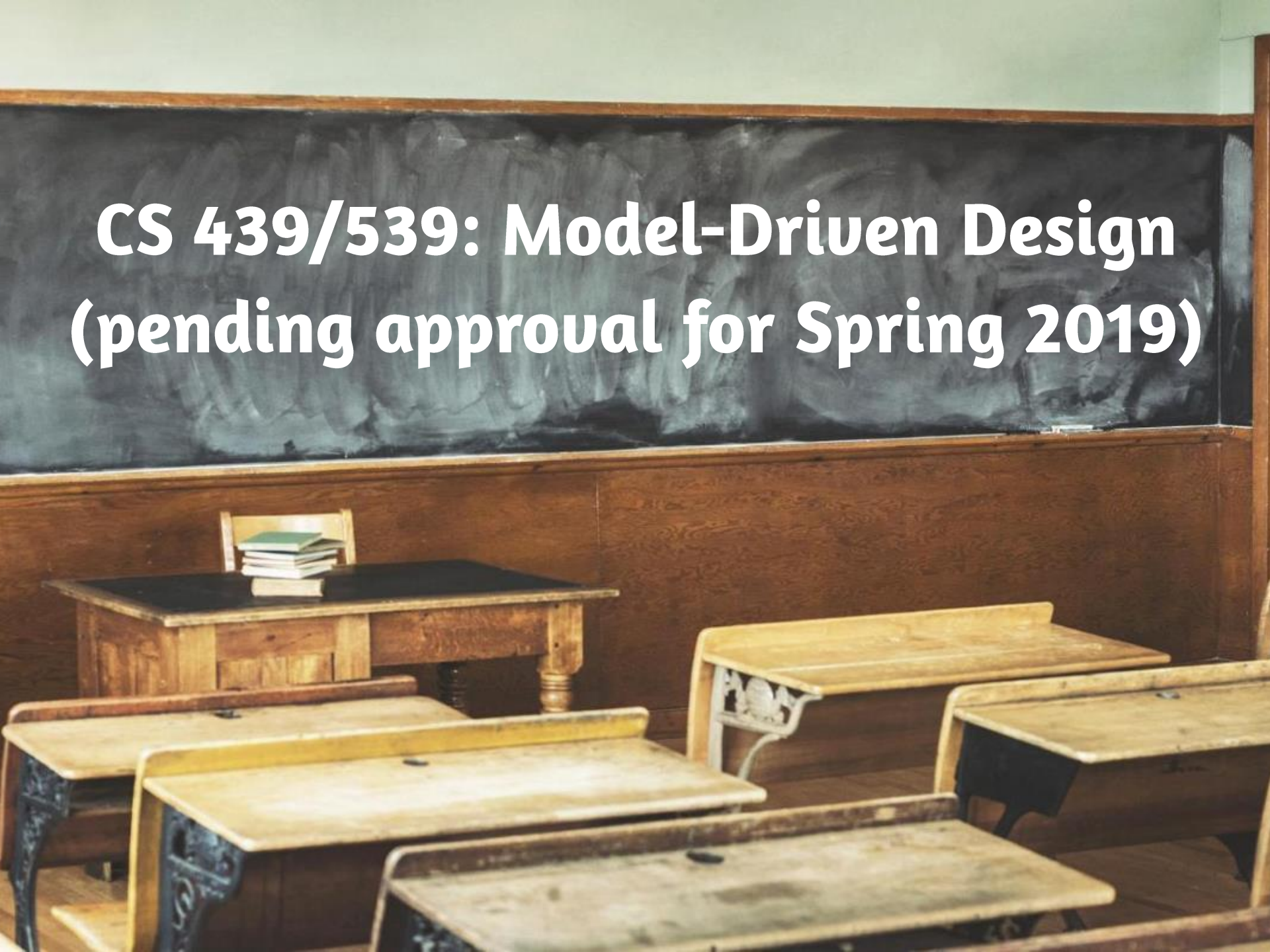
B.

C.

Accidental

vs

ESSENTIAL



CS 439/539: Model-Driven Design (pending approval for Spring 2019)