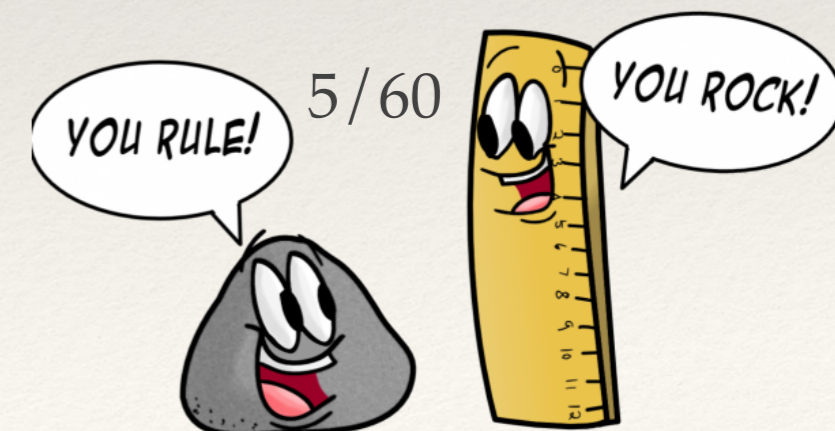
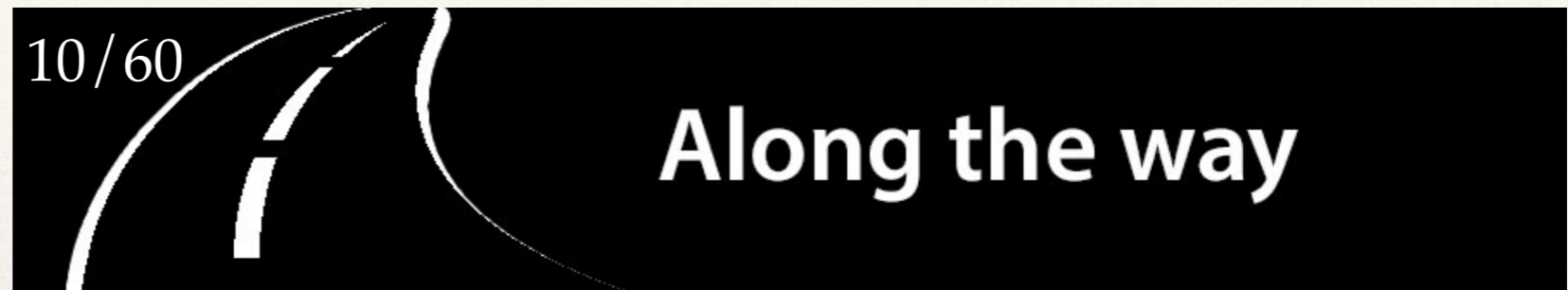
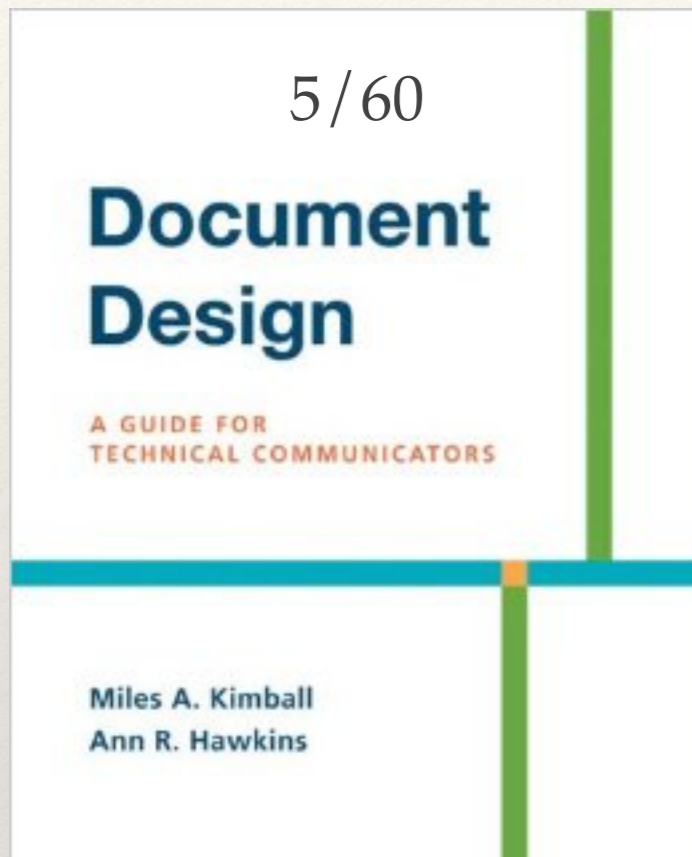


Advanced Programming Techniques

Course Perspectives

Christopher Moretti

Project Evaluation



Mailboxes

- Inbox
- @CS (84)
- @ (3)
- Drafts (3)
- Sent
- @CS
- @
- Junk
- Trash
- Archive

Smart Mailboxes

- Today (2)

@CS

- Chats
- Contacts
- Deleted Mess...
- Emailed Cont...
- Sent Messages

@

- Calendar
- Contacts
- Deleted Items
- Journal
- Junk E-Mail
- Sent
- Sent Items
- Tasks

Mail Activity

- Sort by Unread ▾
- wass@Princeton.EDU** 4/26/16
Appointment scheduled:... Inbox - @CS
The following appointment has been scheduled: Appointment with:cmorett...
 - wass@Princeton.EDU** 4/26/16
Appointment cancelled: J... Inbox - @CS
The following appointment has been cancelled: Your appointment has bee...
 - wass@Princeton.EDU** 4/26/16
Appointment scheduled:... Inbox - @CS
The following appointment has been scheduled: Appointment with:cmorett...
 - wass@Princeton.EDU** 4/26/16
Appointment scheduled:... Inbox - @CS
The following appointment has been scheduled: Appointment with:cmorett...
 - wass@Princeton.EDU** 4/26/16
Appointment scheduled:... Inbox - @CS
The following appointment has been scheduled: Appointment with:cmorett...
 - wass@Princeton.EDU** 4/26/16
Appointment scheduled:... Inbox - @CS
The following appointment has been scheduled: Appointment with:cmorett...
 - wass@Princeton.EDU** 4/26/16
Appointment cancelled:... Inbox - @CS
The following appointment has been cancelled: Appointment with:cmoretti...
 - wass@Princeton.EDU** 4/26/16
Appointment scheduled:... Inbox - @CS
The following appointment has been scheduled: Appointment with:cmorett...
 - wass@Princeton.EDU** 4/26/16
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 - wass@Princeton.EDU** 4/26/16
Appointment scheduled:... Inbox - @CS
The following appointment has been scheduled: Appointment with:cmorett...

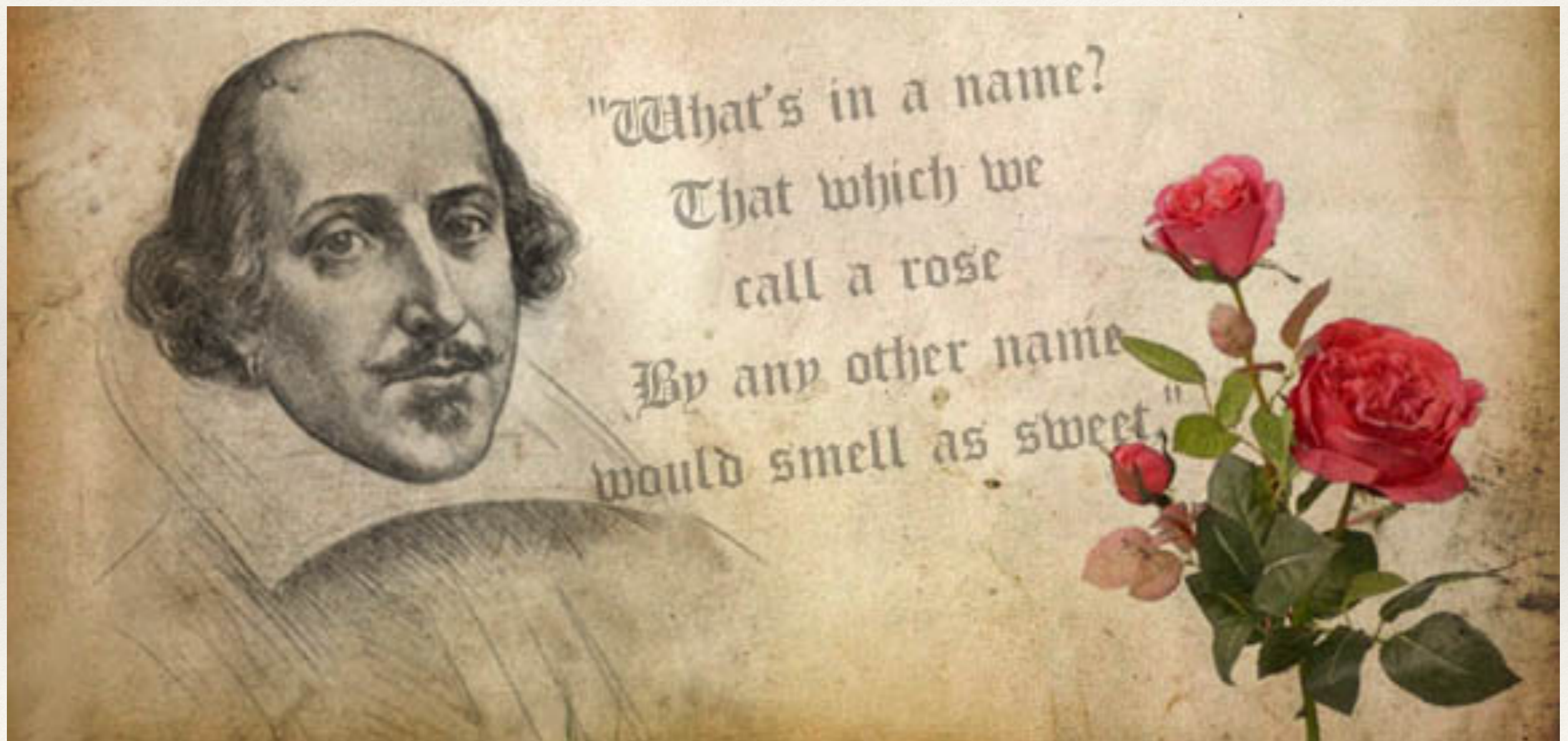
Scheduling System

for Christopher M. Moretti

2016 ▶

	Mon	Tue	Wed	Thu	Fri
1					
2	9:00a - 12:00p COS333 Demos <i>with Christopher M. Moretti</i> 0 Appointments 6 Available 12:30p - 5:00p COS333 Demos <i>with Christopher M. Moretti</i> 0 Appointments 9 Available Reading	9:00a - 12:00p COS333 Demos <i>with Christopher M. Moretti</i> 0 Appointments 6 Available 12:30p - 5:00p COS333 Demos <i>with Christopher M. Moretti</i> 0 Appointments 9 Available Reading	9:00a - 11:00a COS333 Demos <i>with Christopher M. Moretti</i> 0 Appointments 4 Available 2:00p - 5:00p COS333 Demos <i>with Christopher M. Moretti</i> 0 Appointments 6 Available Reading	Reading	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13	Reading	Reading	Exam	Exam	

What's in a Demo?



Voice



your

Choice

Creativity ...

Now, this is a story all about how
My life got flipped-turned upside down
And I'd like to take a minute
Just sit right there

I'll tell you how I became the prince of a town called Bel-Air

In west Philadelphia born and raised
On the playground was where I spent most of my days
Chillin' out maxin' relaxin' all cool
And all shooting some b-ball outside of the school
When a couple of guys who were up to no good
Started making trouble in my neighborhood
I got in one little fight and my mom got scared
She said 'You're movin' with your auntie and uncle in Bel-Air'

I whistled for a cab and when it came near
The license plate said fresh and it had dice in the mirror
If anything I could say that this cab was rare
But I thought 'Nah, forget it' - 'Yo, home to Bel-Air'

I pulled up to the house about 7 or 8
And I yelled to the cabbie 'Yo home smell ya later'
I looked at my kingdom
I was finally there
To sit on my throne as the Prince of Bel-Air

Now, this is a project all about next:
COS 1-2-6 — gone paperless!
And we've got half an hour
to show you we're bad:

'n' tell you how to give all the work to the undergrads

COS126 — biggest course at the school,
almost everybody takes it just to be cool.
Learning programming from Sedgwick and Wayne
Java flying so fast my wrists getting sprains.
But all that code's gotta print, and use lots of reams
Started having trouble tryna be green!
Don't need to print nothing, we can put it online
and might optimize the grading parties at the same time

We'll hire course alums and feed them at night
They'll follow the rubric, and pay attention - it's aight.
Though Donna could deem that our plan was toast
But I thought 'Nah, don't sweat it: this is Code Post'

We come back to CS from 5:30 to 8
Get trained on JoeStu, now we're ready to grade.
We tear through the good ones,
and pore through the chaff,
Fifteen bucks an hour to help the course staff.

Emotion



1:30 / 8:02



DVD
VIDEO ONLY

LET **THE SKIT GUYS** SHOW YOU HOW

SKIT TRAINING 101



DELIVERABLES

Demo - Reading Period (May 2-4)

Each team will give a public presentation/demonstration of its work during Reading Period. We will arrange a signup for demo slots during the last week of classes. You can divide the presentation/demonstration responsibilities any way you like; but all team members must attend.

The demo will determine a significant portion of your grade, so you (and the course staff) want them to go as smoothly as possible. In order to assure this, start thinking about your presentation now. You could picture your presentation/demonstration as an event that will make or break your "company" -- you'll be on the spot in a foreign place, with an audience, though the audience is really just a group of very supportive potential customers, investors, friends and family. As to content, the "trade show" metaphor is useful, but you should aim for more than just a glitzy demonstration -- you should also spend at least some time discussing the architecture, the trajectory of the project, and providing evidence that you learned something.

One possible outline of your presentation would be: a short introduction of what your system is supposed to do; a demo of a small number of stable important features; a summary of other important features; a brief overview of architecture and implementation; an anecdote of something that worked well or failed disastrously such that you were able to take something away from the experience; and something that you might explore further or do differently if you were to start all over again or had more time.

You will be allotted 30 minutes. Plan on using about 25 minutes, to leave time for questions, setup and teardown, and other delays. In previous years groups have done well on timing; rehearse to keep the streak alive. Pick a set of demos that do not require excessive typing or mousing or window-switching -- this invites things to go awry, and invites the audience to get restless while you poke around.

Have fun. These projects are really interesting, and the enthusiasm of their presenters helps make that evident to all in attendance. Because a healthy audience amplifies that enthusiasm, each student is required to attend two other presentations and you are strongly encouraged to attend more, for edification and moral support. Visitors are welcome, so bring your friends and family. Typical projects are great; come and hear about them. We will advertise the schedule of demos in advance.



<http://www.cs.princeton.edu/courses/archive/spring16/cos333/project.html>

The Stakes are High



A bungled demo tells the customer, at a visceral level, that either:
You didn't adequately prepare, in which case buying from you is probably a mistake;
The product is a piece of crap that fails even under the most forgiving of circumstances;

Geoffrey James

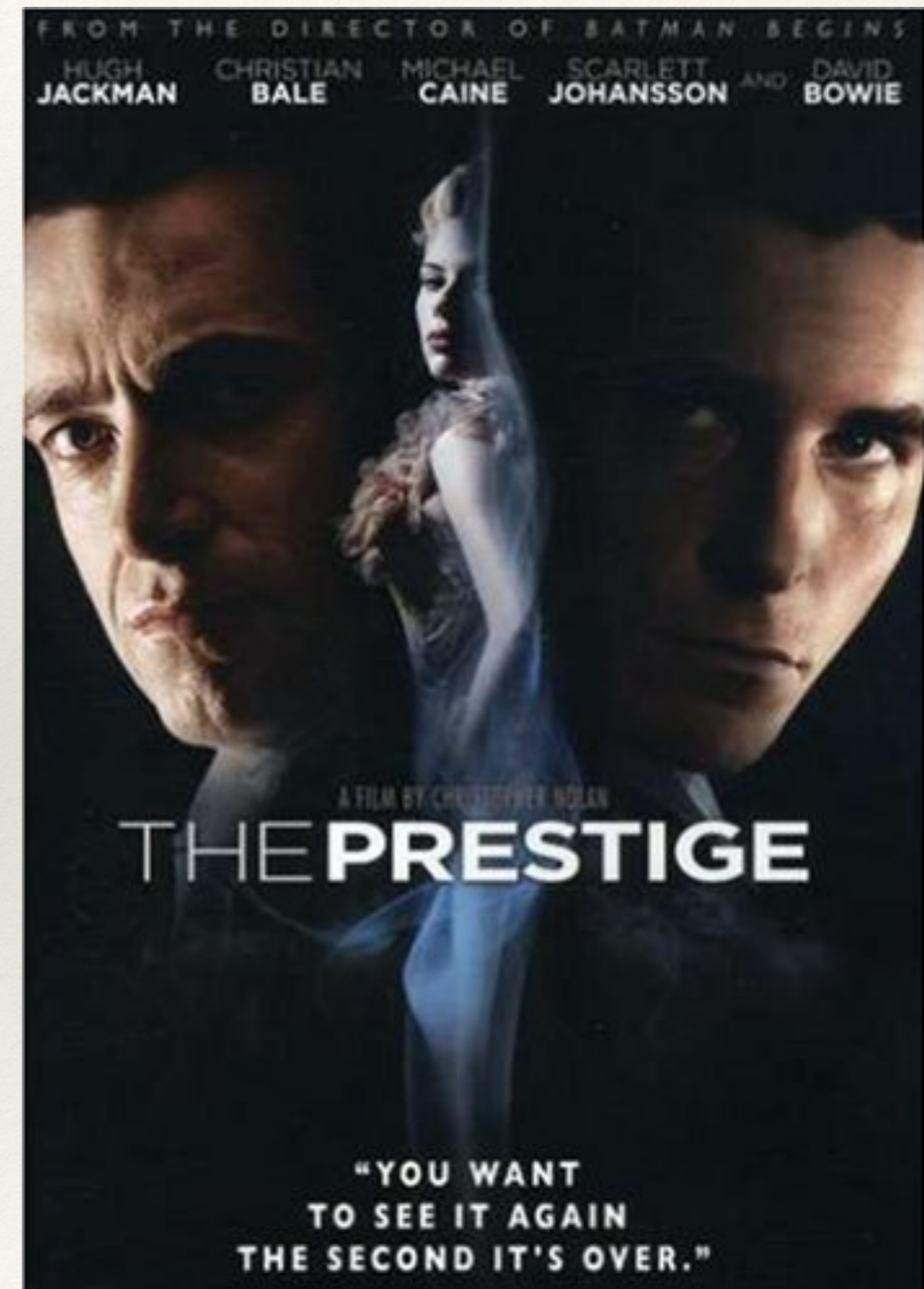
Presentation Arts

Every great magic trick consists of three parts or acts.

The first part is called "The Pledge". The magician shows you something ordinary: a deck of cards, a bird or a man. He shows you this object. Perhaps he asks you to inspect it to see if it is indeed real, unaltered, normal. But of course... it probably isn't.

The second act is called "The Turn". The magician takes the ordinary something and makes it do something extraordinary. Now you're looking for the secret... but you won't find it, because of course you're not really looking. You don't really want to know. You want to be fooled.

But you wouldn't clap yet. Because making something disappear isn't enough; you have to bring it back. That's why every magic trick has a third act, the hardest part, the part we call "The Prestige".



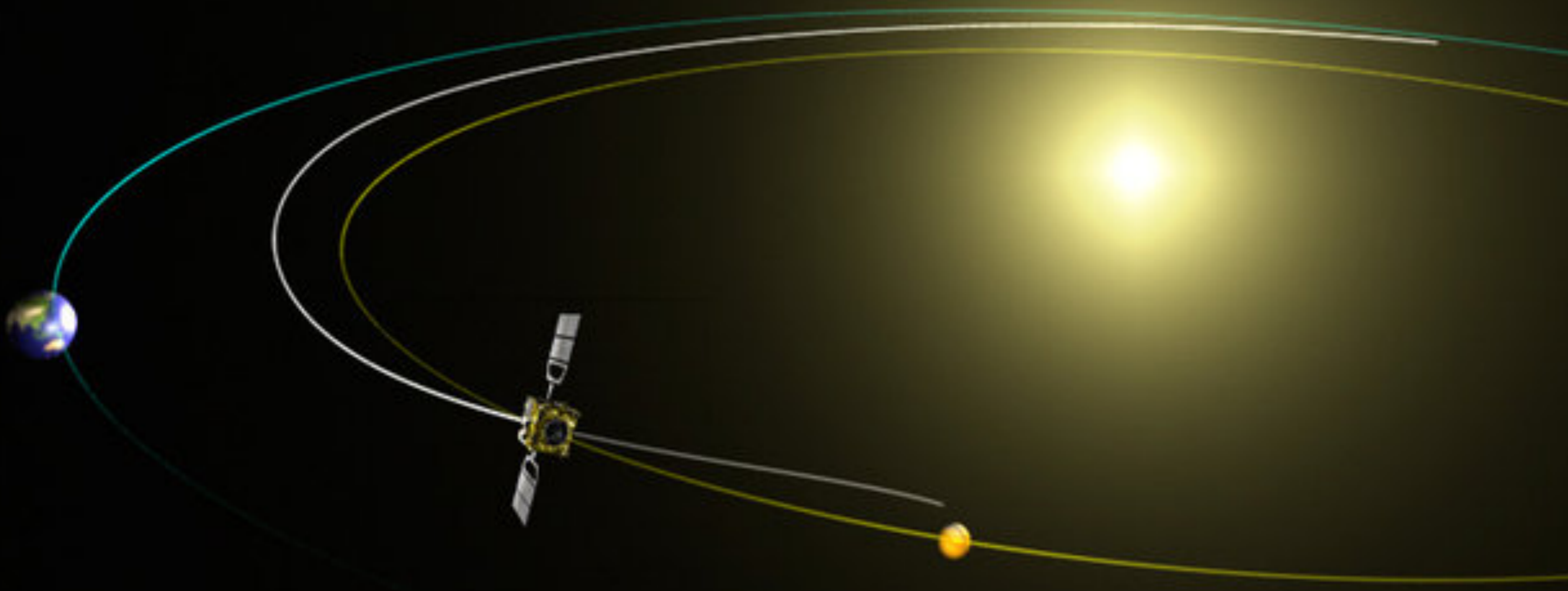


Get to the good part!



Then build on that credibility ...





Move With Purpose

When you move, they look at you.
When you stop, they look at the screen.

Use this to your advantage.
Don't pace randomly, idly or unconsciously.
Don't rock back and forth on your heels.
Empty your pockets if you tend to fiddle.

Content With Purpose

Every move, phrase, mistake, anecdote and slide should actually contain content. It should be meaningful.

Your mistakes should teach them, your demos should teach them; even your shortcut keys, utilities and menu layout should teach them.



Martin Kleppmann



Aim for Reproducibility

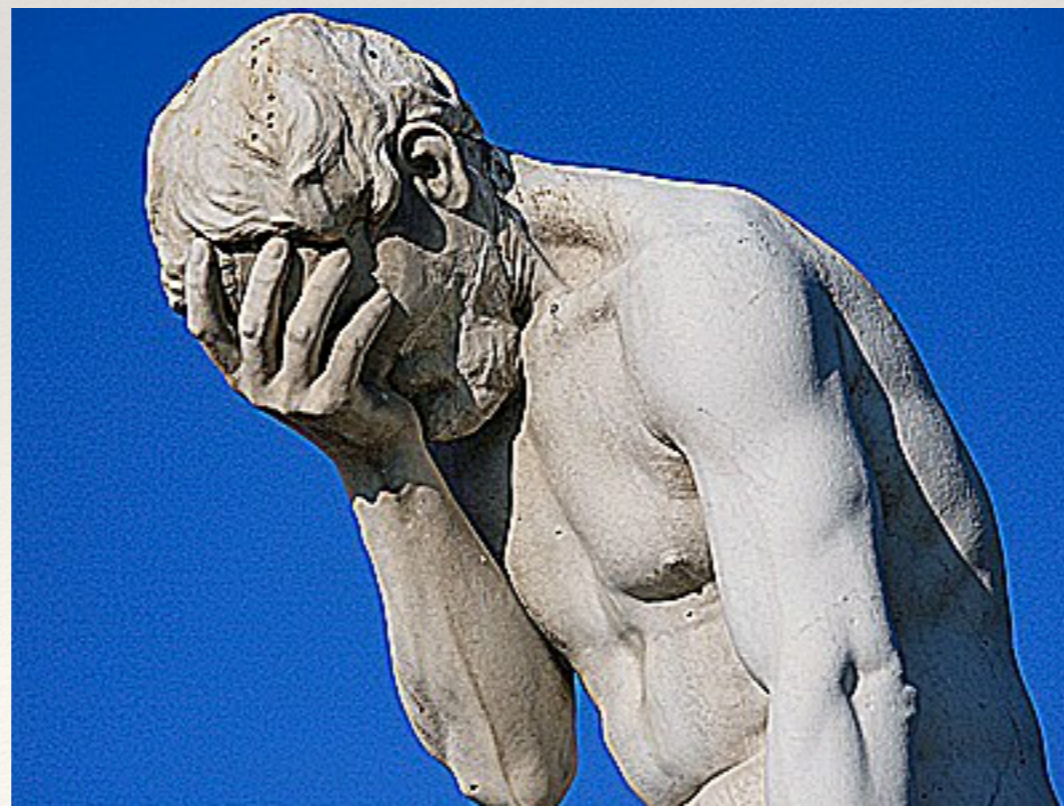
- ❖ Ideally, you could give your demo over and over again, doing the same steps and getting the same results
- ❖ This means there would need to be a “quick reset”

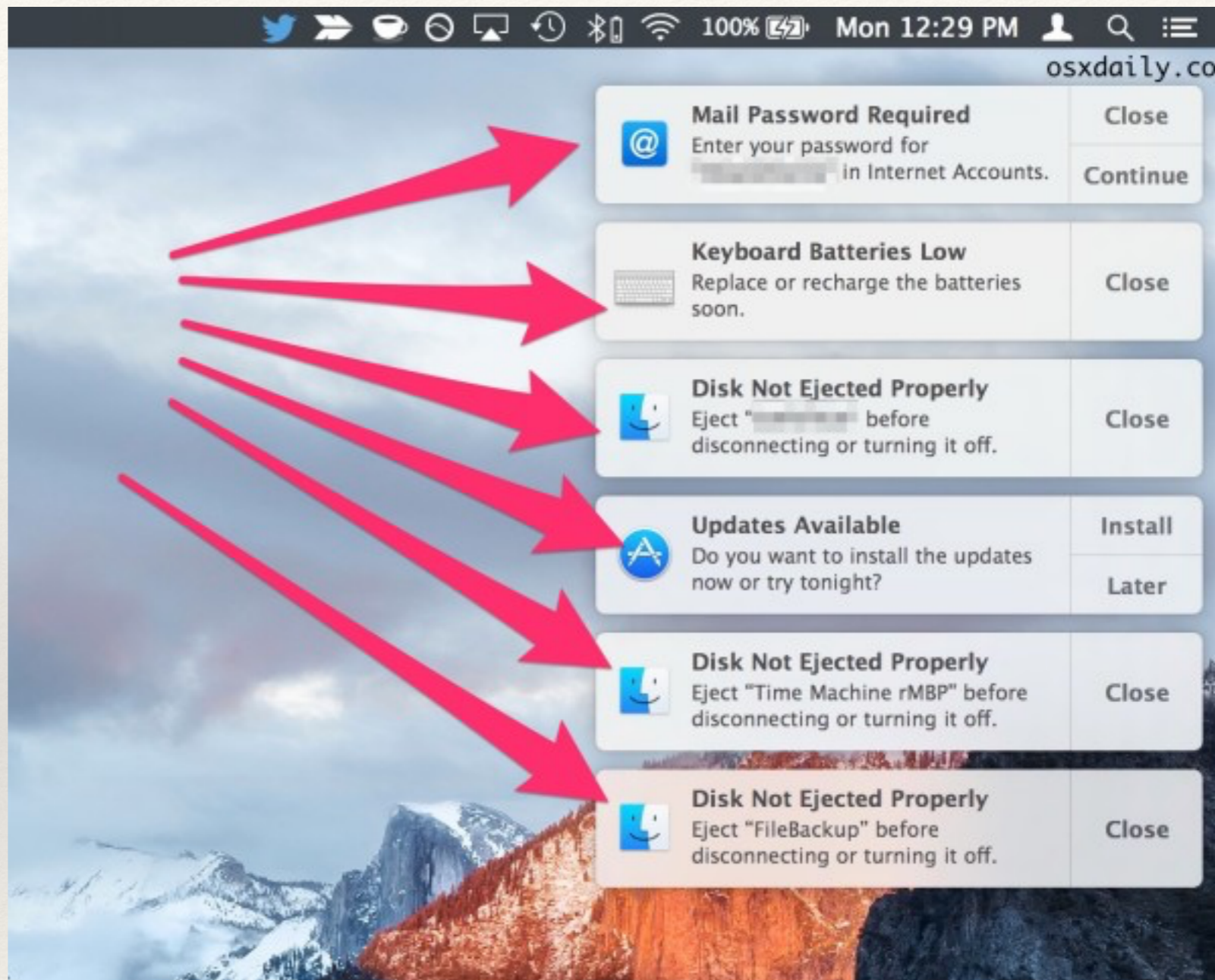
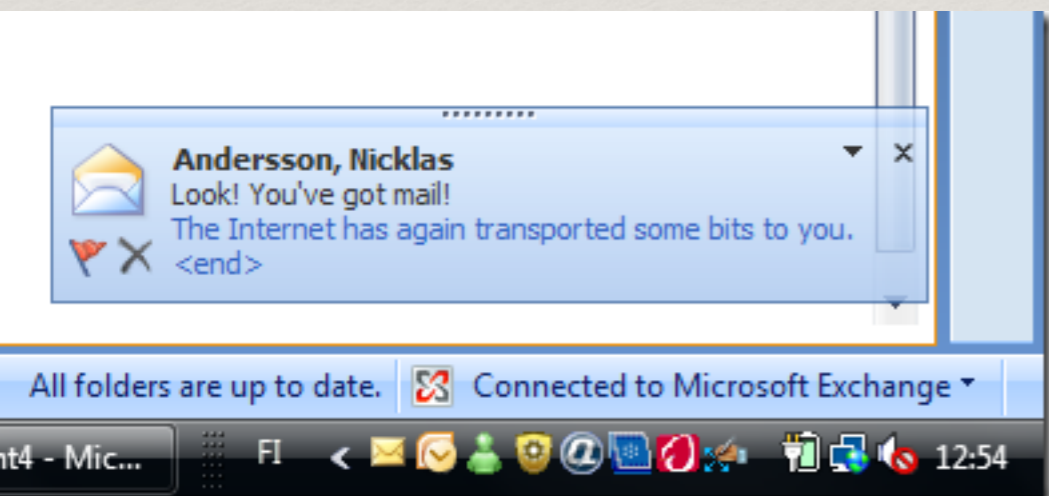
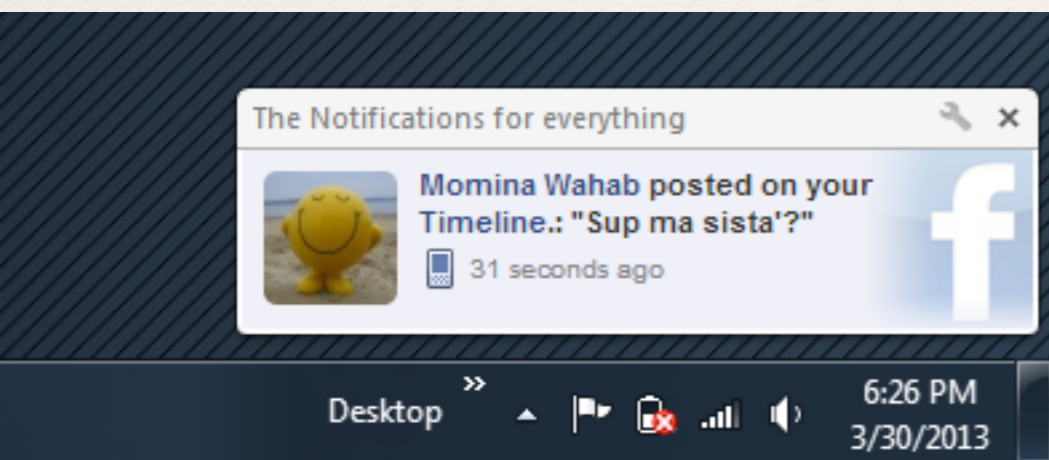
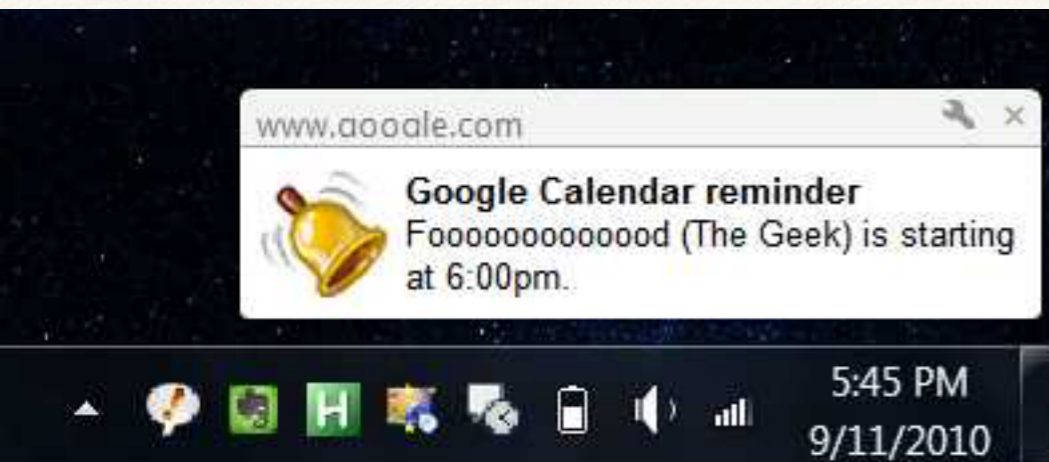






(or gotchas to avoid in your demo)







Avoid “Software Vertigo”



Useless and/or Embarrassing Data

❖ Test1, Test2, Test3

❖ #!@&

❖ foo bar baz

❖ a;skdlfja;sldfkaj

❖ does this work? does it work now? how bout now?

	COMMENT	DATE
○	CREATED MAIN LOOP & TIMING CONTROL	14 HOURS AGO
○	ENABLED CONFIG FILE PARSING	9 HOURS AGO
○	MISC BUGFIXES	5 HOURS AGO
○	CODE ADDITIONS/EDITS	4 HOURS AGO
○	MORE CODE	4 HOURS AGO
○	HERE HAVE CODE	4 HOURS AGO
○	AAAAAAAAA	3 HOURS AGO
○	ADKFJSLKDFJSDKLFJ	3 HOURS AGO
○	MY HANDS ARE TYPING WORDS	2 HOURS AGO
○	HAAAAAAAAAANDS	2 HOURS AGO

AS A PROJECT DRAGS ON, MY GIT COMMIT MESSAGES GET LESS AND LESS INFORMATIVE.

Stuff Digital Agency People Say

It was
working
yesterday.

IFACTORY 

Giuseppe Maxia

DO NOT READ YOUR SLIDES





```
# ps aux
# cd ~
# ls -altr
# history
```



Course Overview

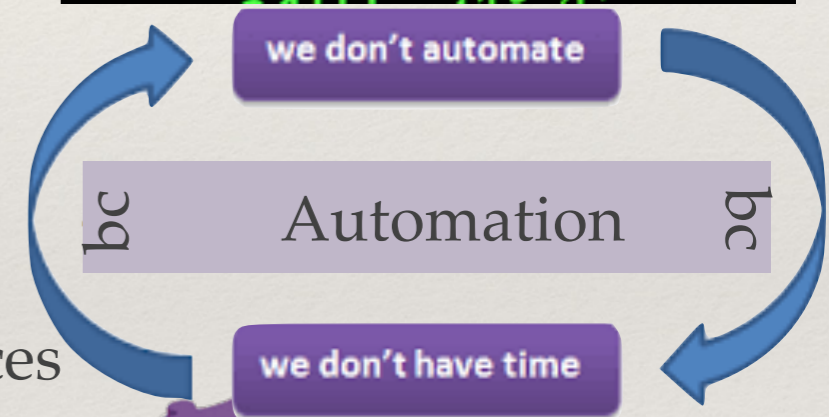
The 20,000 Foot View

But don't think this is just a tech laundry-list ...

- Embedded Systems Testing
- Interoperability Testing
- Mobile Application Testing
- Functional Testing
- Automation Testing
- Scalability and Performance Testing
- User Acceptance Testing
- Migration Testing
- Game Testing
- Security Testing
- Usability Testing
- System Integration Testing



CODING
IT MAY BE THE CLOSEST THING WE HAVE TO A SUPERPOWER



Localization

Interfaces

Standards and Specs



Reusability

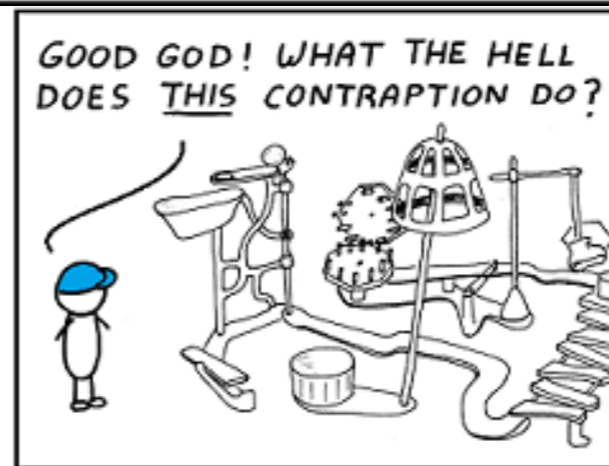
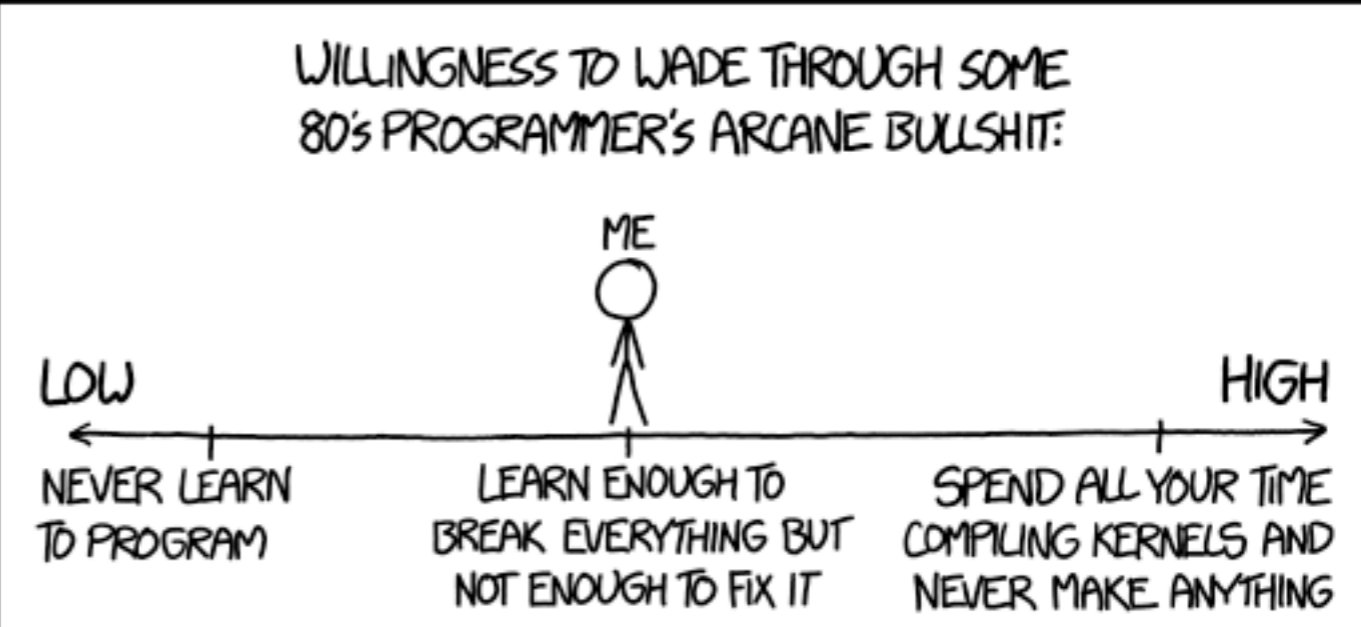
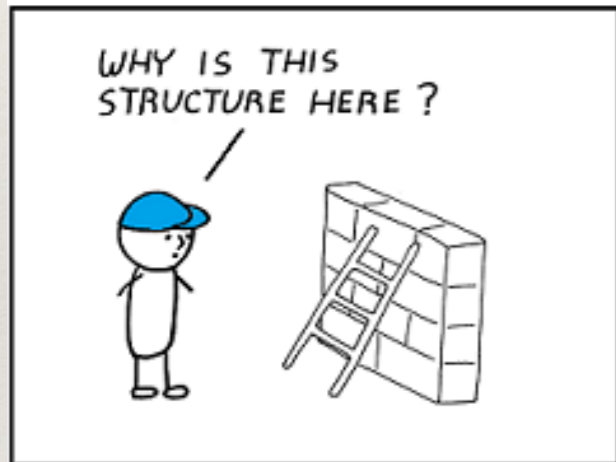


Design

Recap - A2



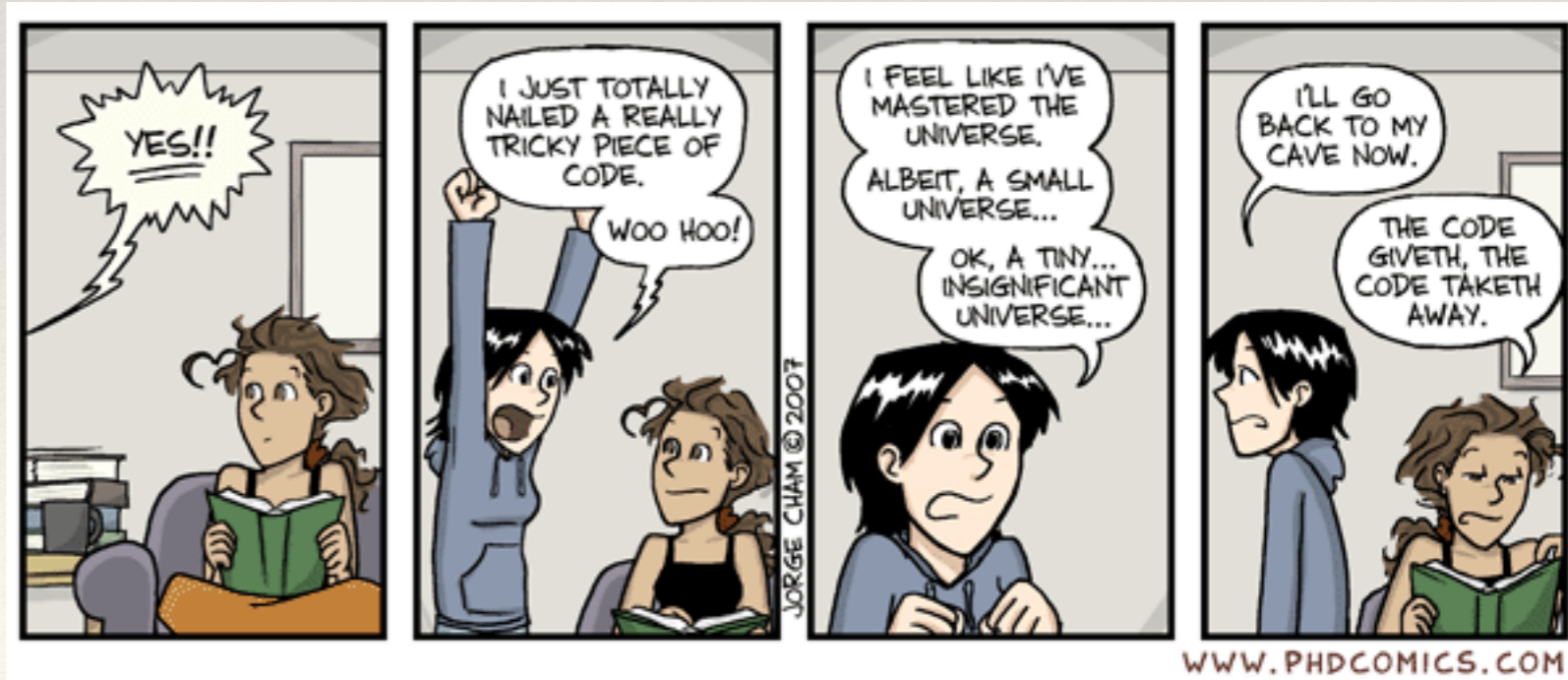
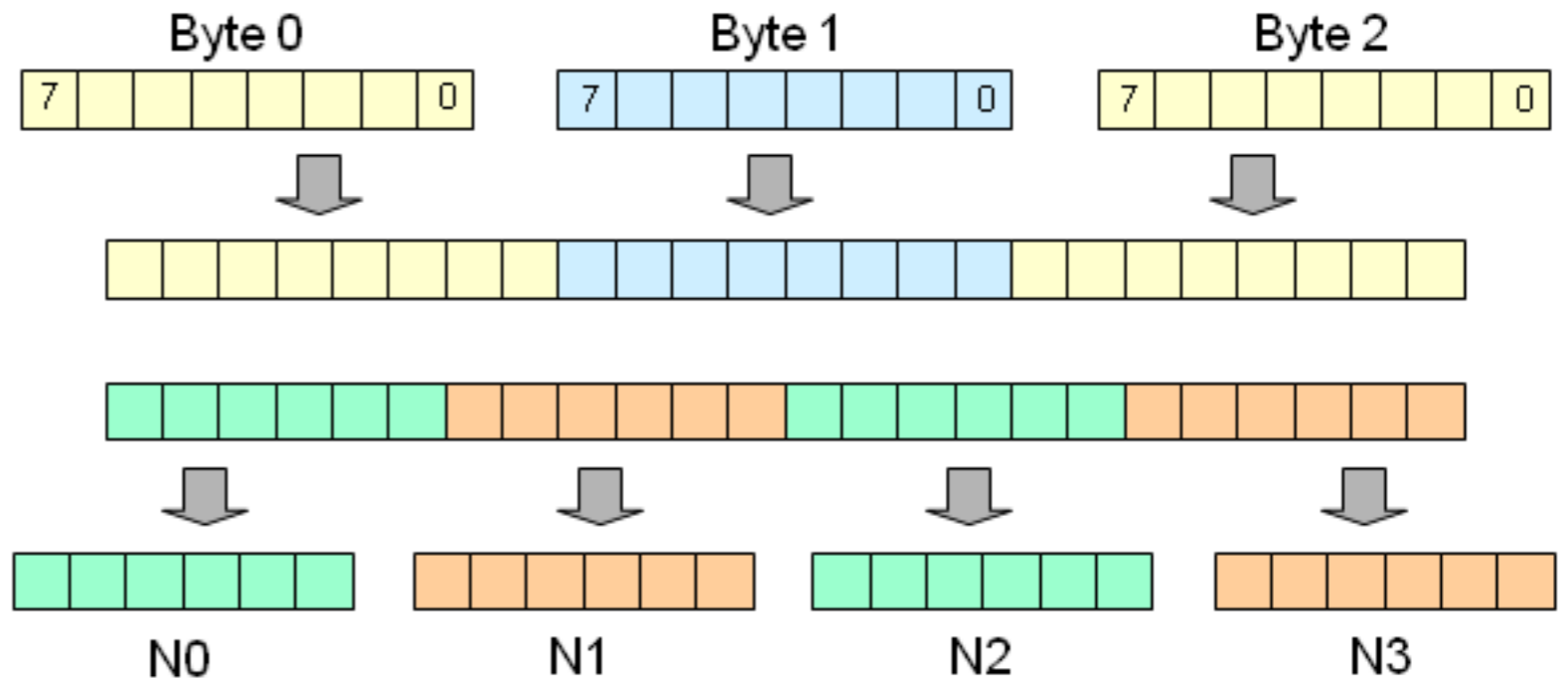
abstrusegoose.com/432



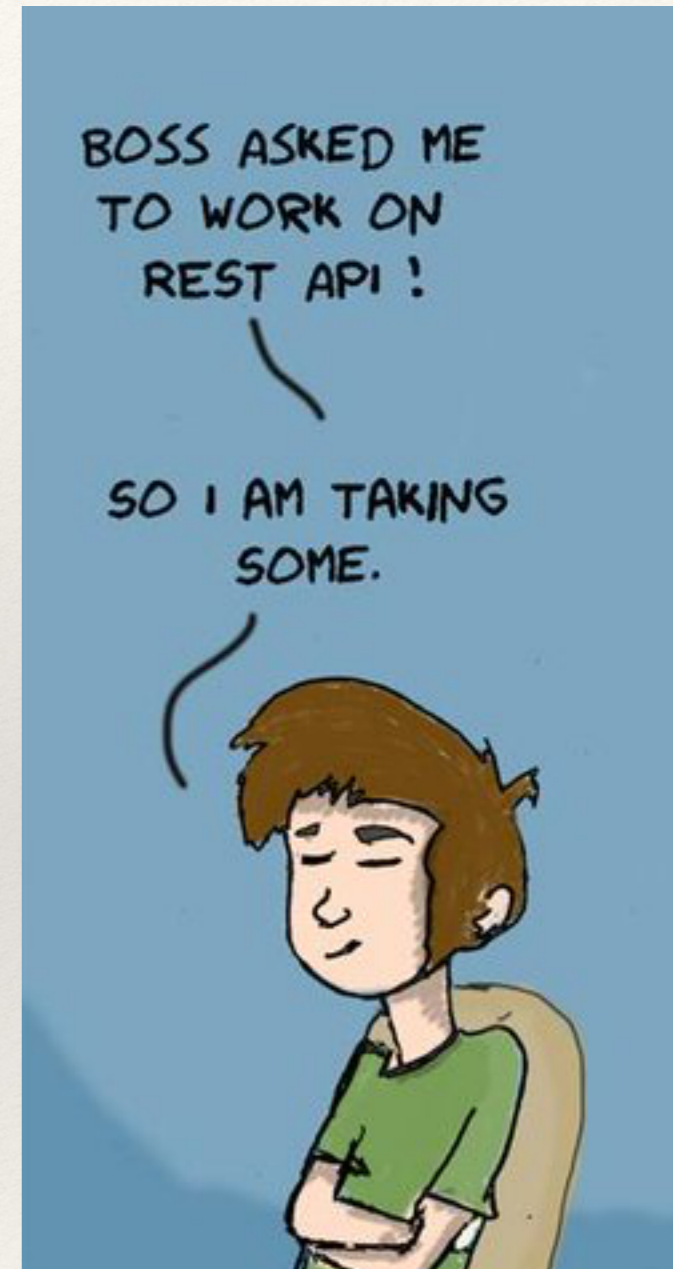
xkcd.com/1671/

I hate reading other people's code.

Recap - A3



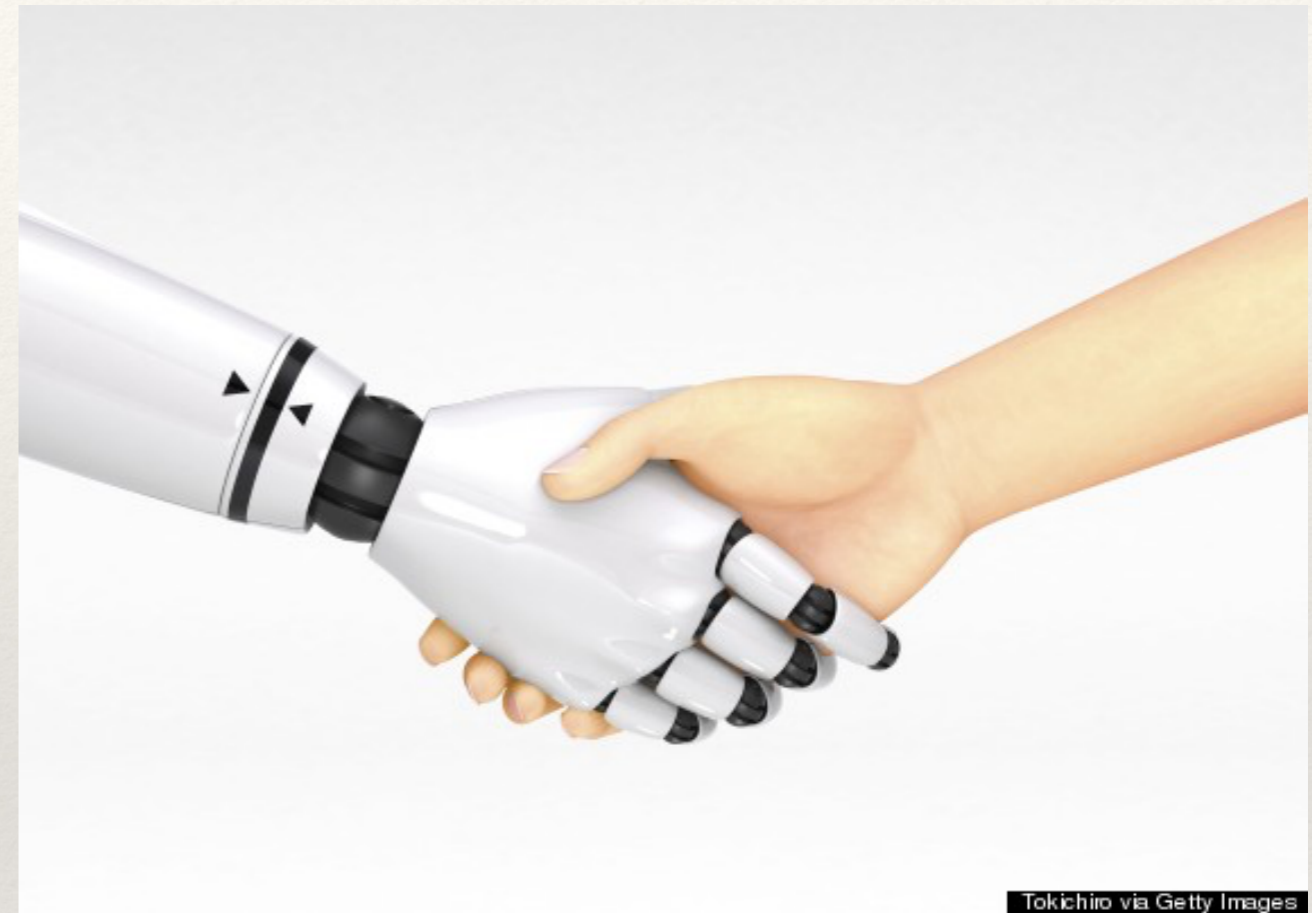
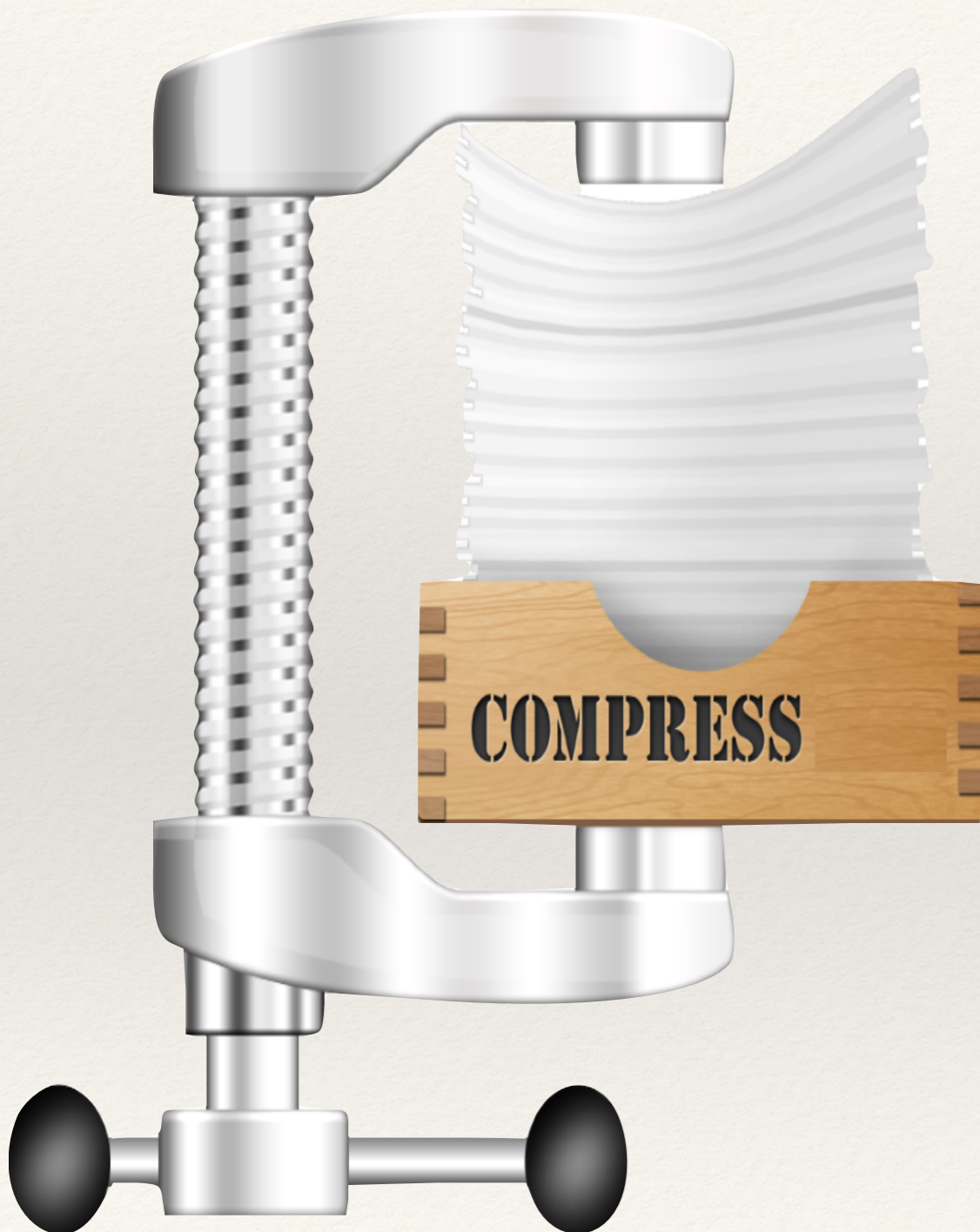
Recap - A4



icanbeacoder.com/satires/24

adapted from XKCD 1171

Recap - A5



Tokichiro via Getty Images

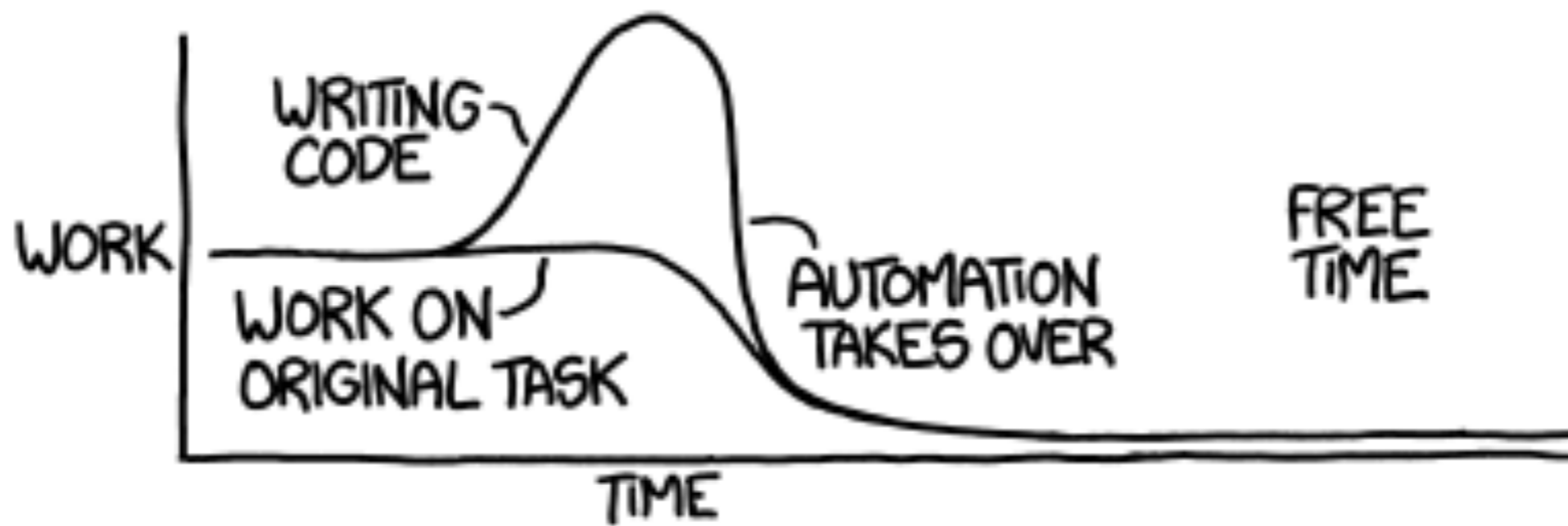
~~There isn't one right answer.~~

There are hundreds of right answers.

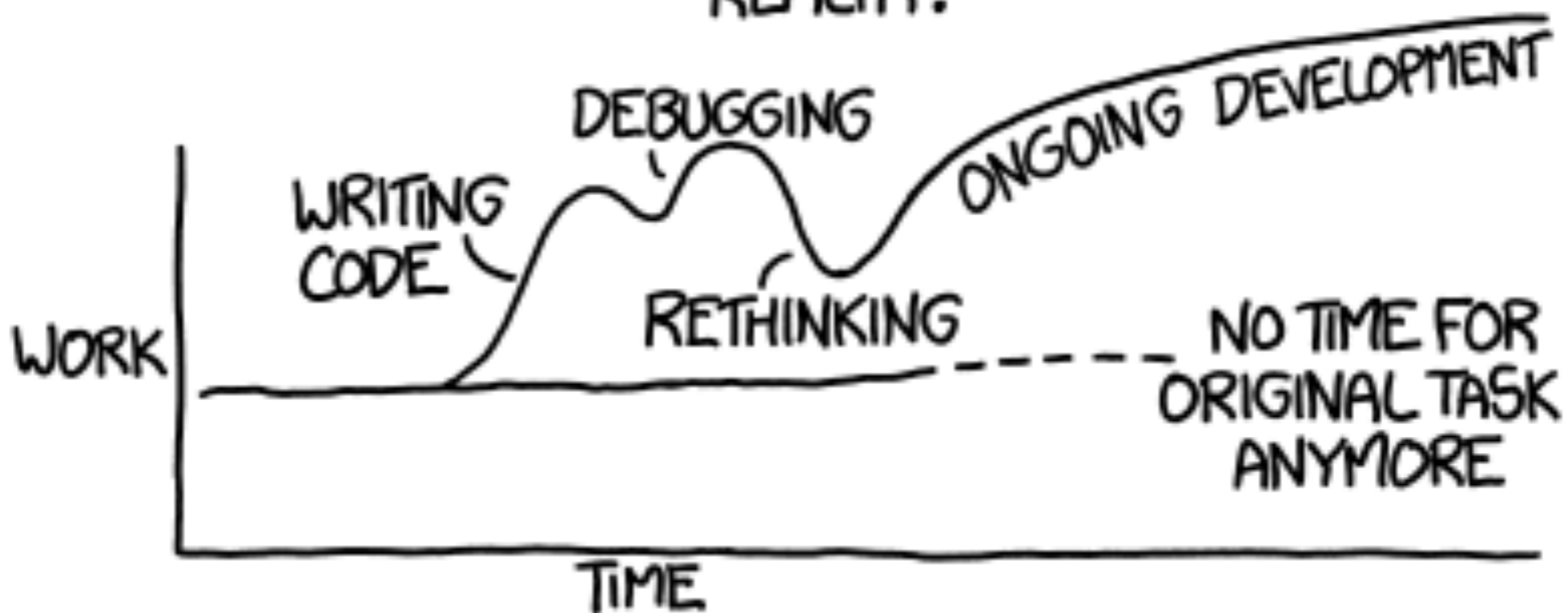
And of course, the project ...

"I SPEND A LOT OF TIME ON THIS TASK.
I SHOULD WRITE A PROGRAM AUTOMATING IT!"

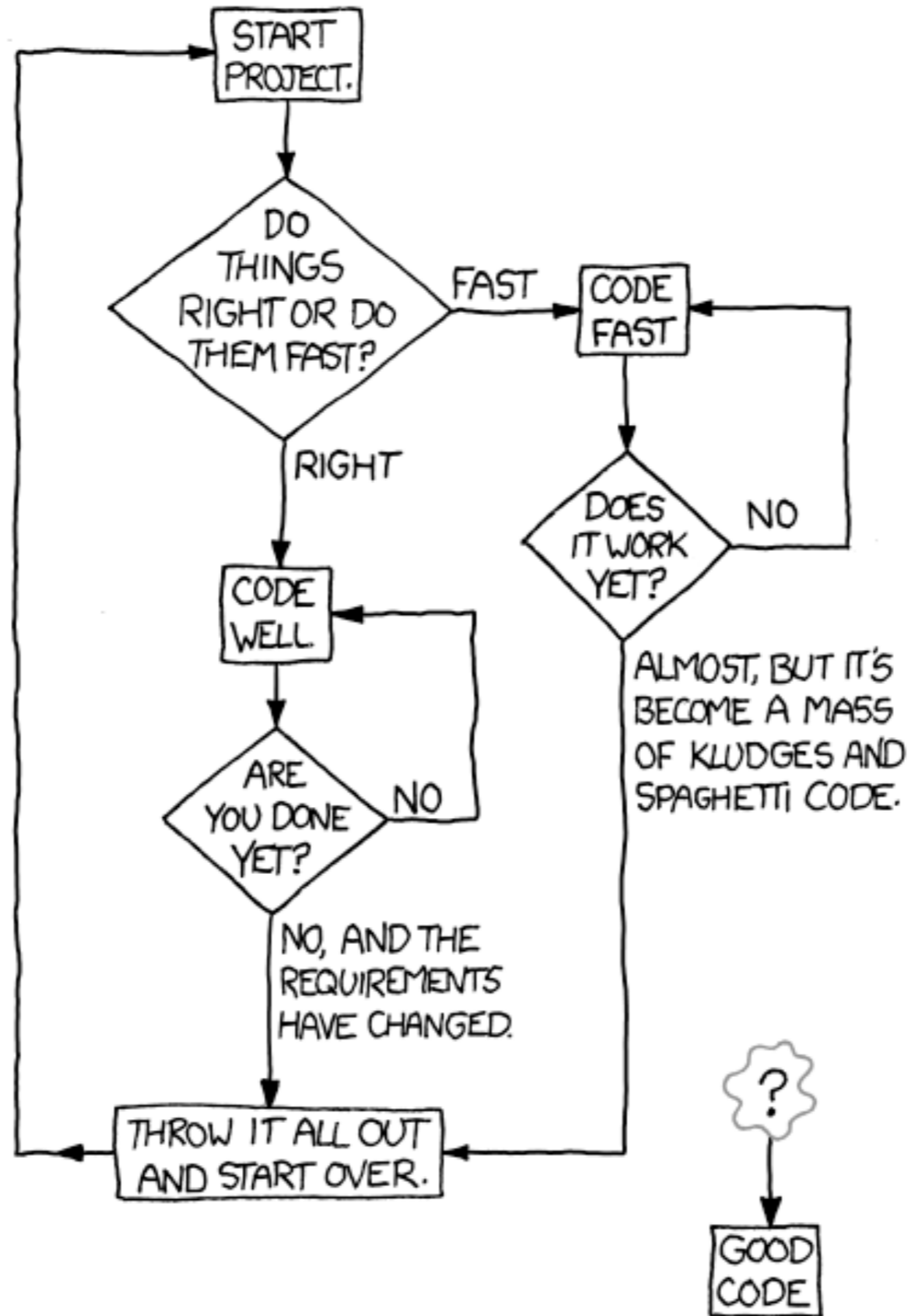
THEORY:



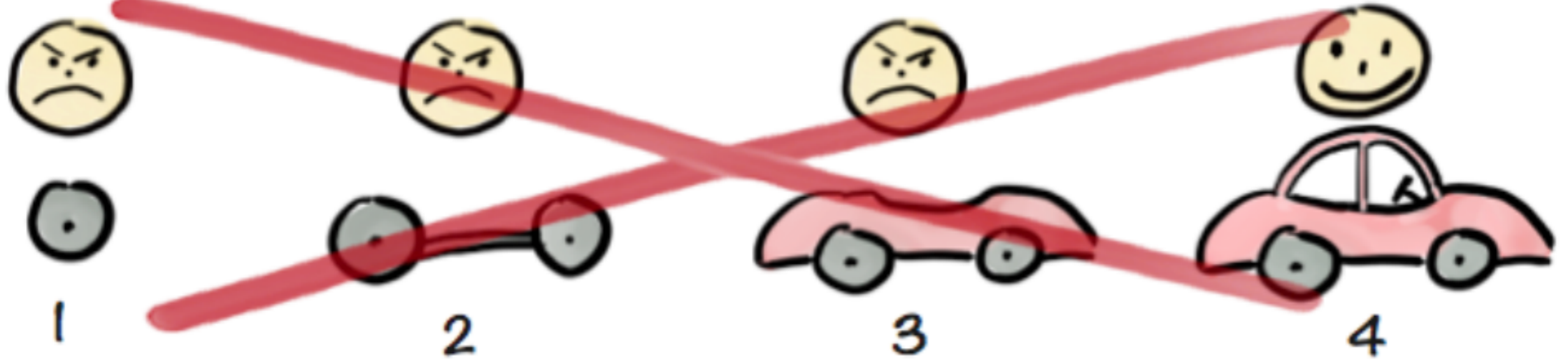
REALITY:



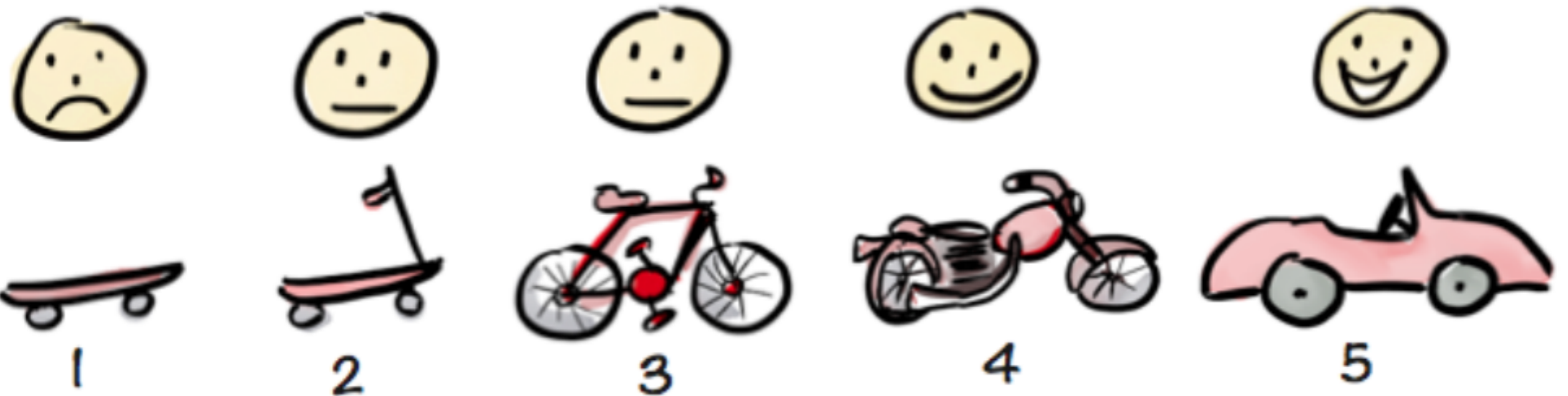
HOW TO WRITE GOOD CODE:



Not like this....



Like this!



The internet will make those bad words go away



Essential

Googling the Error Message

O RLY?

The Practical Developer
@ThePracticalDev

NEVER HAVE I FELT SO
CLOSE TO ANOTHER SOUL
AND YET SO HELPLESSLY ALONE
AS WHEN I GOOGLE AN ERROR
AND THERE'S ONE RESULT
A THREAD BY SOMEONE
WITH THE SAME PROBLEM
AND NO ANSWER
LAST POSTED TO IN 2003

WHO WERE YOU,
DENVERCODER9?

WHAT DID YOU SEE?!



	COMMENT	DATE
○	CREATED MAIN LOOP & TIMING CONTROL	14 HOURS AGO
○	ENABLED CONFIG FILE PARSING	9 HOURS AGO
○	MISC BUGFIXES	5 HOURS AGO
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○	MORE CODE	4 HOURS AGO
○	HERE HAVE CODE	4 HOURS AGO
○	AAAAAAAAAA	3 HOURS AGO
○	ADKFJSLKDFJSDKLFJ	3 HOURS AGO
○	MY HANDS ARE TYPING WORDS	2 HOURS AGO
○	HAAAAAAAAAANDS	2 HOURS AGO

AS A PROJECT DRAGS ON, MY GIT COMMIT MESSAGES GET LESS AND LESS INFORMATIVE.

So what's next?



*Everything is
Software Now*

Snapshot of Today's Global Developer

Today's developers can be portrayed by these core traits:

70%

Employed

Work in enterprises, 45%
in orgs >100 employees

68%

Experienced

Have 5 or more years
of experience

57%

Anxious to stay current

Challenged to keep up
with dev technology

71%

Balanced

Work equally (71% of
developers) on business
& consumer apps

74%

Team player

Work in teams, 85% in
teams <15 devs



75%

Open source

Use open source software

66%

Energized

Excited about wearables
(44%) and/or robotics (38%)

83%

Self-reliant

Use search engines and
independent forums to get help

88%

Polyglot

Multilingual
(programming languages)

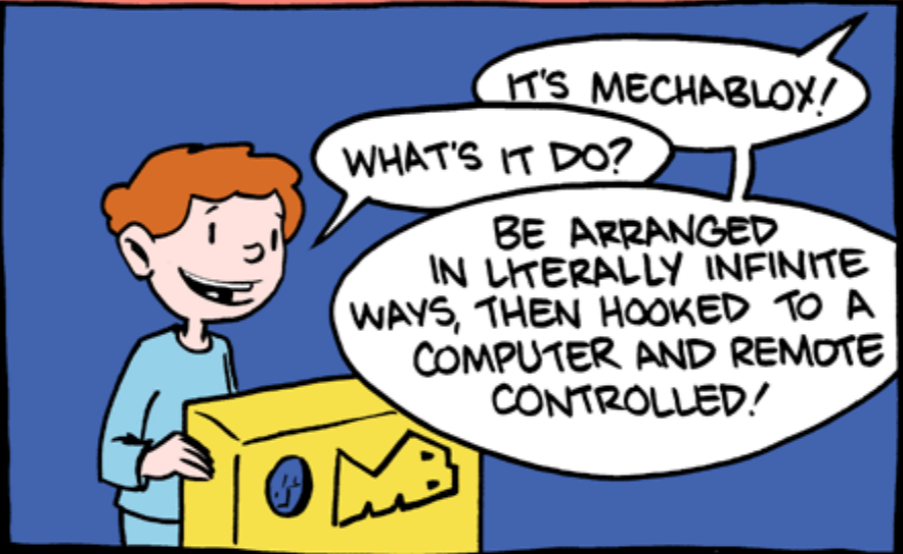
If I can code,
you can too!
Join me & learn!

Code is a language for
everyone in Asia Pacific.



#WeSpeakCode #YouthSpark

BOY TOYS

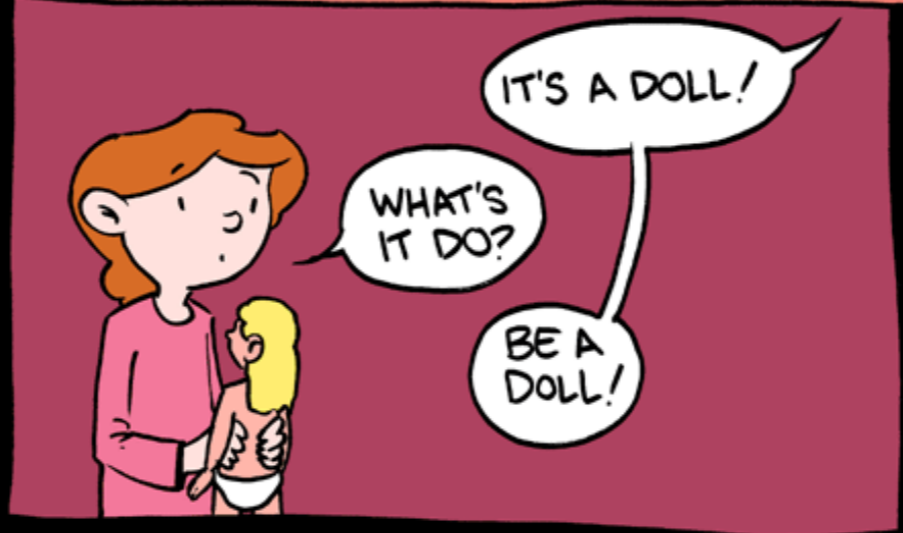


WHAT'S IT DO?

IT'S MECHABLOX!

BE ARRANGED IN LITERALLY INFINITE WAYS, THEN HOOKED TO A COMPUTER AND REMOTE CONTROLLED!

GIRL TOYS

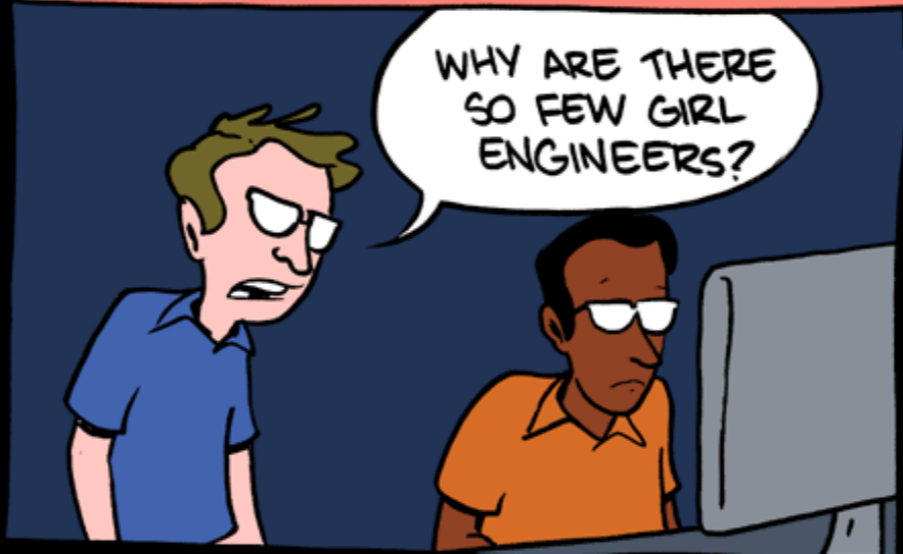


WHAT'S IT DO?

IT'S A DOLL!

BE A DOLL!

SUBSEQUENTLY...



WHY ARE THERE SO FEW GIRL ENGINEERS?

[ABOUT](#)[SUMMER IMMERSION PROGRAM](#)[CLUBS](#)[NEWS](#)[GET INVOLVED](#)[DONATE](#)

"I'm capable of doing things I never thought I could do. I'm motivated to start my own company. I want to make a difference in my community." — Diana, 16

NOW RECRUITING *for* SUMMER 2015!

[LEARN MORE](#)

CODING

**IT MAY BE THE CLOSEST THING
WE HAVE TO A SUPERPOWER**

“If you can imagine it, you can code it.”

–Gregory Beutler

“There is a shortage of skills, but the nature of what's a software job has also broadened. We used to see a bunch of jobs for people who were software people, and the skills were closely correlated to that. Now, there are a lot of jobs that aren't software jobs, but require software skills. The demand for this skill set has extended significantly, and that's what has put pressure on this market.”

–Matt Sigelman, CEO Burning Glass Technologies

“That's a few parts product marketing, with a few parts design and with a few parts of software, yet there is that software element to it," he said. "These are hybrid jobs that really fall out of the scope of the traditional software role, but for which there is increasing demand.”

–Matt Sigelman, CEO Burning Glass Technologies

You have incredible opportunities!

