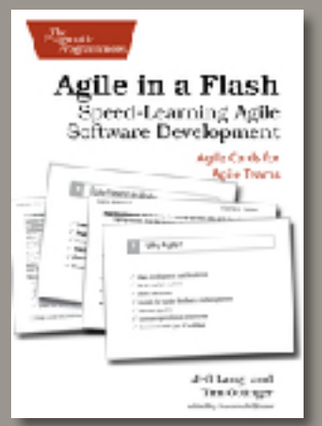
Mob Programming

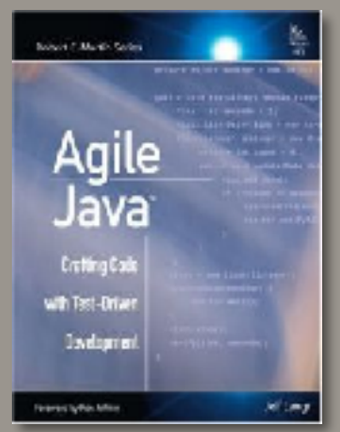
A Mob Programming Workshop

jeff@langrsoft.com
@JLangr

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com





Logistics

- Start / end times
- Mid-morning/afternoon breaks
- Disconnect protocol
  - Are you down? Text Jeff at +1-719-287-4335
  - Is Jeff down? Jeff will text xxx-xxx-xxxx
- Unable to build?
- Law of Two Feet

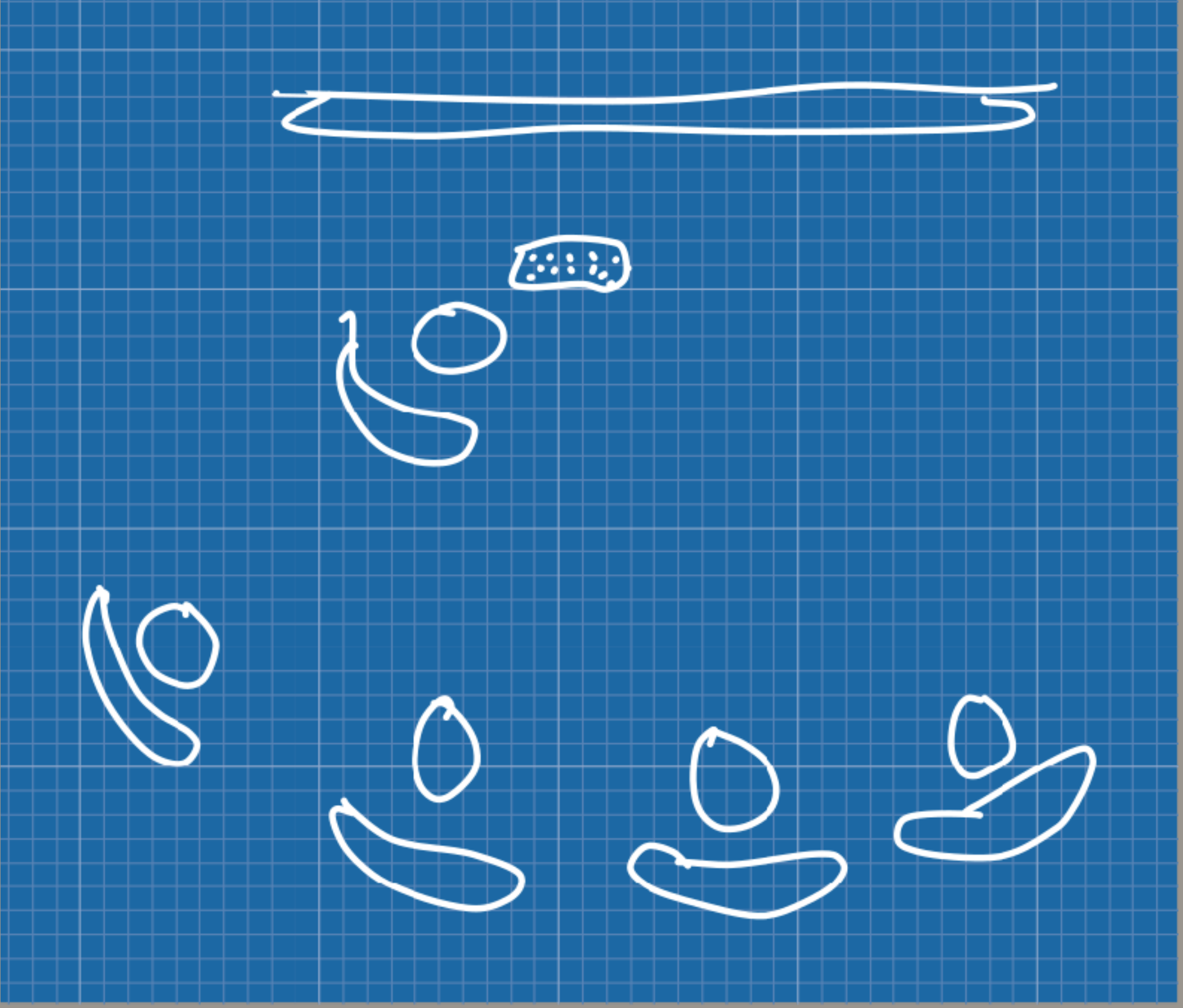
The Mob Keeps Going

Workshop Overview

- Mob programming roles / intros
- Collaboration and software development / git handover
- Two core rules
- TDD
- Pomodoros
- Maintaining / sustaining mob programming
  - Safety
- BDD
- Why mob programming works
- Face to face again?
- [Mob composing exercise]
- Wrapping up

Kahoot!

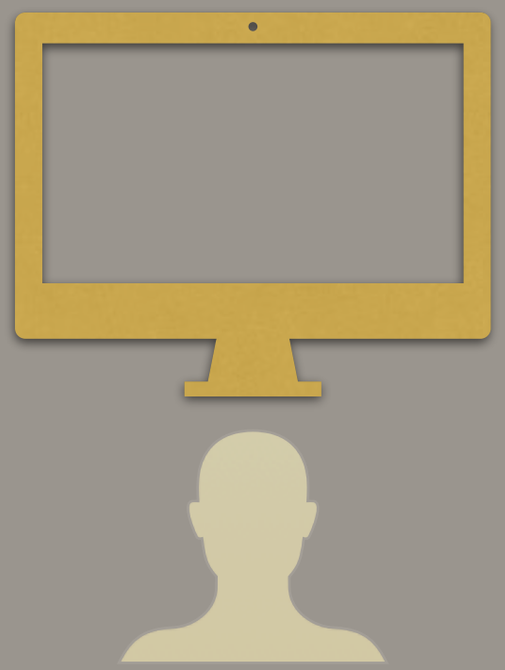
@JLangr



mob programming (IRL)

@JLangr

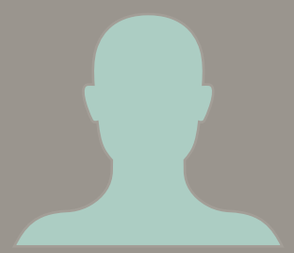
Roles



driver

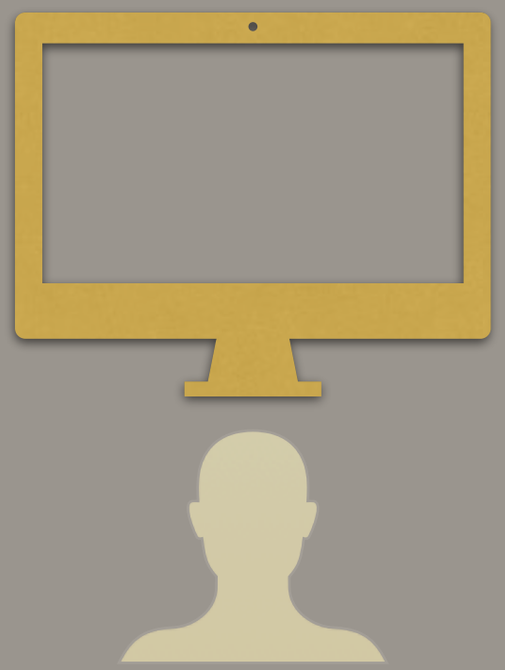
navigator

navigator



navigator

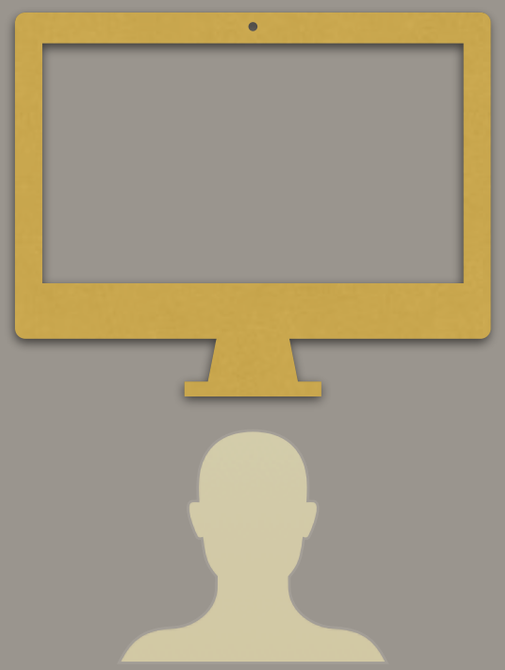
Dedicated navigator



driver

navigator

Typing - Talking



“I’m typing”

“I’m talking”

“I’m on deck”

thanks to Llewellyn Falco for this idea!

Intros

- Create a file at the root of your repo (use team name!)
- For each person, capture:
  - Name
  - Primary role
  - Interesting factoid
- From the group, capture:
  - Top three (and only 3!) concerns about mobbing

Remember:

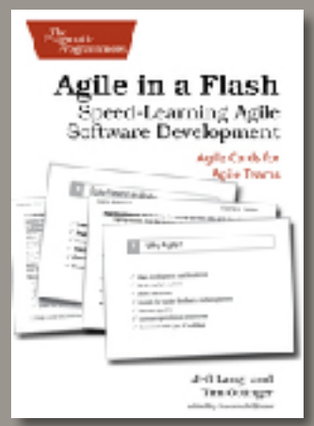
* "I'm typing"
* "I'm talking"
* "I'm on deck"

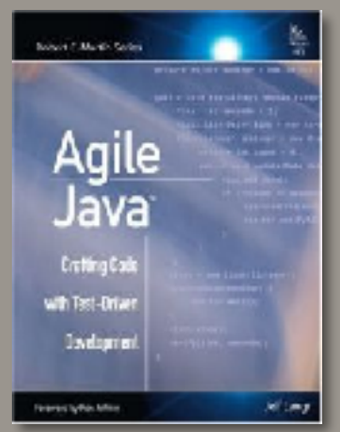
Commit & push up to switch drivers

Collaborative development

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com





We are uncovering **better ways of developing software**

by blah blah blah.

Blah blah, we have come to value:

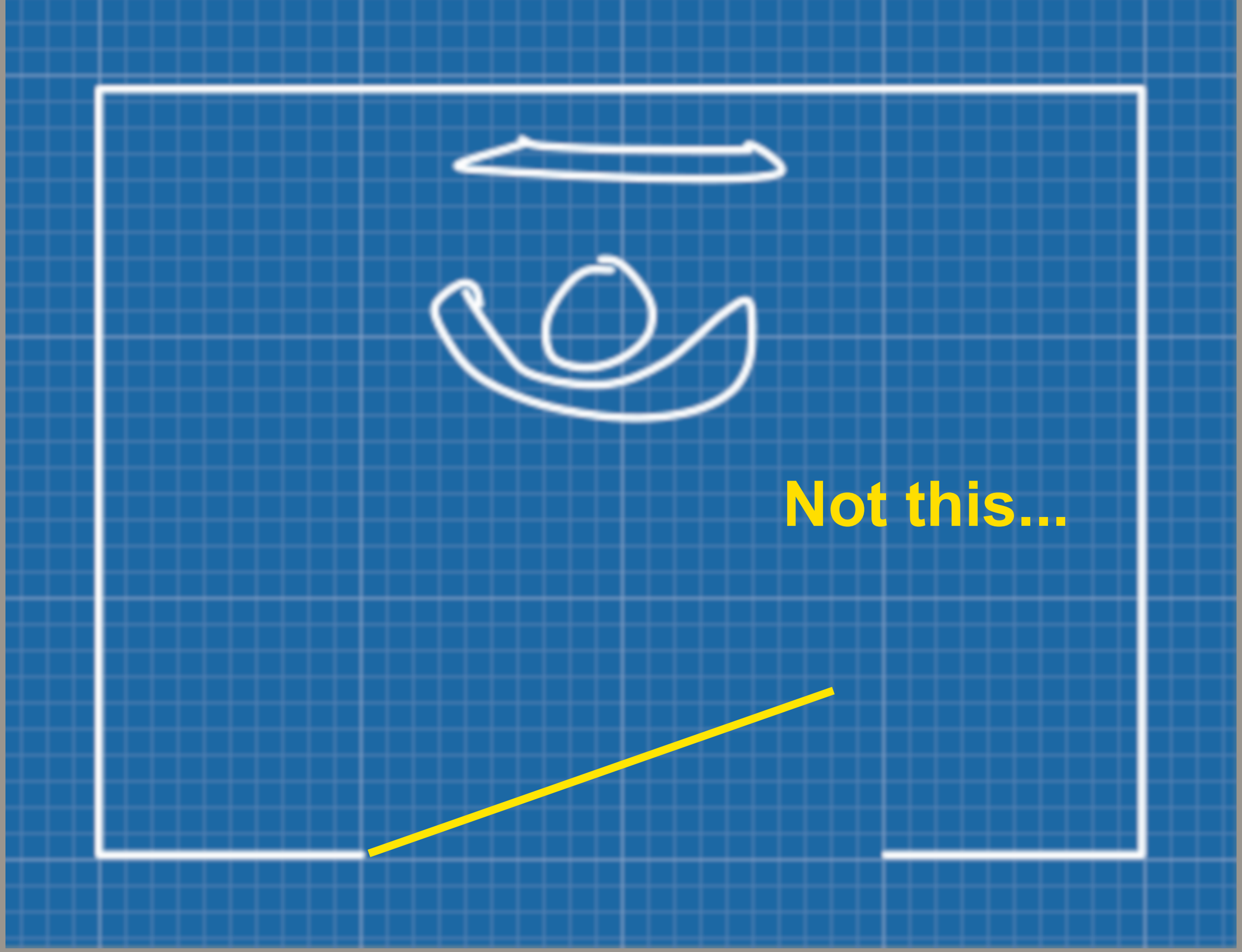
Individuals and interactions

over

processes and tools

The **most efficient and effective** method of conveying information to & within a development team:

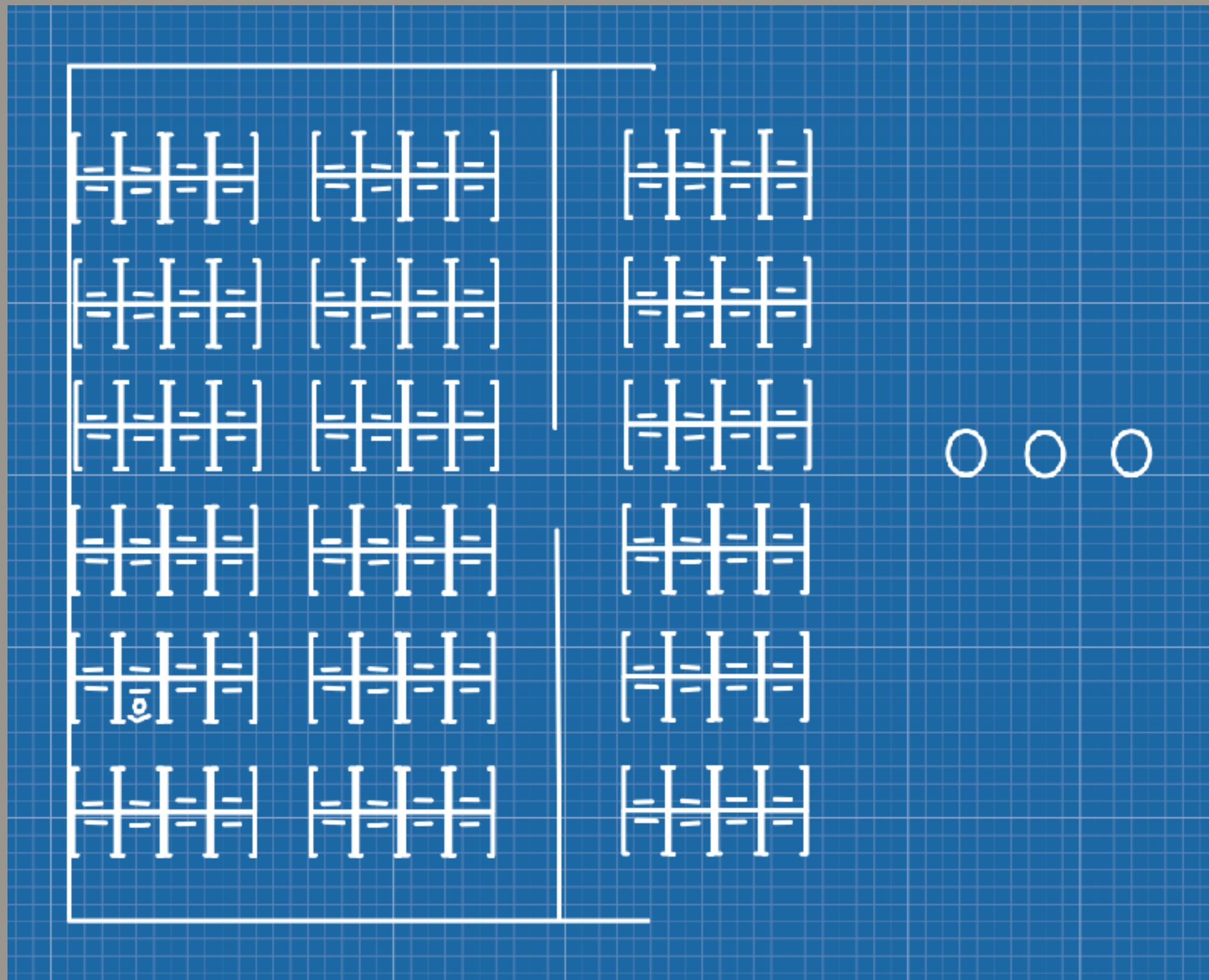
Face-to-face conversation



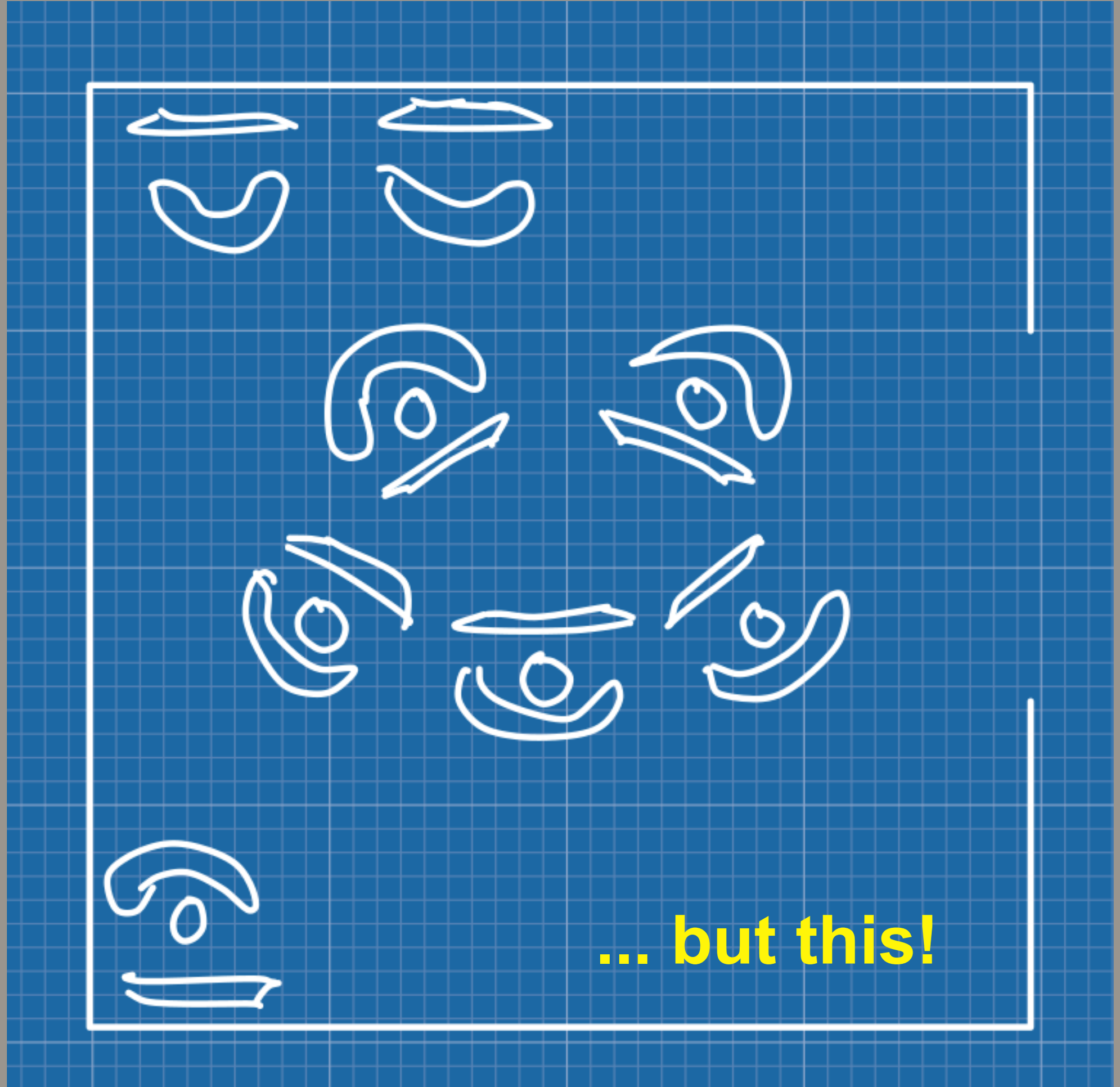
@JLangr

...or this...

“Cube Farm”



@JLangr



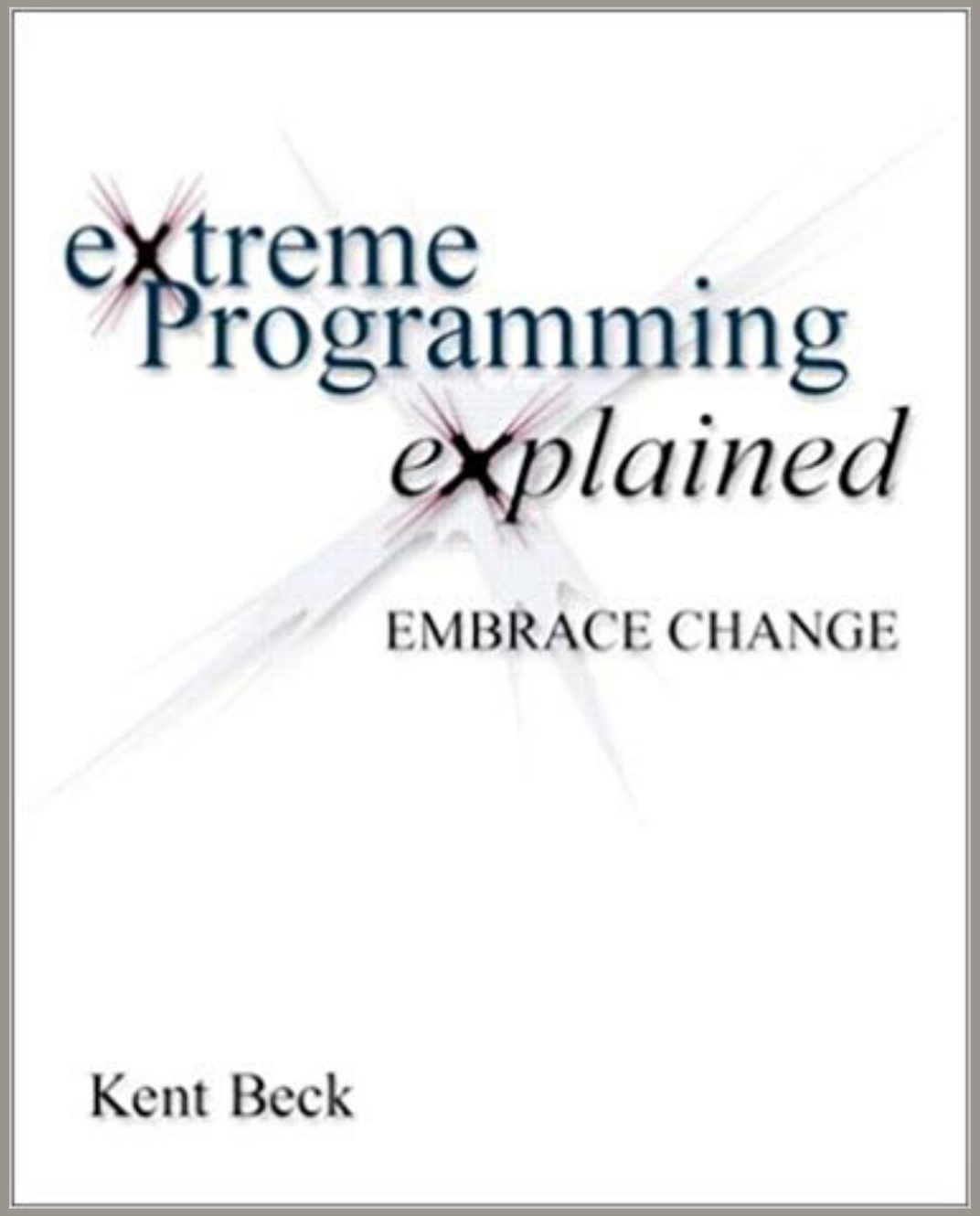
@JLangr

... or this.

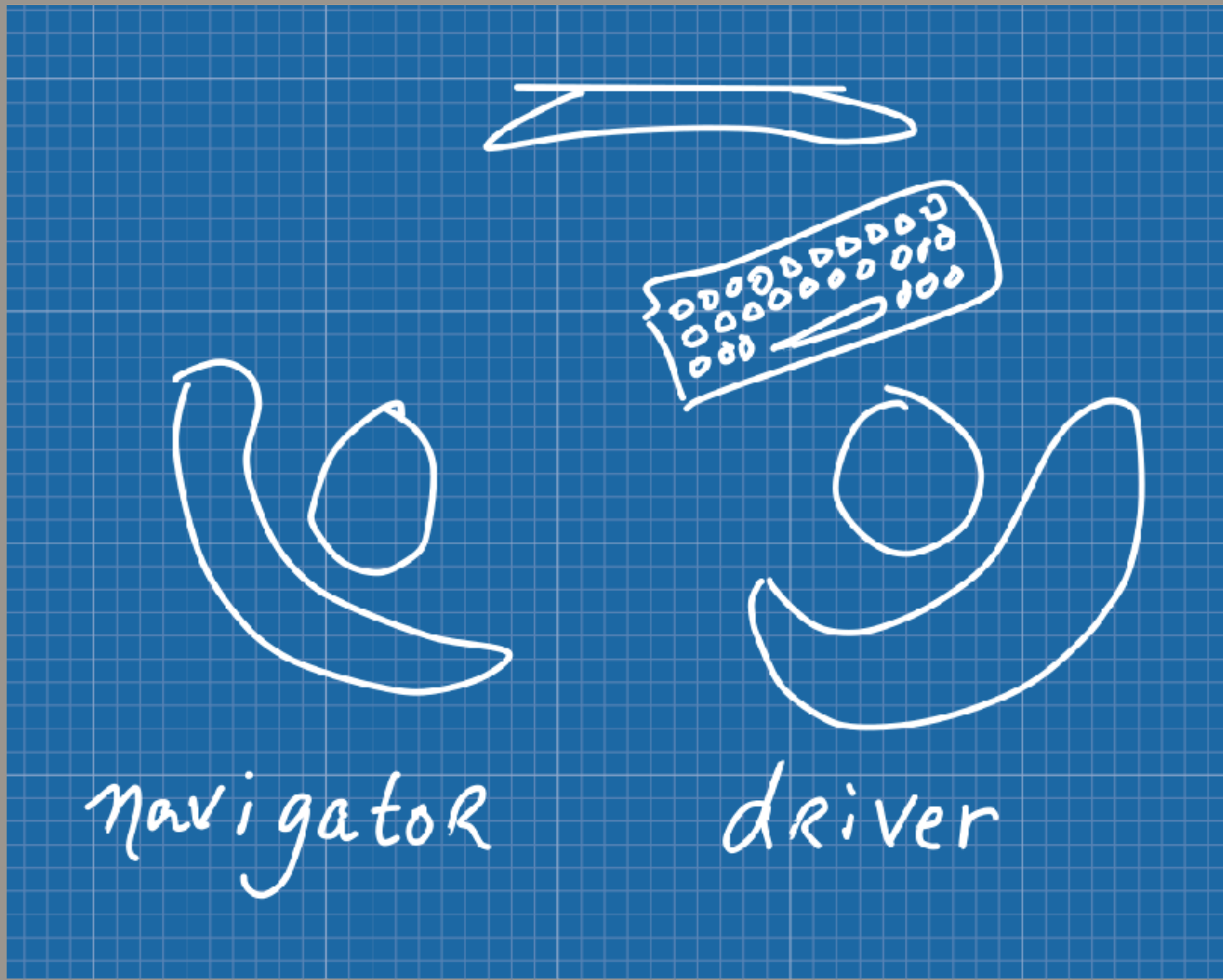
@JLangr

Transforming idea

1999



Pair programming



@JLangr

We are here.

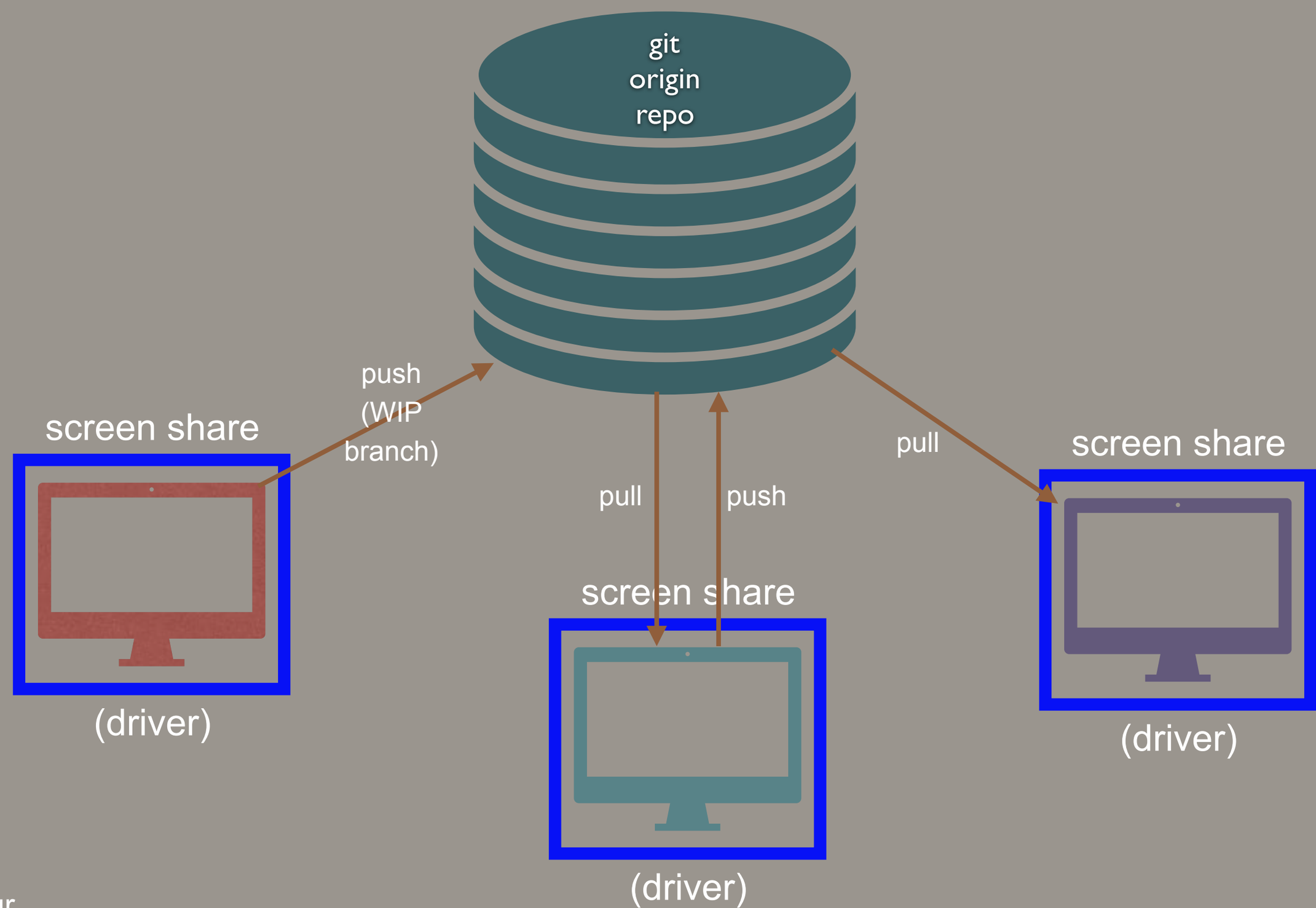
How do we make remote pair programming more efficient / effective?

@JLangr

Remote Techniques

- “Share ’n’ snooze”
- Screen share + remote control
- Terminal multiplexers
- File sync/IDE sync solutions
- Cloud-based IDEs
- Git handover

Git handover



@JLangr

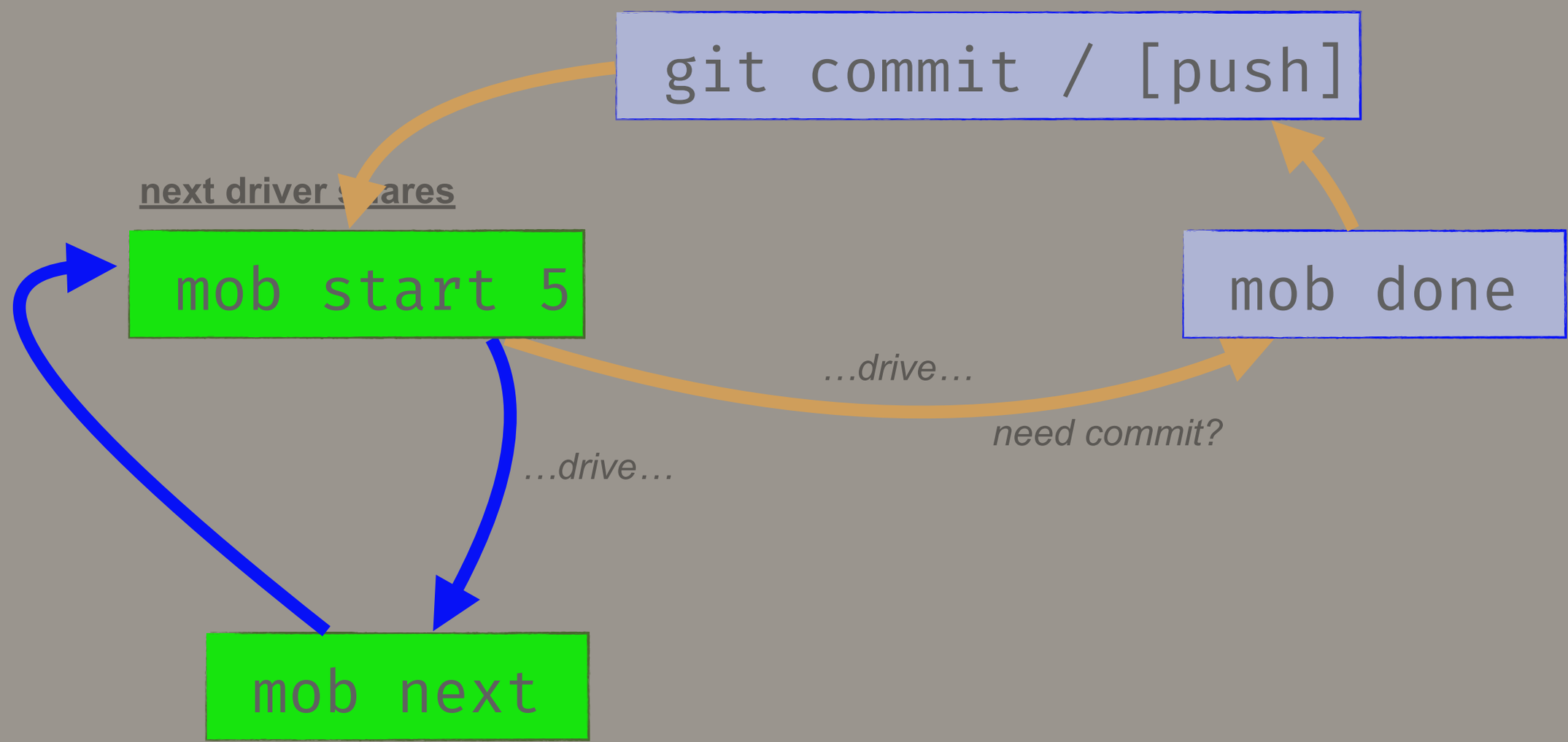
Git handover

The simplest, cheapest thing that could possibly work.

“If you like your IDE, you can keep your IDE.”

@JLangr

mob



how about a demo?

@JLangr

On Your Turn

1. Share screen
2. `git status`
3. `mob start 5`
4. listen; translate
5. `mob next`

@JLangr

Oops: Flow

Forgot to do a **`mob start`**?

```
mob start --include-uncommitted-changes

(mob start -i)
```

mob Tips

- Let mob do the git commands for you
  - `git status` when unsure
- Learn what the tool does for you
- Frequently commit via **`mob done`**
- End the day with a commit

mob

“We’re confused!”

Determine whose changes you need

Check the git stash

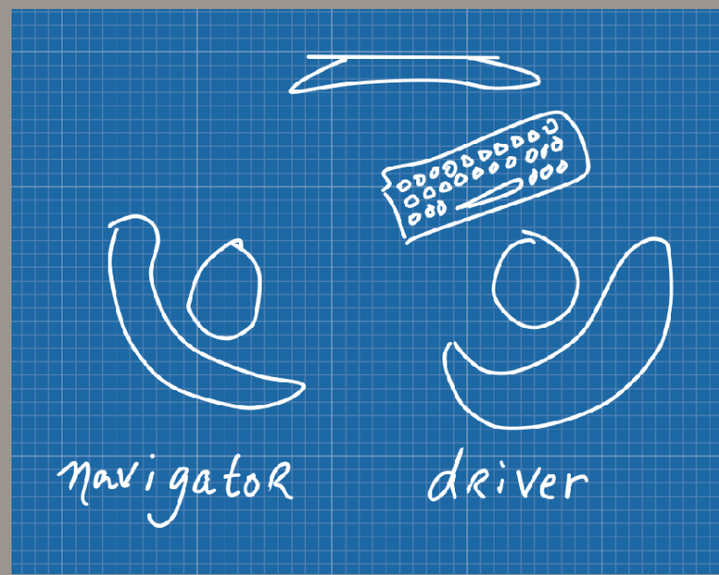
Check the reflog

Warning: Your undo chain won’t transfer!

Why pair? (breakout)

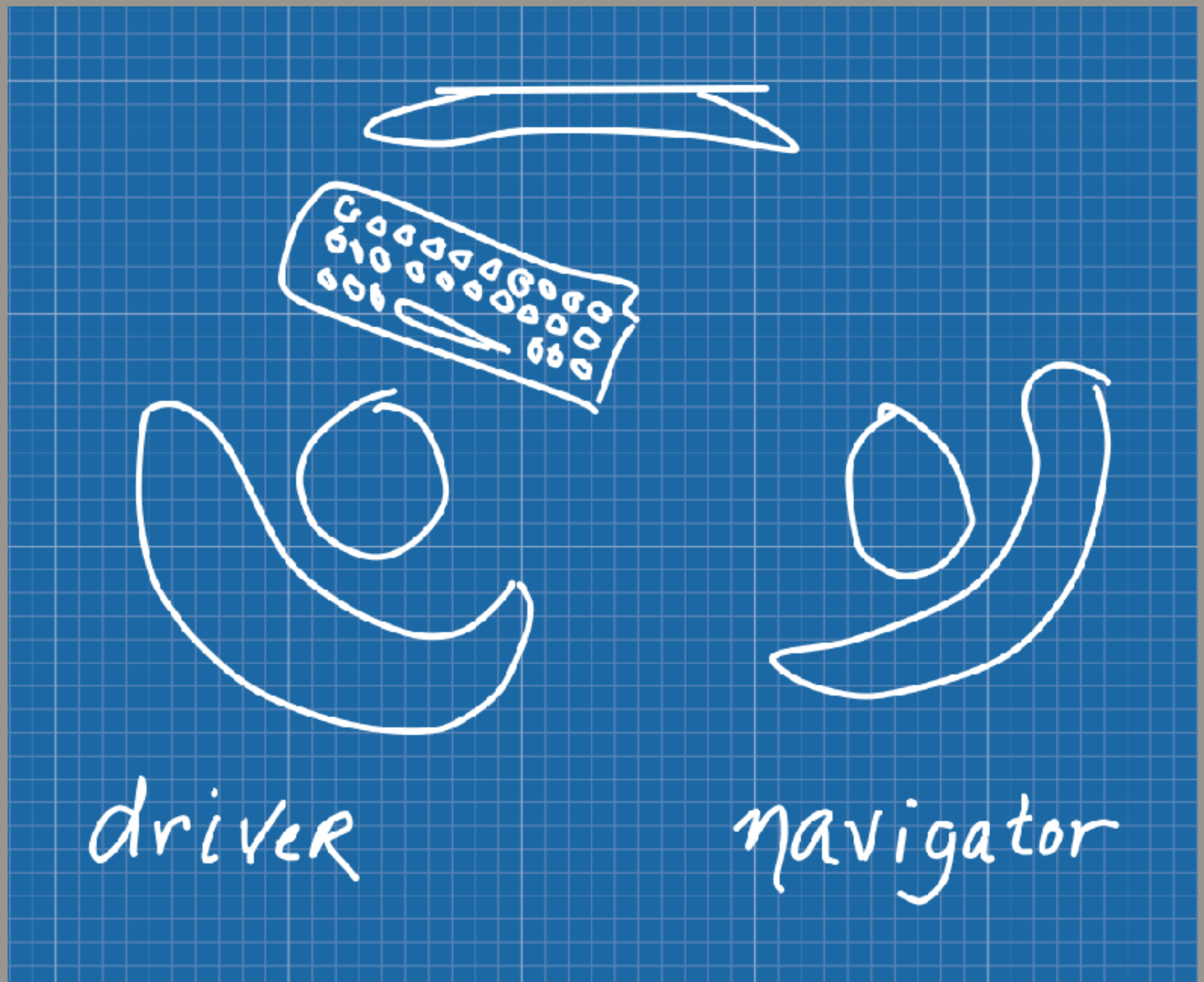
Remember:

* “I’m typing”
* “I’m talking”
* “I’m on deck”

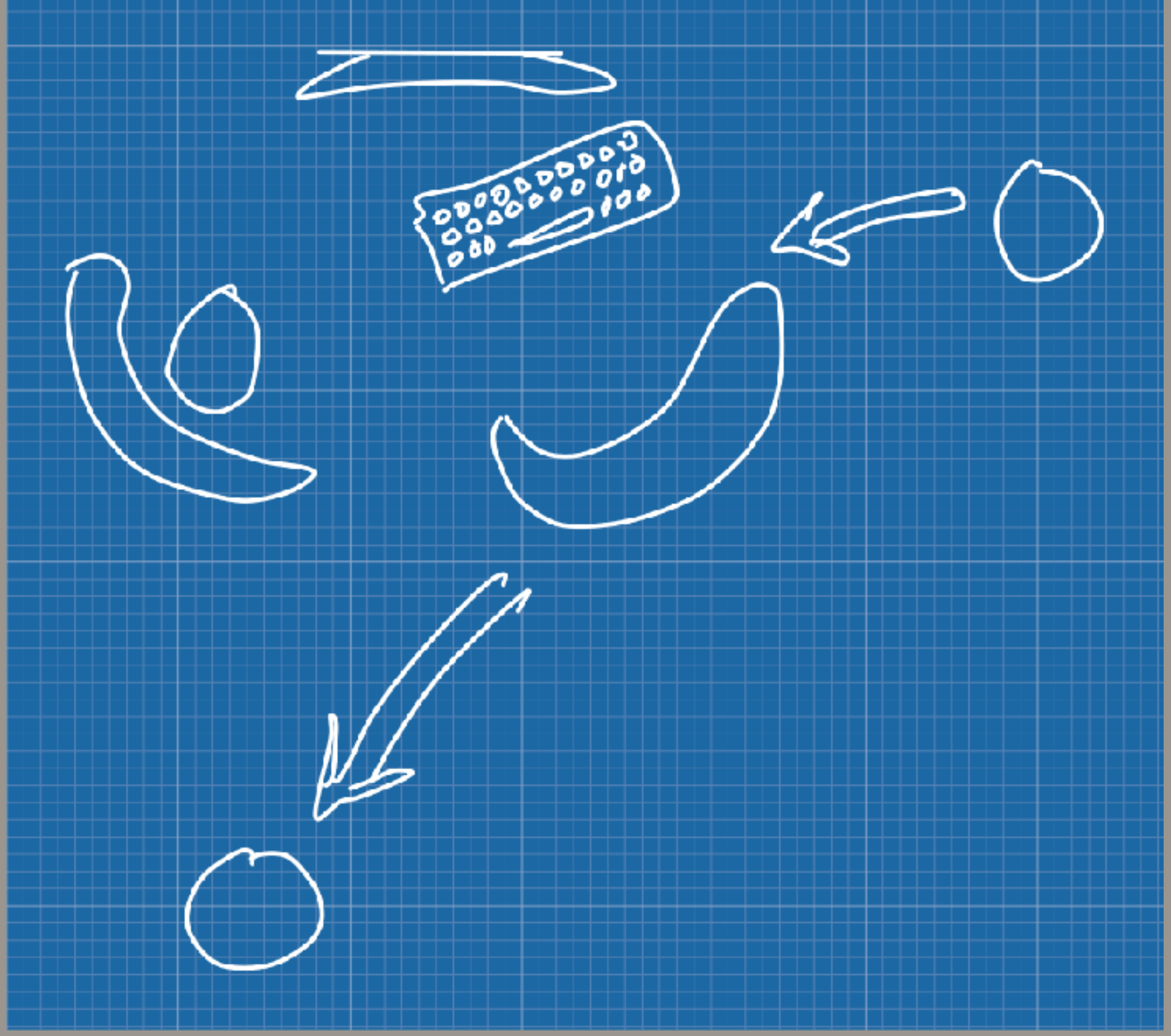


@JLangr

Switching roles



@JLangr

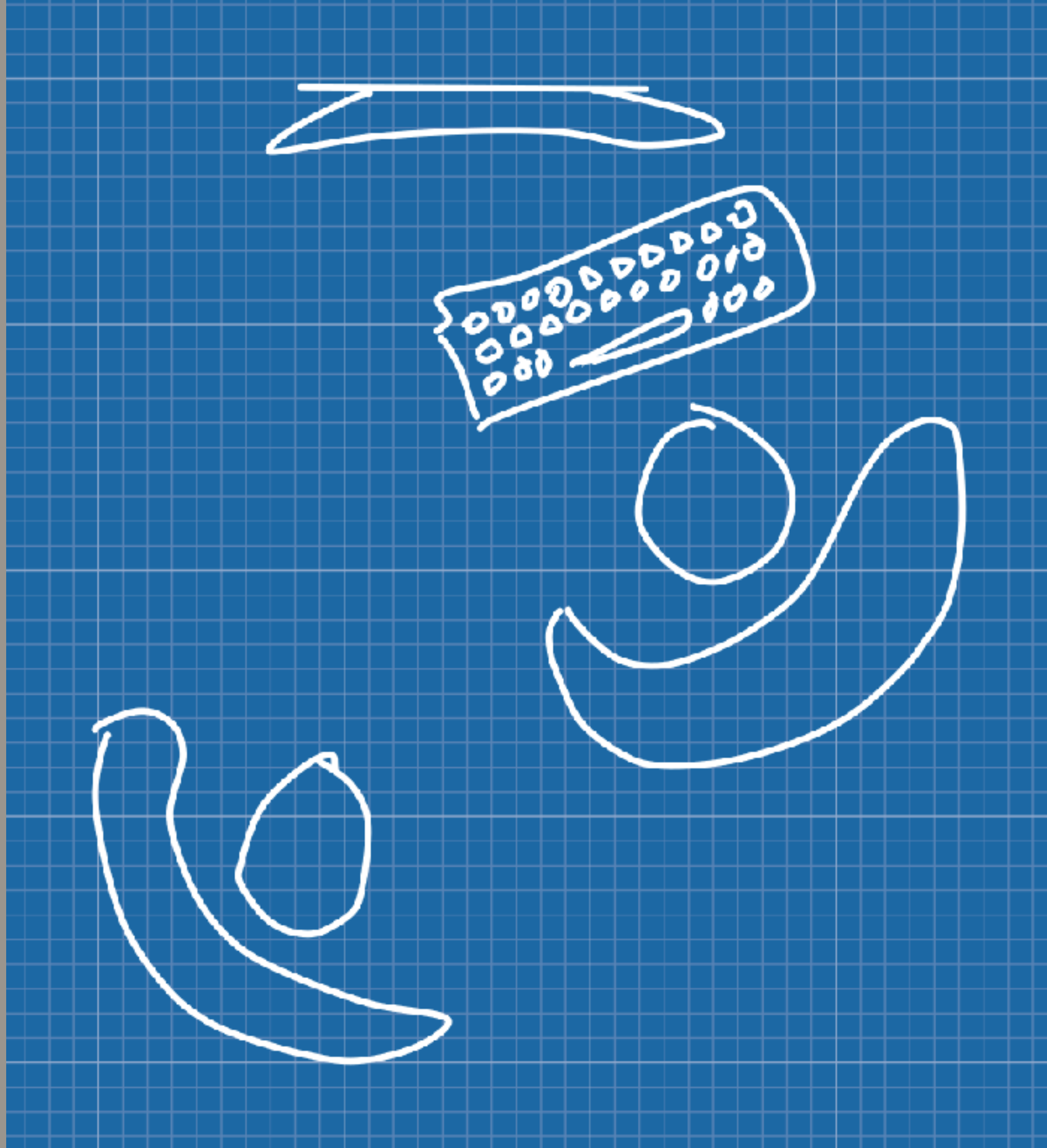


Pair swapping

@JLangr

Not

pairing!



@JLangr

"But it takes twice as long.... But it costs twice as much!"

What of:

- Debugging sessions?
- More defects?
- Poorer design?
- Inscrutable code?
- "Mull time?"
- Loss of key knowledge?
- Under-performing devs?
- Ramping up?

Pairing: Overhead costs

- Scheduling / coordination
- Context-switching overhead
- After-the-fact review & rework
- Merge hell
- Managing interpersonal challenges
- Ongoing dissonance

Pairing: Interpersonal challenges

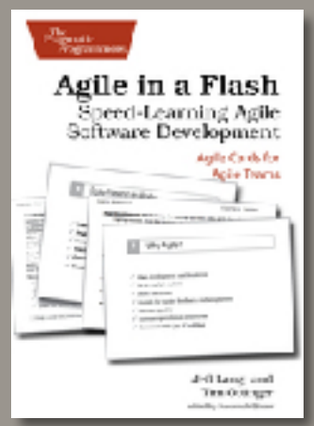
- Fear
- Novice-novice
- Individual alignment
- Domination and other dysfunctions
- Physical accommodations
- Accessibility needs
- Time zones
- Preferred environments
- Hygiene
- COVID-19, Ebola, H1N1, leprosy, cooties, …

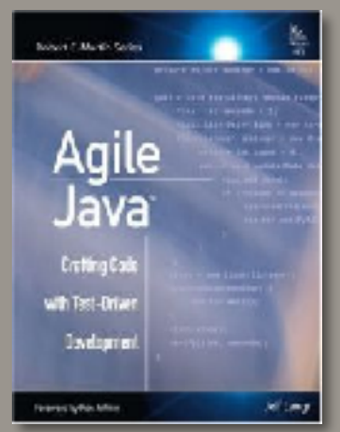
@JLangr

Mob programming

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com





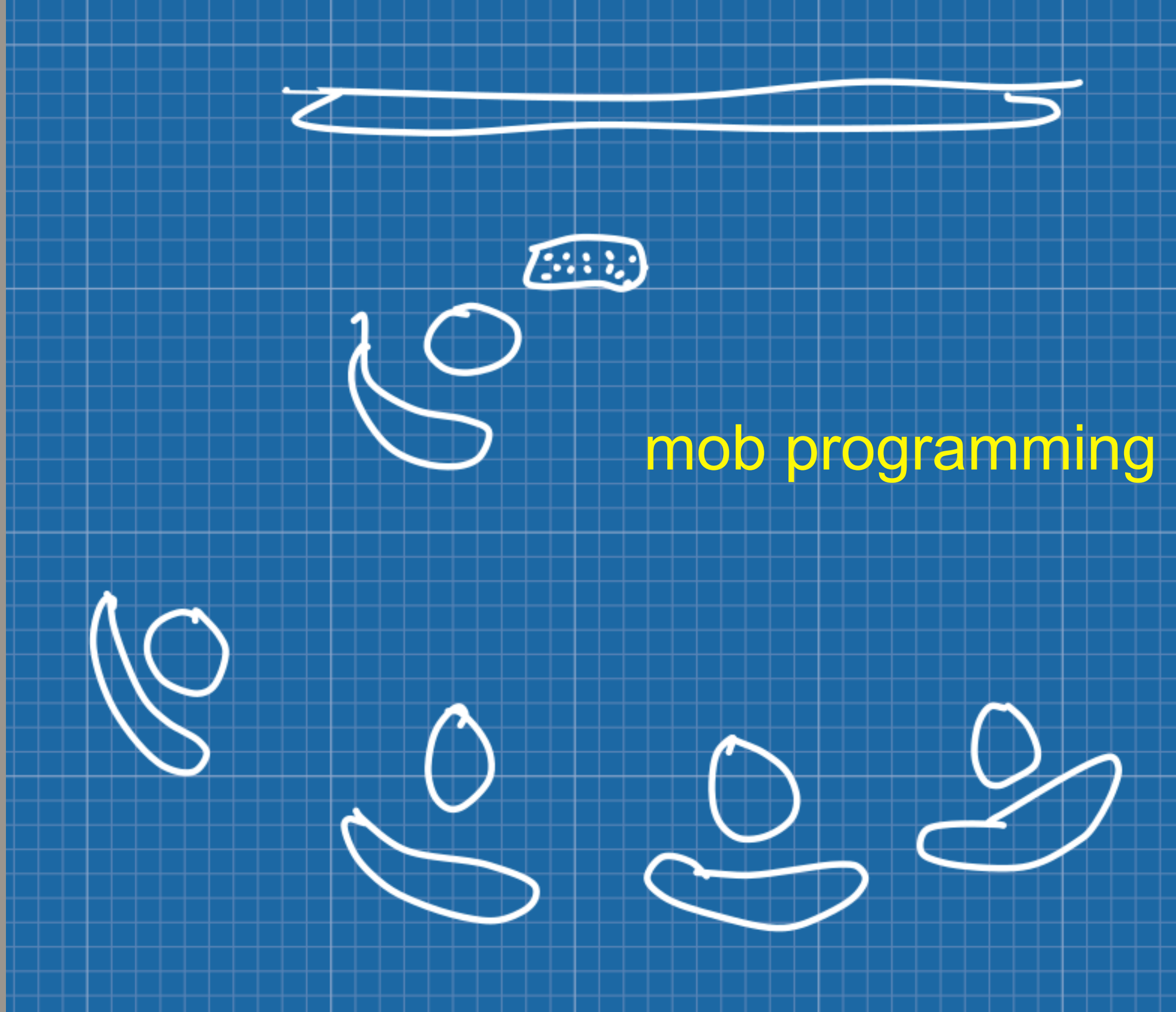
Mob programming

"All the brilliant people working on the same thing,
at the same time,
in the same place,
and on the same computer."

Photo courtesy Agile Ailliance.

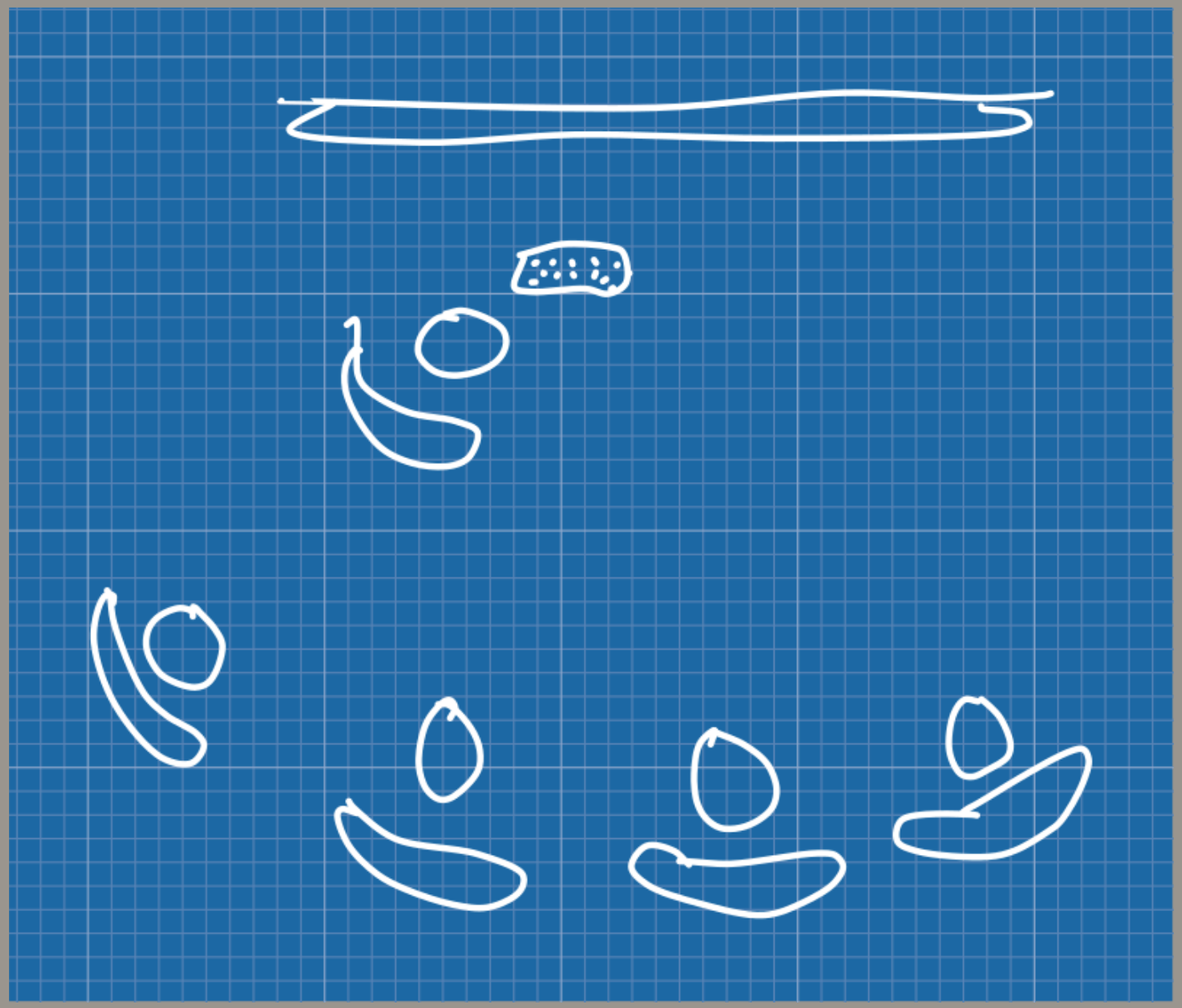
-- Woody Zuill

http://mobprogramming.org



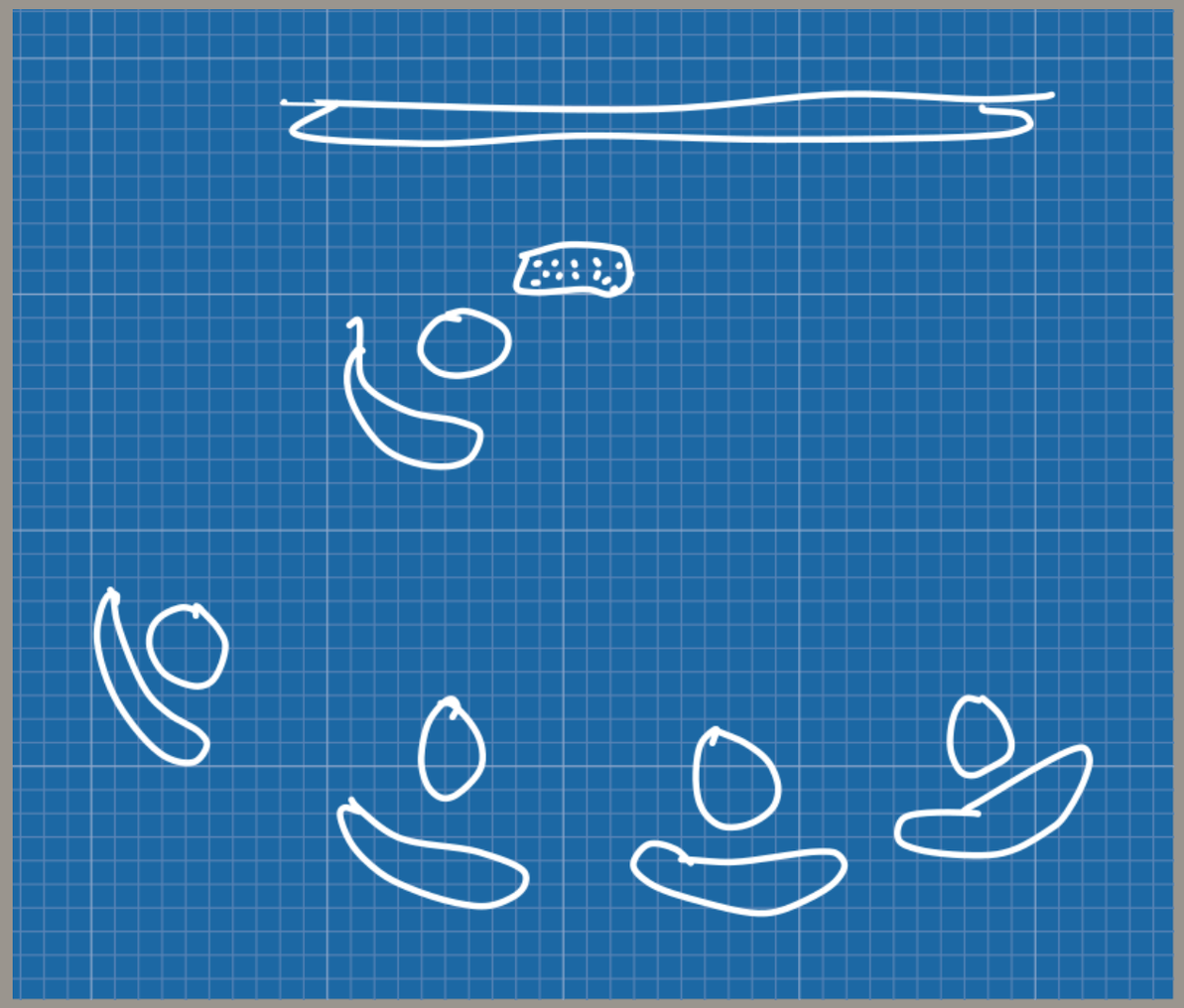
@JLangr

“We had a good time today.”



@JLangr

"We go faster."



Why? (Mural board)

“Ensemble programming”

@JLangr

Business people and developers must work together daily throughout the project.

The best architectures, requirements, and designs emerge from self-organizing teams.

The Right Tool for the Job

Rules?

common sense

+

2 (non-obvious) rules

+

comfort / safety

+

ongoing attention

Rule #1: **Strong style navigation**

"For an idea to go from your head into the computer it **must** go through someone else's hands."

-- Llewellyn Falco

http://llewellynfalco.blogspot.com/2014/06/llewellyns-strong-style-pairing.html

Why **strong-style navigation**?

Minimize:

- Domination
- Fear

Maximize:

- Leveling up
- Engagement

Rule #2: **Rapid driver swaps**

Why **rapid driver swaps**?

Minimize:

- Domination
- Fear

Maximize:

- Engagement
- Small, focused increments

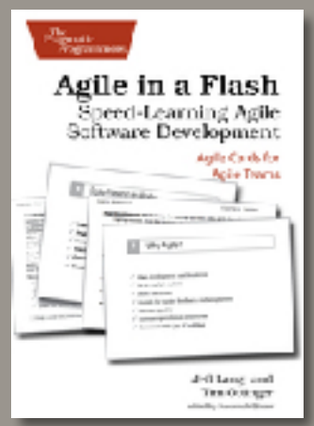
We’re all in this together

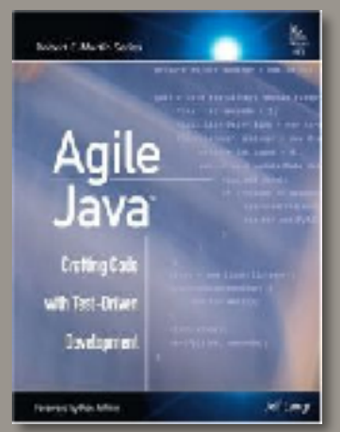
No one left behind

TDD

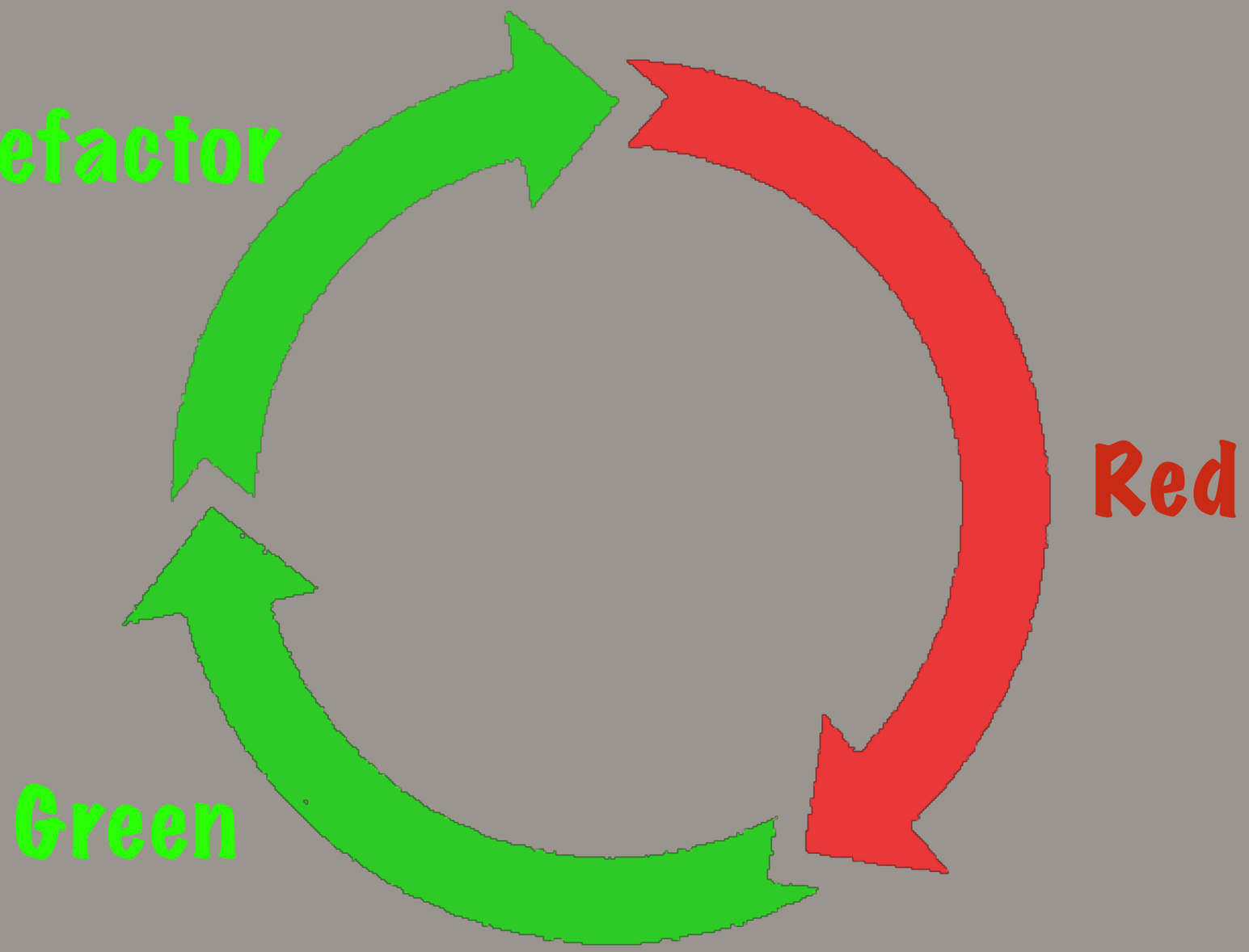
LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com





Test-Driven Development

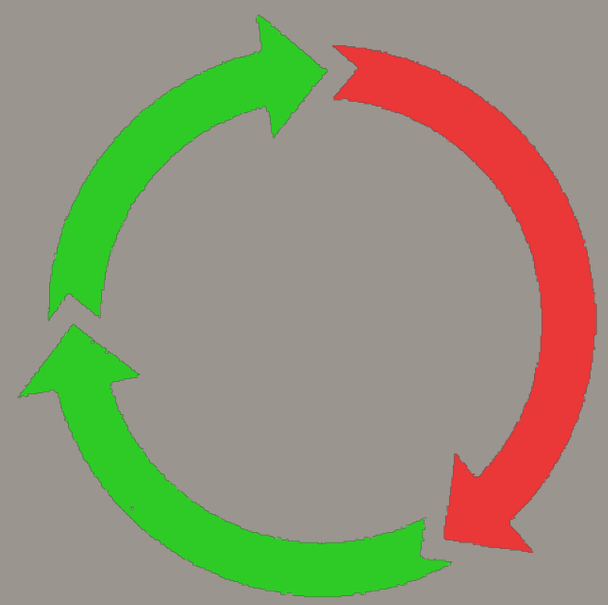


An incremental design technique

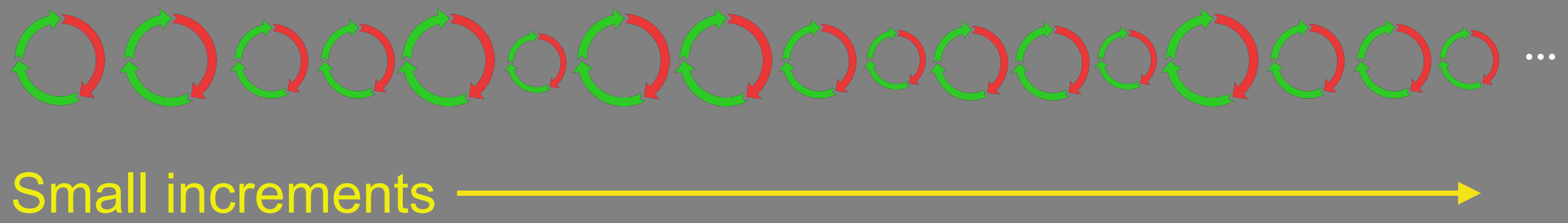
Describe the outcome (in a test).

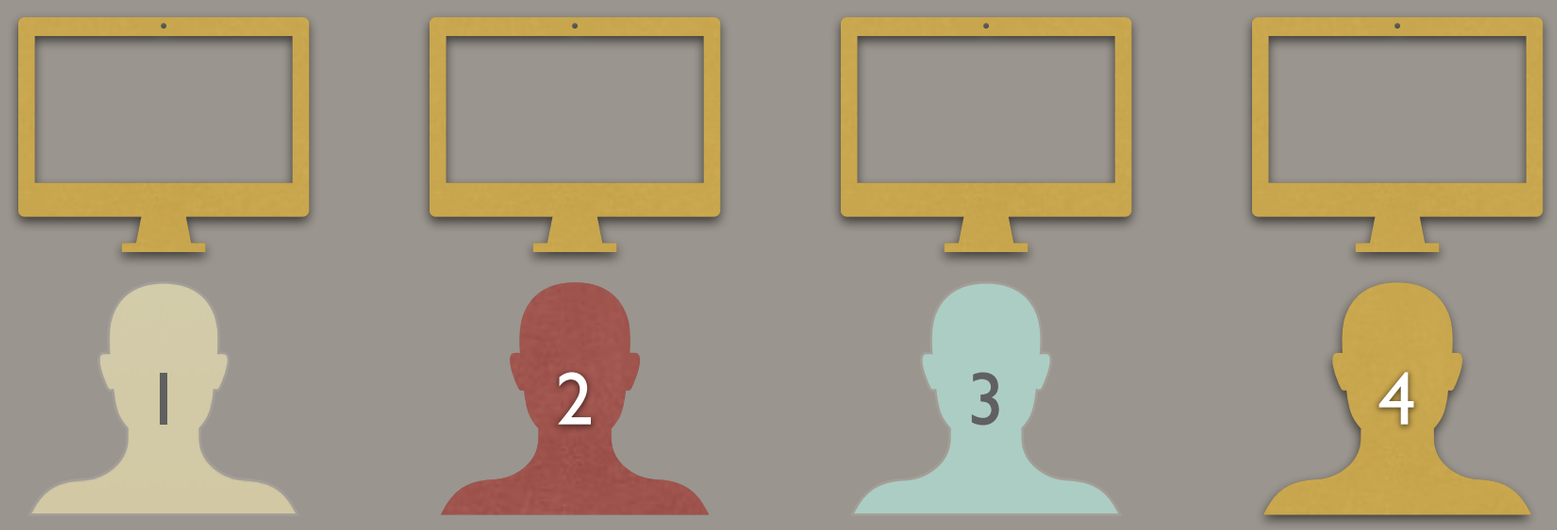
Get it to work (get test to pass).

Make it concise/clear (tests still pass).



Repeat.





A rotation.

Exercise: TDD Paint by Numbers

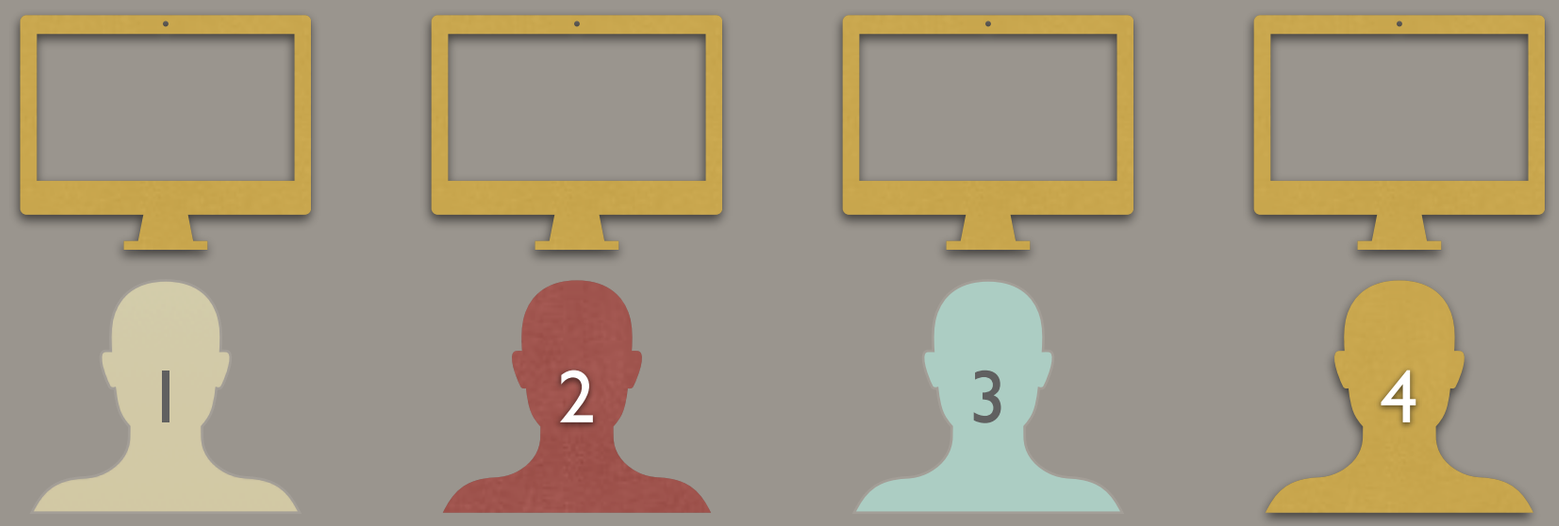
`./test/util/NameNormalizer.spec.ts`

courtesy Alexandru-Bogdan Ghita via Pexels

Remember:

* “I’m typing”
* “I’m talking”
* “I’m on deck”

Regroup when done one rotation!



Rotation #1

Mini-retro

"Pomodoro Kitchen Timer for Activity Logging," courtesy Andy Roberts
https://www.flickr.com/photos/aroberts/6332067642
https://creativecommons.org/licenses/by/2.0/

Pomodoros

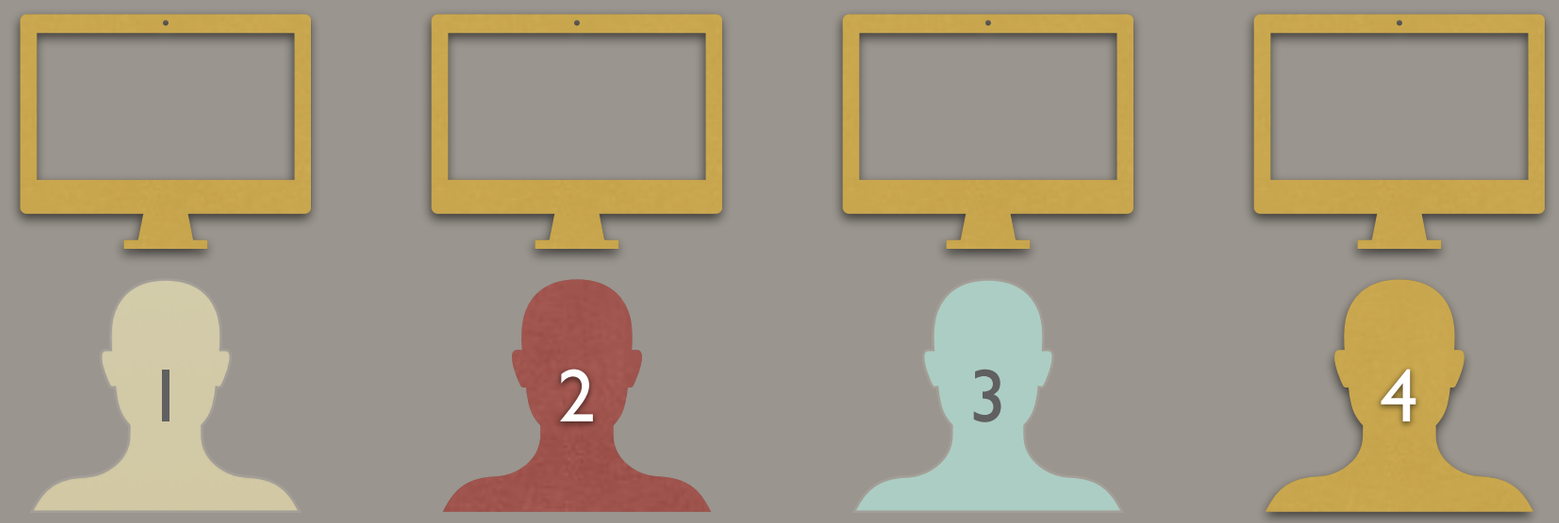
@JLangr

https://en.wikipedia.org/wiki/Pomodoro_Technique

A pomodoro

- In 5-7 minutes:
  - Review objective
  - Overview the task at hand
- ~20 minute rotation
- Where are we at?
- Mini-retro
- Mini-break!

Translation levels



Rotation #1

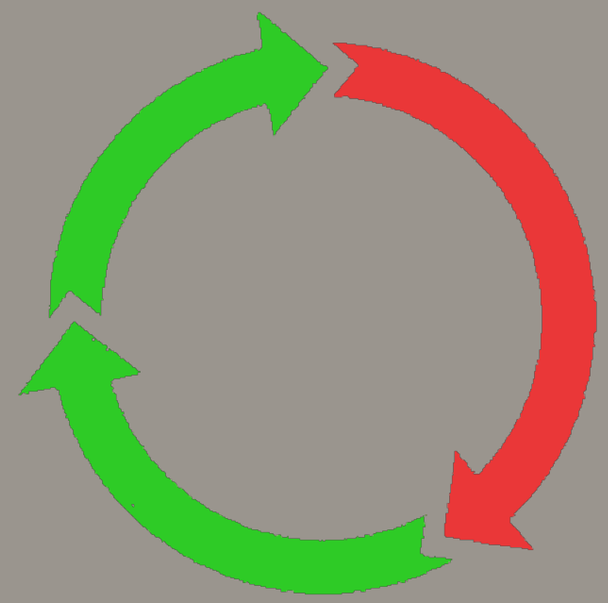
Mini-retro

Rotation #2

@JLangr

Exercise: TDD Paint by Numbers

Theme: Make it concise/clear (tests still pass).



Remember:

* “I’m typing”
* “I’m talking”
* “I’m on deck”

Regroup when done one rotation!

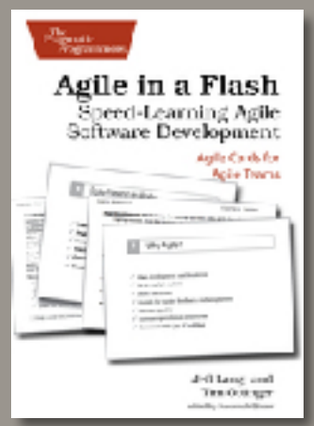
Kahoot!

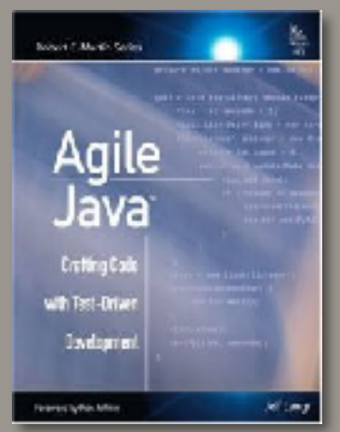
@JLangr

Topics: Maintaining & Sustaining

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com



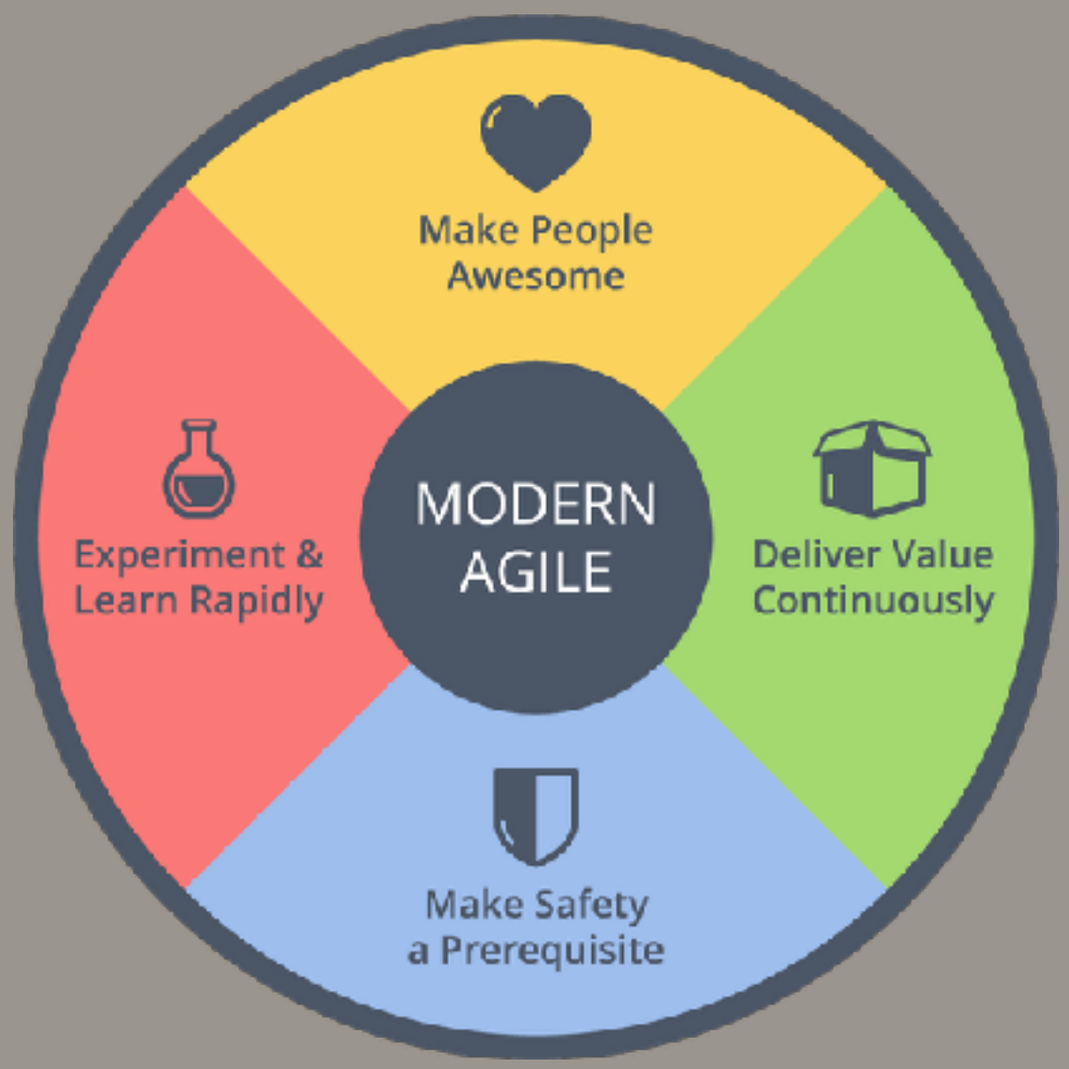


Comfort and safety

Breaks

Physically comfortable environment

Safety



Courtesy Industrial Logic, http://modernagile.org
License: https://creativecommons.org/licenses/by-sa/2.0/

@JLangr

"FEAR," Courtesy Kevin B 3, https://www.flickr.com/photos/22850192@N03/8290599649/
License: https://creativecommons.org/licenses/by/2.0/

(Anonymous) Safety exercise

How safe do you feel?

5: I’m comfortable saying pretty much anything
4: I’m comfortable talking about most things
3: Somewhere in the middle
2: I’m not comfortable talking about most things
1: I’m not comfortable talking about anything

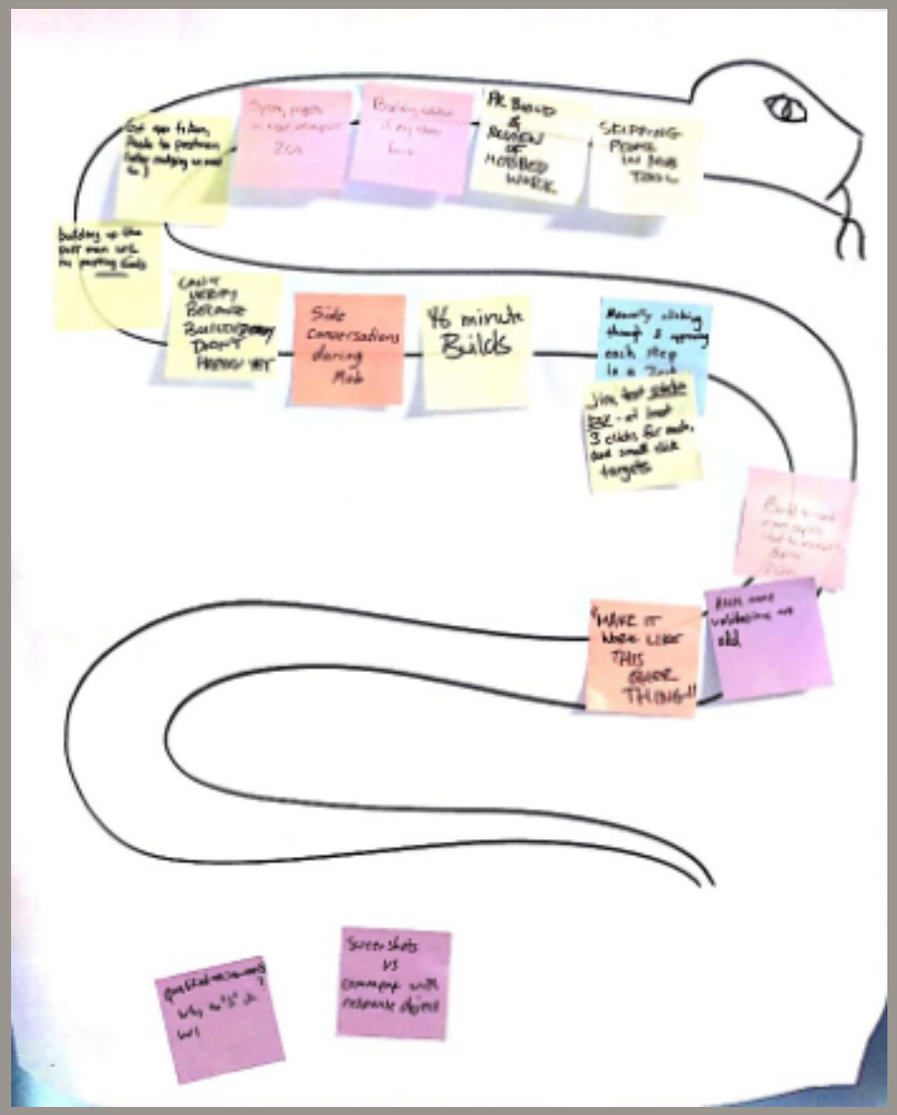
https://form.jotform.com/213267421111038

@JLangr

photo courtesy Emmanuel Ikwuegbu, Pexels

What makes people feel unsafe?

Remember, remember



Waste Snake

Courtesy Industrial Logic / Tim Ottinger
https://www.industriallogic.com/blog/a-few-tips-for-mob-programming/

Lessons Learned

https://www.pexels.com/photo/abstract-blackboard-bulb-chalk-355948/

https://www.pexels.com/photo/bow-tie-businessman-fashion-man-1702/

Heed

- Mob fatigue
- Interviewing
- New folks
- When / when not
- Retrospecting
- Interruptions

Photo courtesy Ketut Subiyanto via Pexels

Driver Tip

Overwhelmed? Feeling micromanaged?

https://www.pexels.com/photo/bow-tie-businessman-fashion-man-1702/

Mob Tip

"This is a good place for an example." -- Brian Marick

Courtesy YogeshMishra Maharaja, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=64491074

Some reminders

Law of two feet

Be there

Don’t forget your breaks!

Core hours

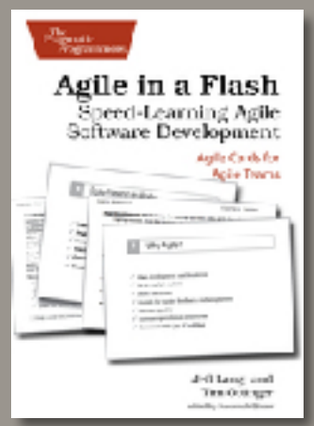
Rotating solo navigator as needed.

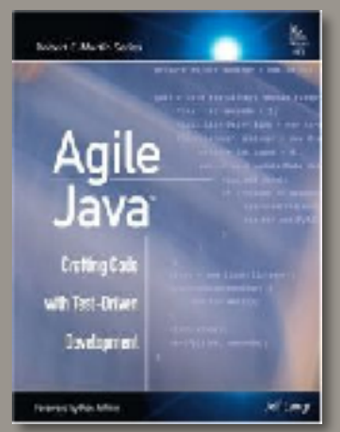
https://www.pexels.com/photo/close-up-of-hand-over-white-background-255527/

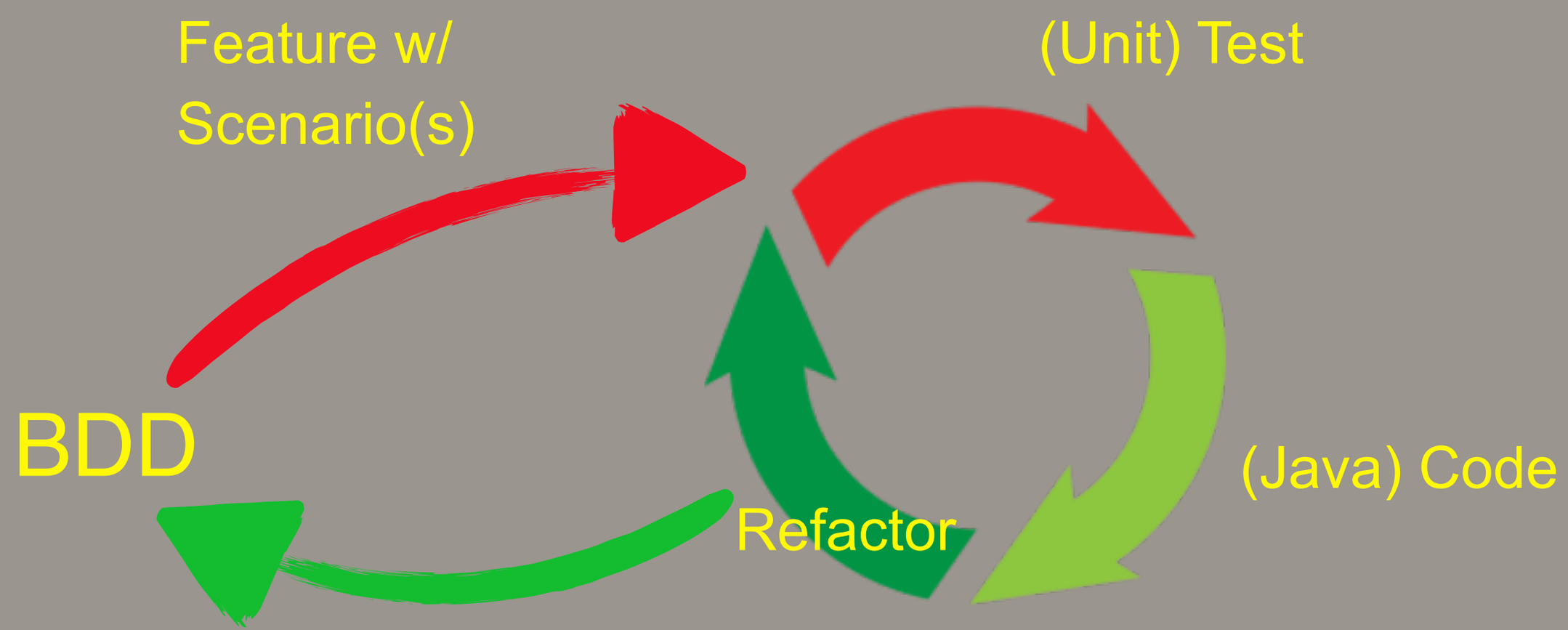
BDD

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com







@JLangr

Bill Wake's story criteria

Image courtesy InvestmentTotal.com https://www.flickr.com/photos/investmenttotal/
License: https://creativecommons.org/licenses/by/2.0/

Exercise: Story vetting

Candidate Stories

- Movie rental age restrictions
- Show message: "Patron with bad credit" to librarian on credit check fail when adding new patron; flash screen and sound alarm
- Deliver analysis document for rental age restriction req’ts
- Fix inventory load to complete in 1 minute
- Testing phase for rental age restrictions story
- Create more appealing self-scanner user interface
- Refactor crappy code in HoldingService
- Allow user to register for material due notifications
- Send email notification day before due date

Exercise: Story breakdown

Movie rental age restrictions

Happy path scenarios

End user accomplishes a primary goal

Icon courtesy of Freepik via flaticon.com

Exercise: Identify scenarios

- Identify:
  - Happy path(s)
  - Alternate path(s)
  - Edge cases if interesting
  - Error conditions
- Focus on the end result

Remember:

* "I'm typing"
* "I'm talking"
* "I'm on deck"

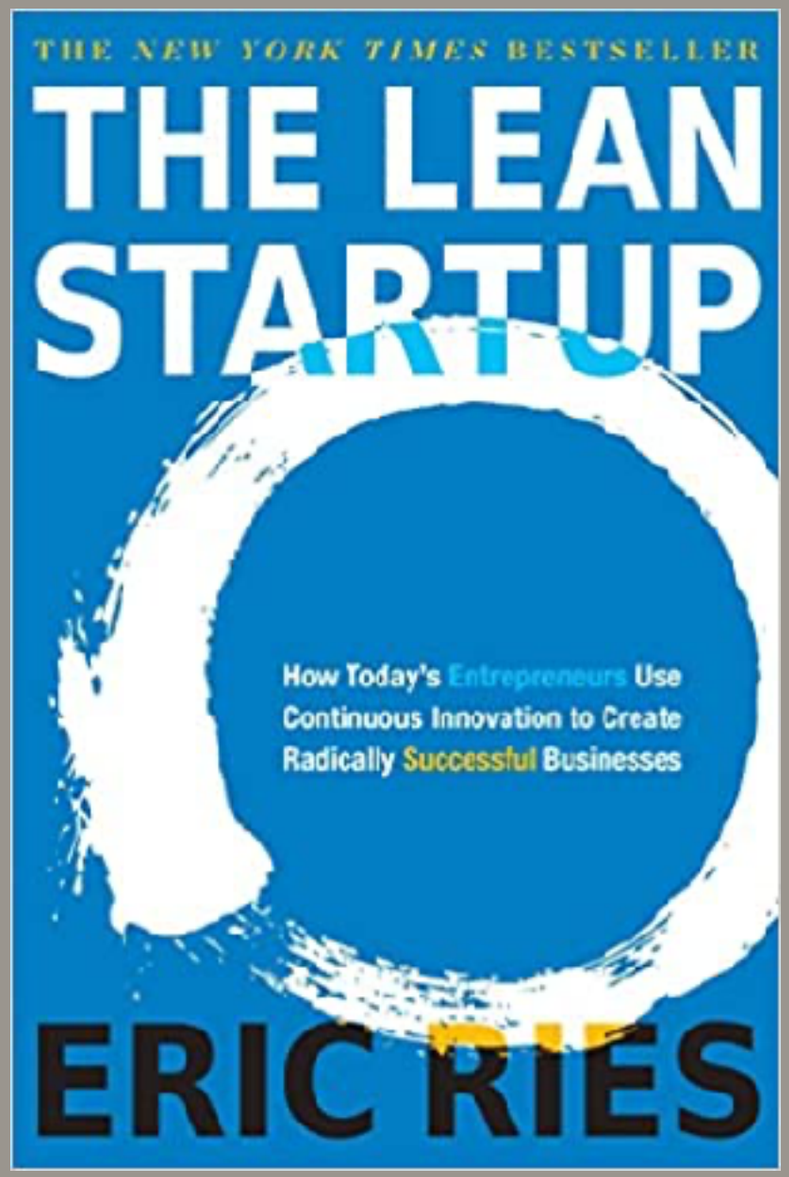
- Derive *only* the name for each scenario
  - Discuss an example if you need clarification

Clarify Scope with Scenarios

- Review scenario names holistically
- Determine initial scope / priority

Exercise: Negotiate an MVP

Minimum scenarios to deliver something useful



Given-when-then structure

Given some initial context

When some action is taken,

or some event occurs

Then some result is expected

Phrase Examples Declaratively

Given patron John aged 12
And movie Superbad, rated R
When John scans Superbad
Then the system rejects checkout of Superbad

Exercise: BDD

Remember:

* typing
* talking
* on deck

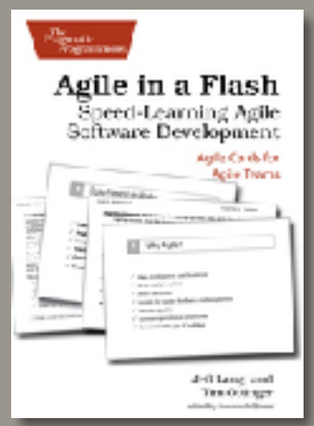
Flesh out Gherkin for your MVP scenarios

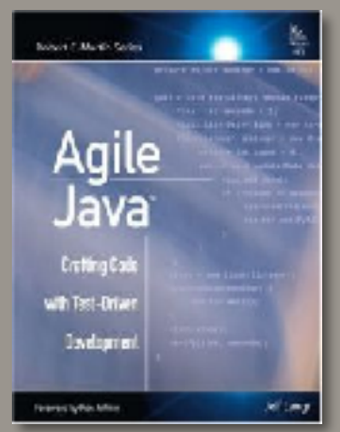
courtesy some photo source

Where are we heading?

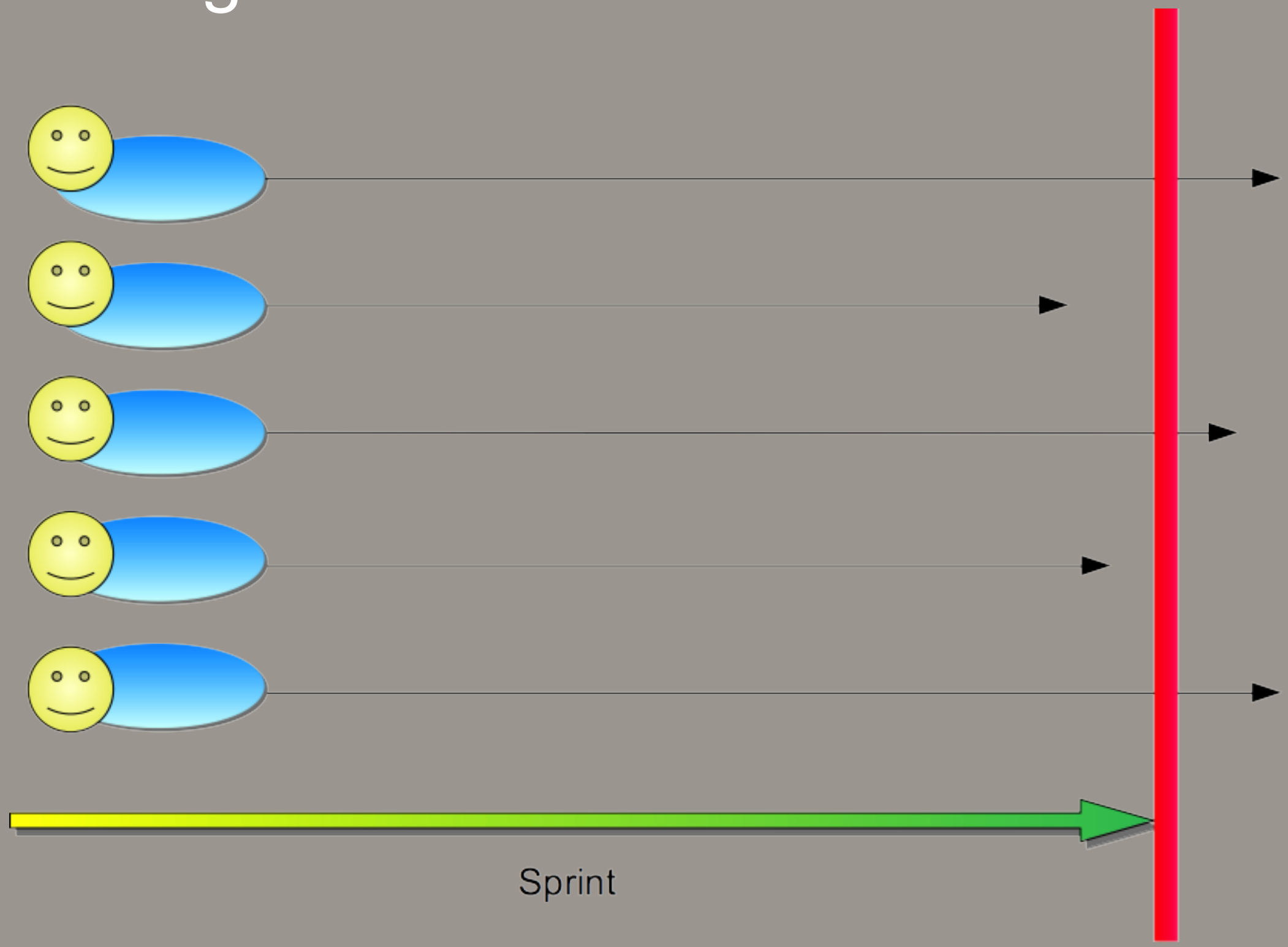
LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com



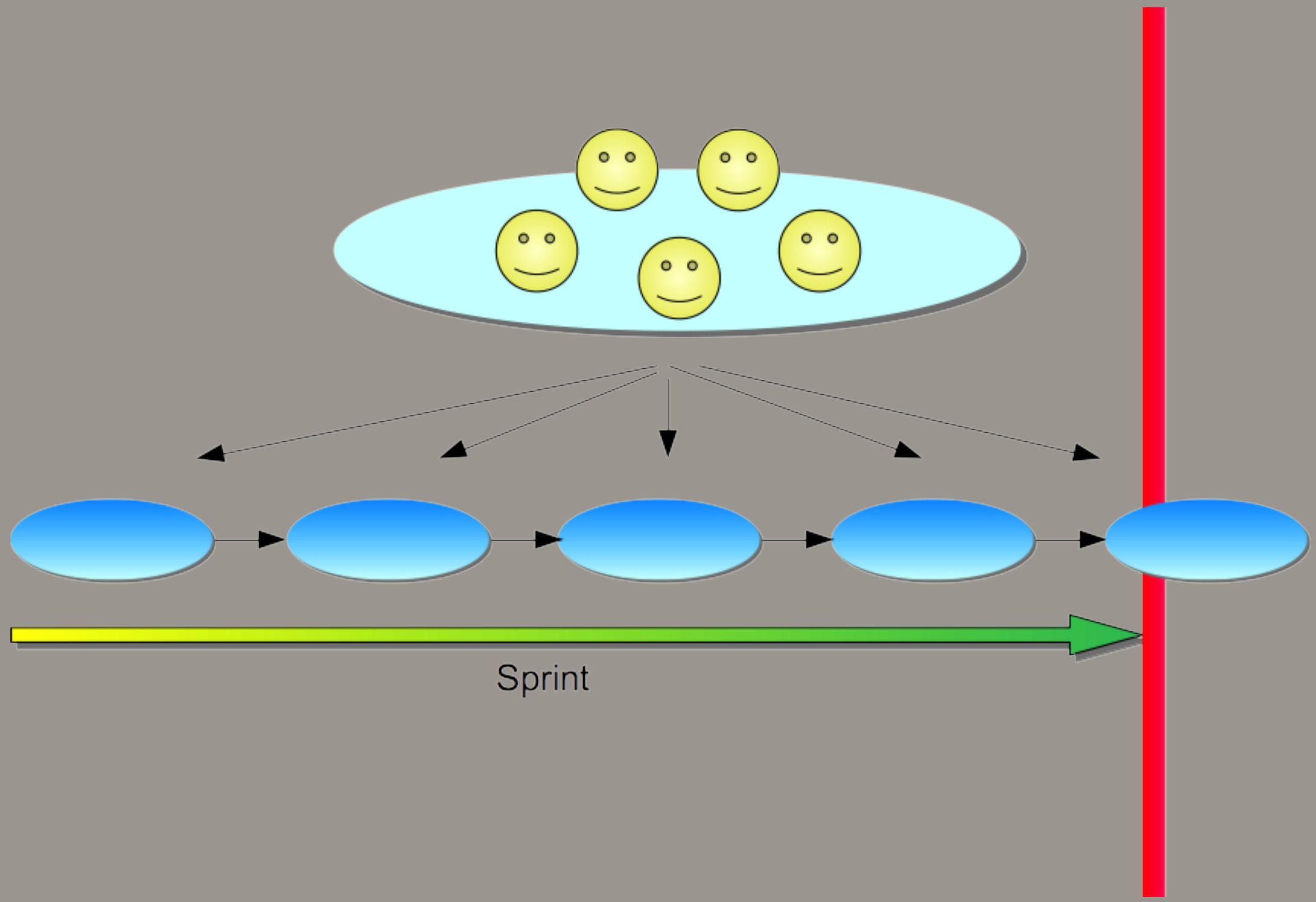


Classic Agile Iteration



@JLangr

Reduced WIP



Flow

https://www.pexels.com/photo/architecture-auto-automobiles-bridge-210182/

What disrupts our flow?

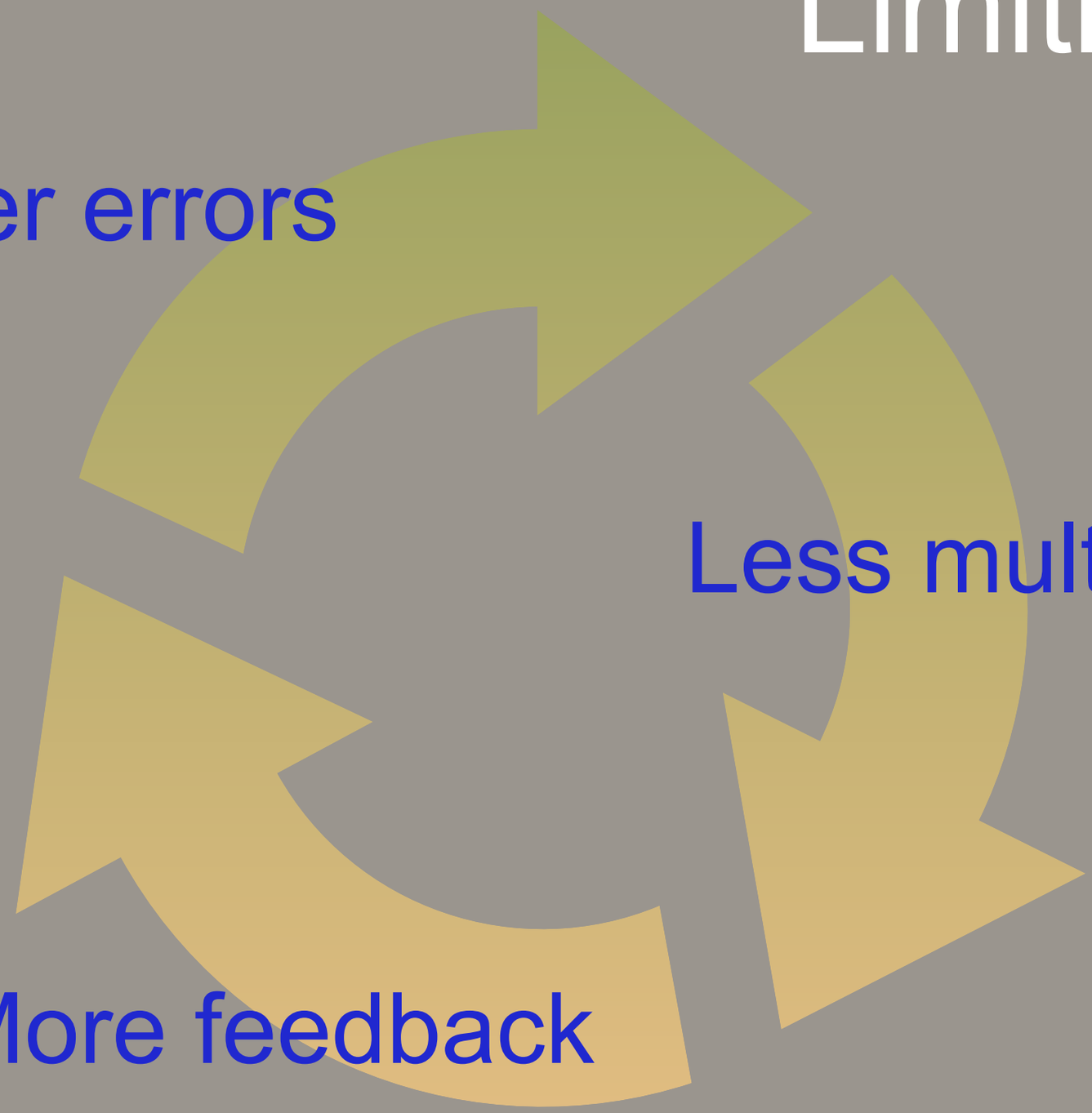
Interruptions
Overload of new ideas
Blockages
Failure demand (rework)
Coordination overhead
Overload
Premature planning

vs. One piece flow

Code-specific costs

- context switching & interruptions
- knowledge silos
- hidden defects
- defects (“with enough eyes…”)
- passive after-the-fact reviews
- merge overhead
- coordination
- non-standard solutions
- decreased quality of solution

Limiting WIP



A virtuous cycle of improvement

Limiting WIP

Foster a culture of *completing* work.
Not starting it.

Continuous Delivery

Killing Ceremony

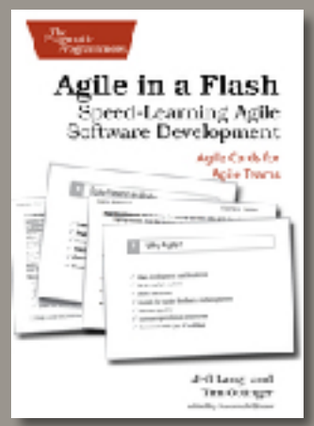
Mon	Tue	Wed	Thu	Fri
standup	standup	standup	standup	standup
		sprint 27 planning		
PR story 137			sprint 28: 3 amigos	
PR story 139	sprint 26 demo			
	sprint 26 retro			

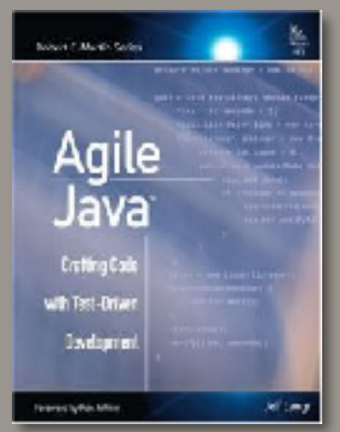
Dancing couple icon courtesy Wikimedia,
http://creativecommons.org/licenses/by-sa/3.0/

Face to Face Again?

LANGR | SOFTWARE SOLUTIONS

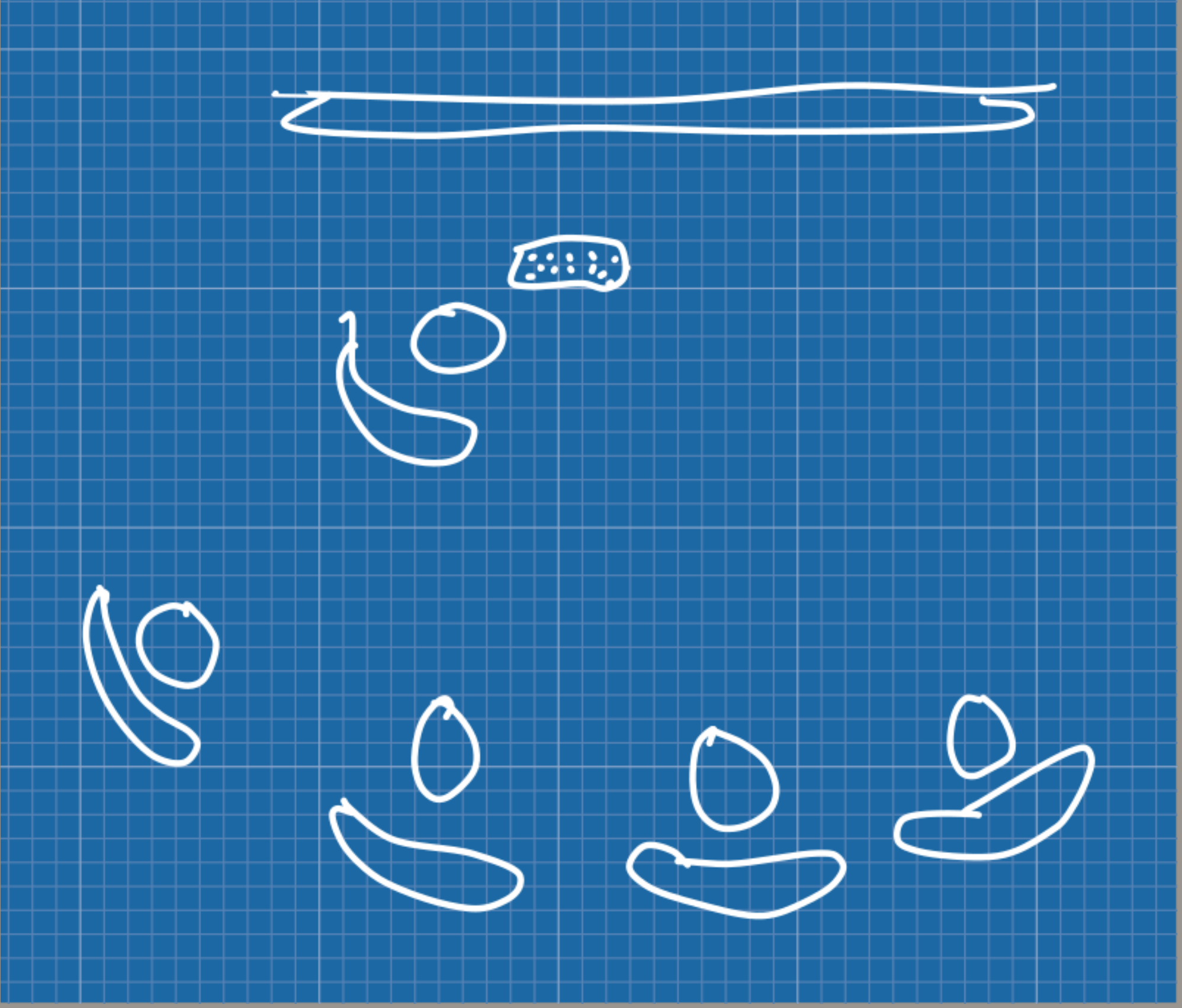
http://langrsoft.com





"Open Plan" Workspace

@JLangr



mob programming (IRL)

@JLangr

Tooling

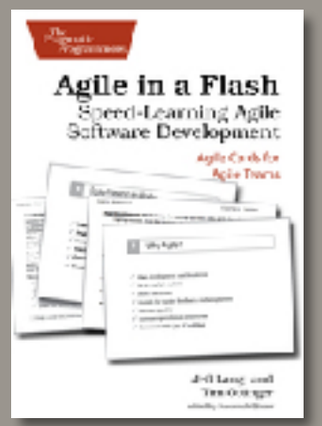
Mobster

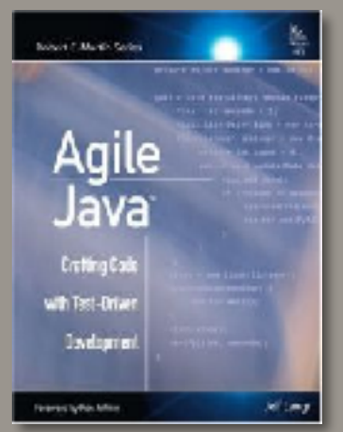
http://mobster.cc

Mob composing

LANGR | SOFTWARE SOLUTIONS

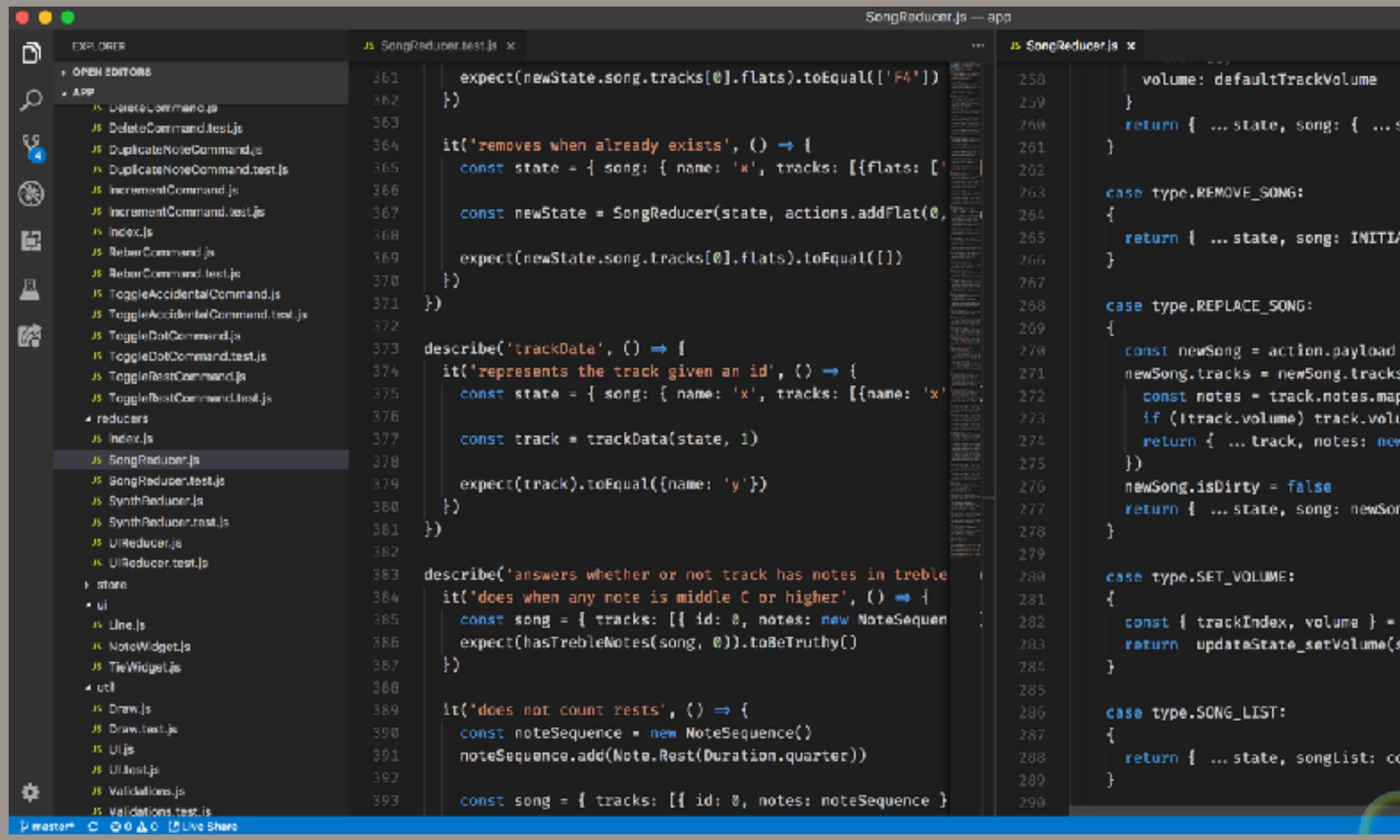
http://langrsoft.com





What's like software development?

Q.

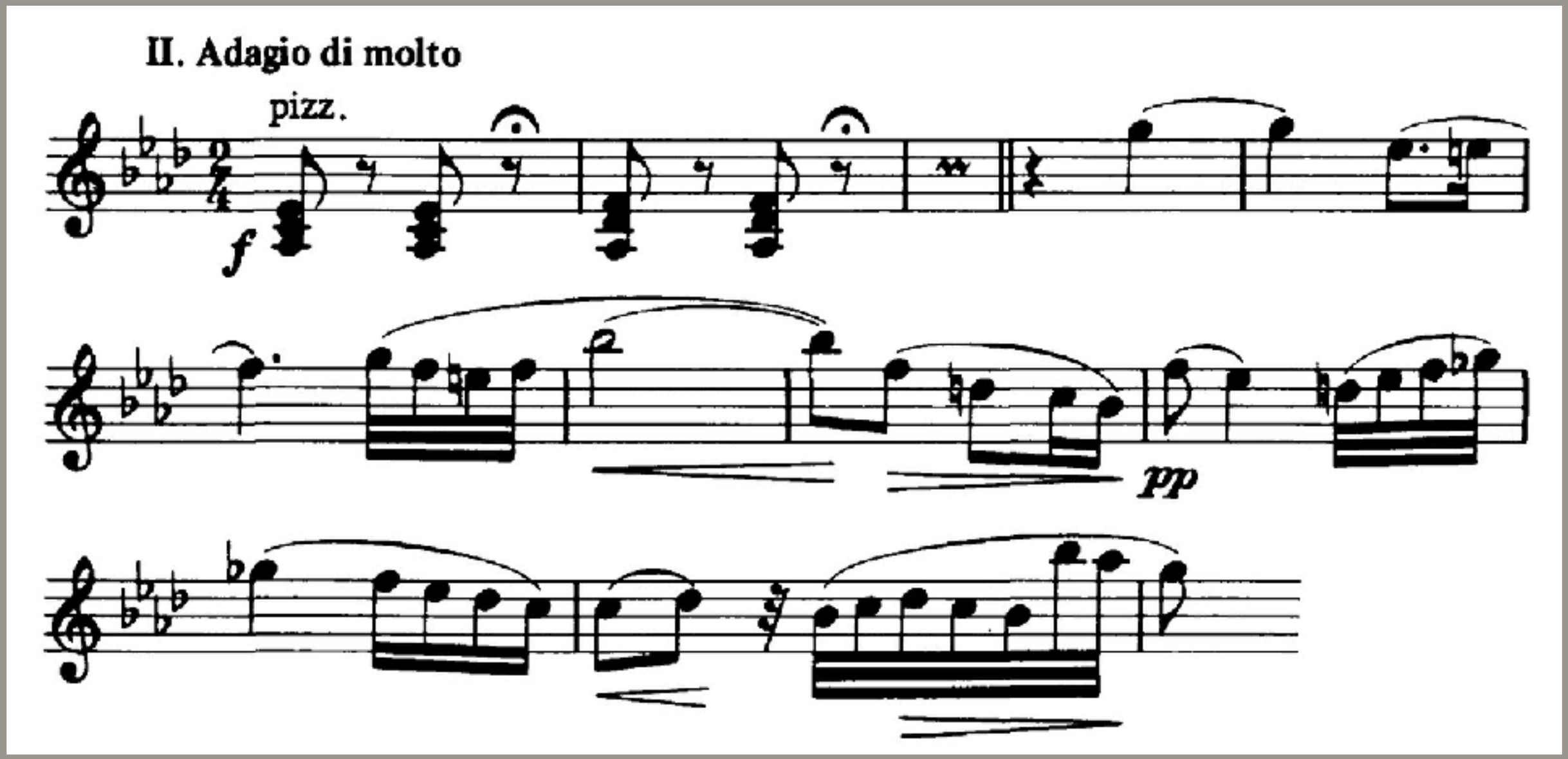


Key characteristics of software development?

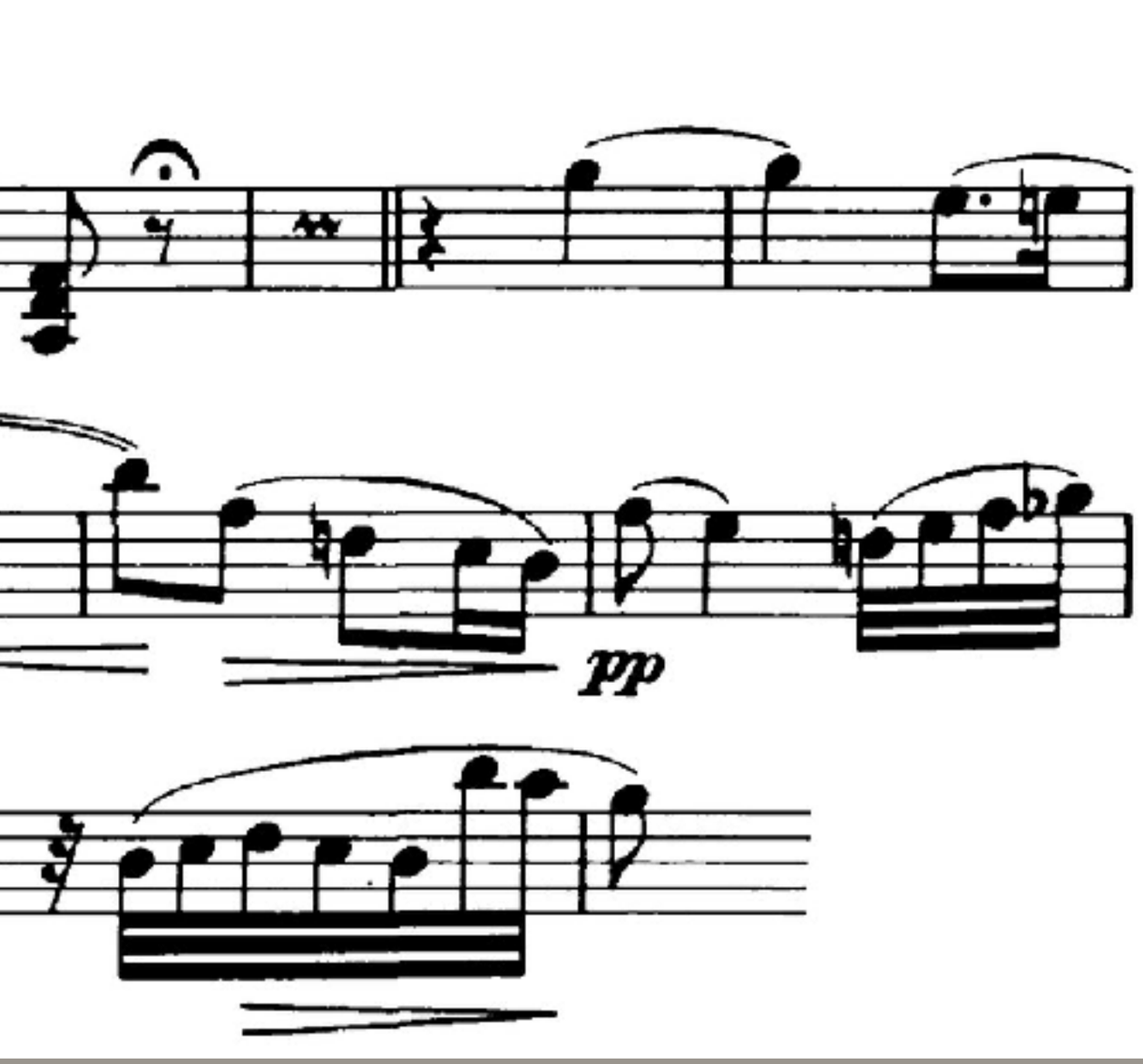
Key challenges in software development?

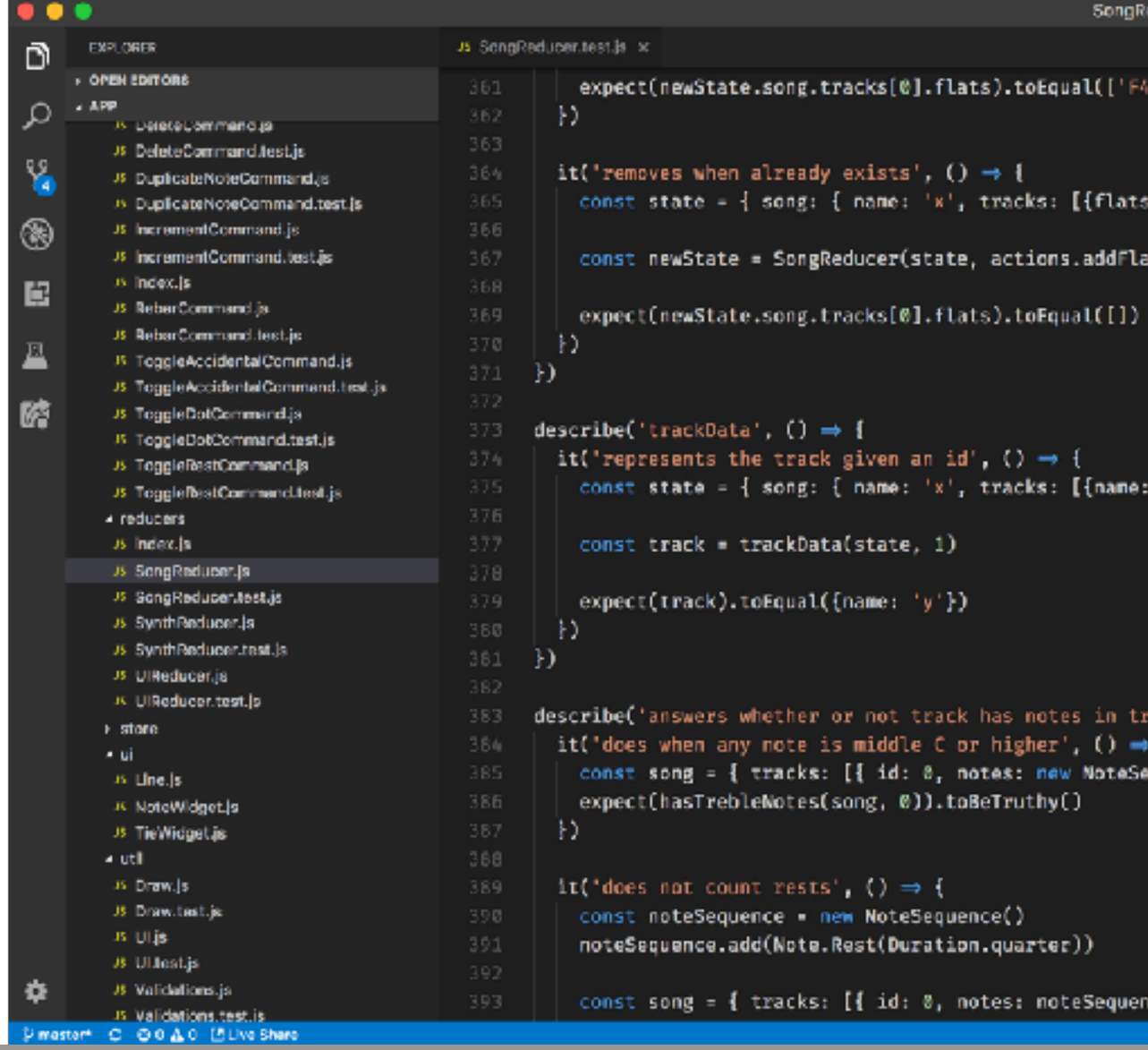
@JLangr

How is composing *similar to* software development?



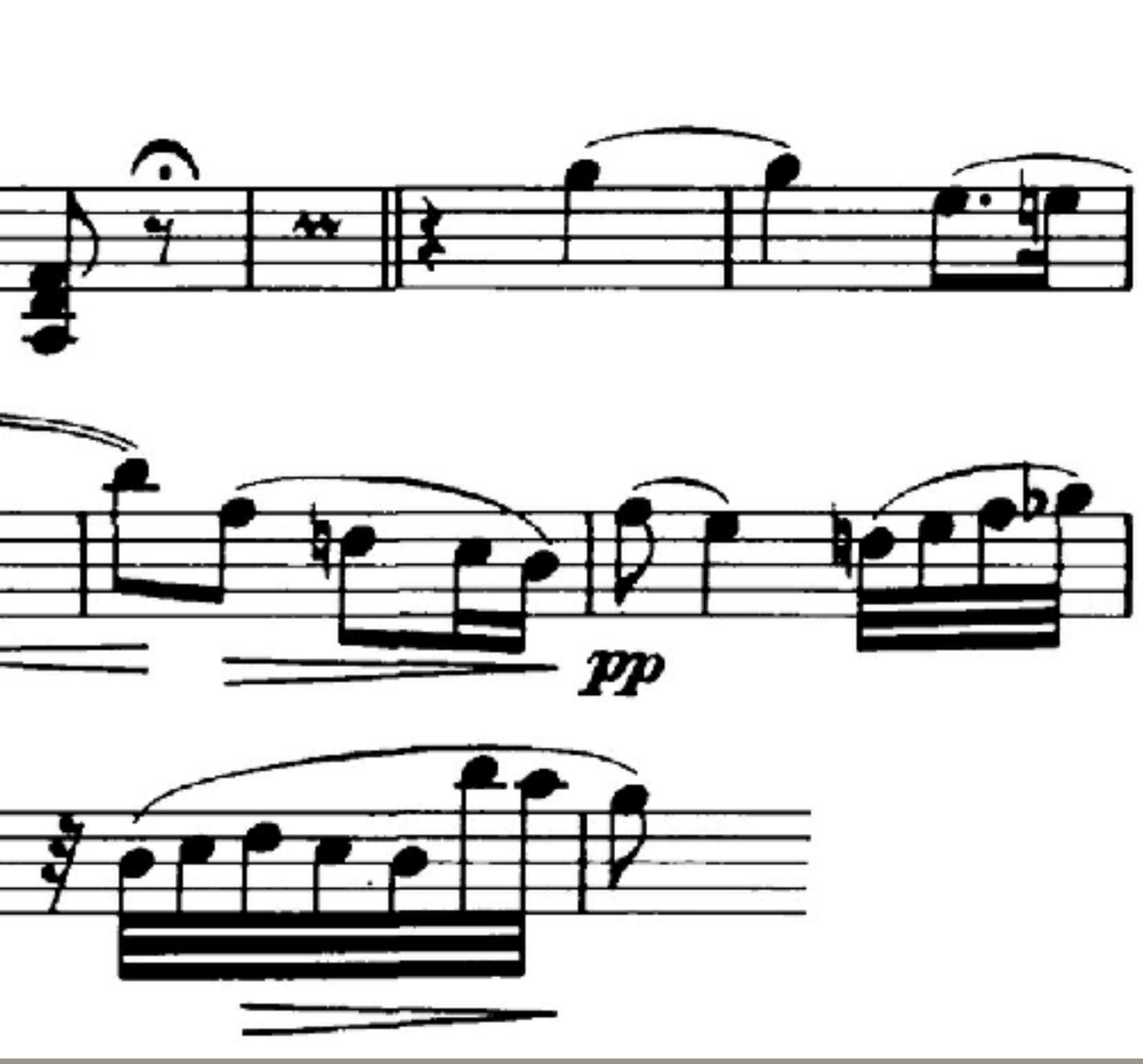
@JLangr

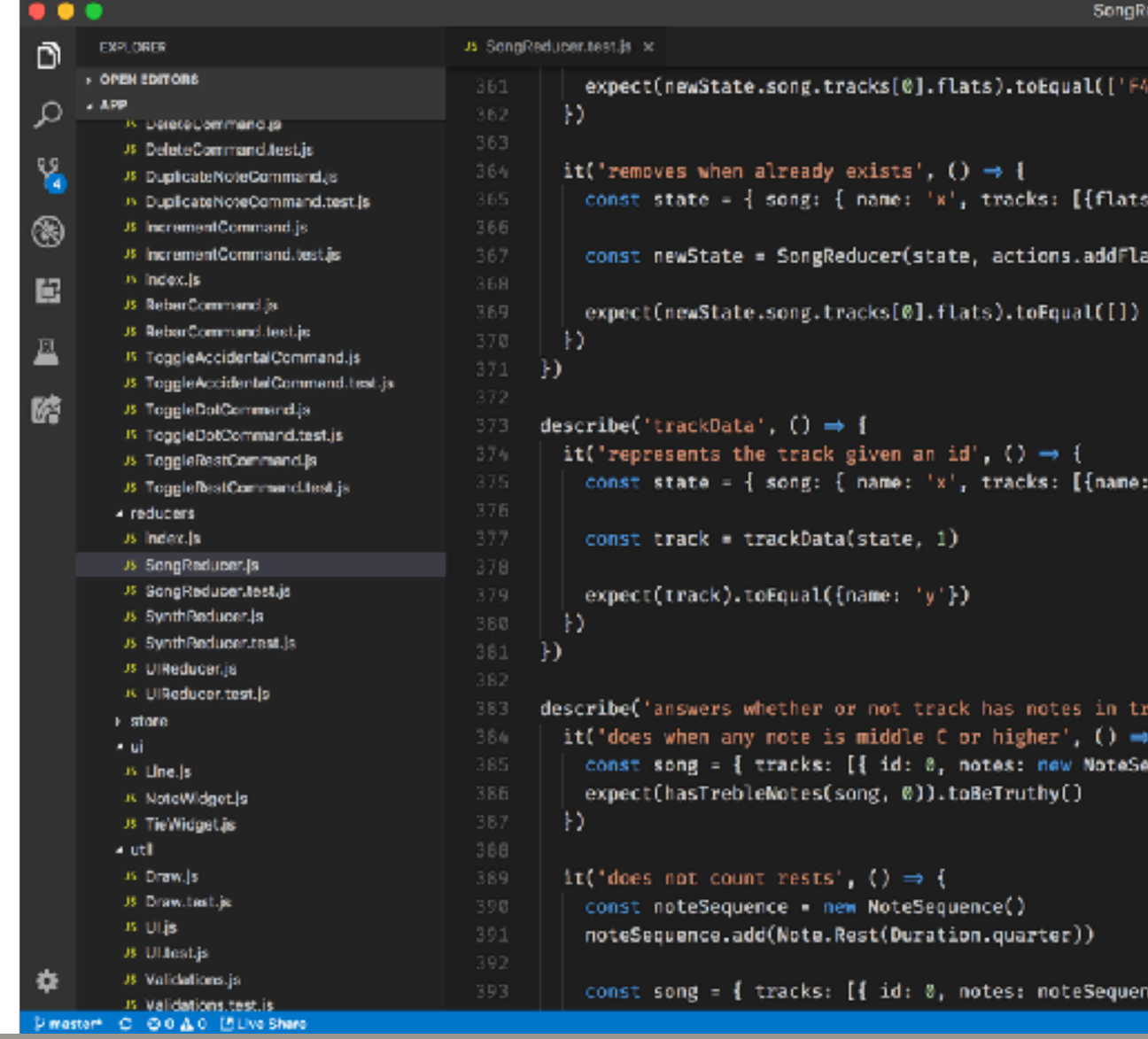




How is it *different from* software development?

@JLangr





Team or individual activities?

@JLangr

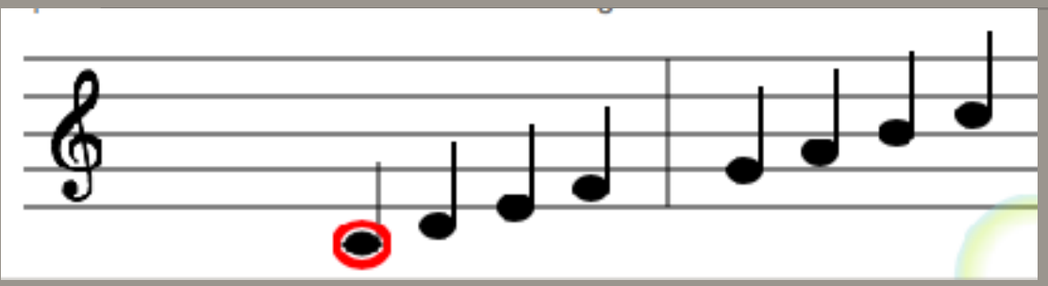
What do you know about music?

https://www.pexels.com/photo/people-coffee-meeting-team-7096/

Tasks

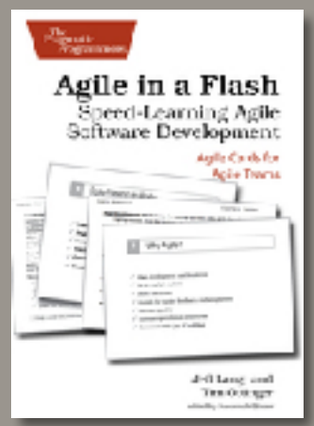
- Installing Geektone
- Exploring Geektone (twinkle twinkle)
- Melody
- Chorus
- Tension / release
- Rhythm and "space"
- Counter-melody
- Intro
- Outro

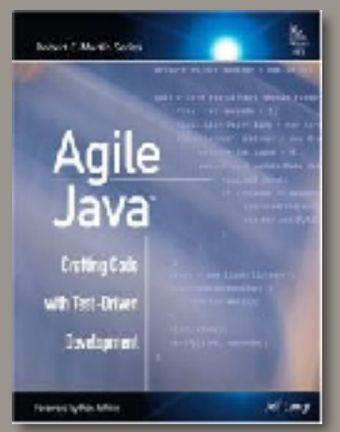
Geektone & Music Basics



LANGR | SOFTWARE SOLUTIONS

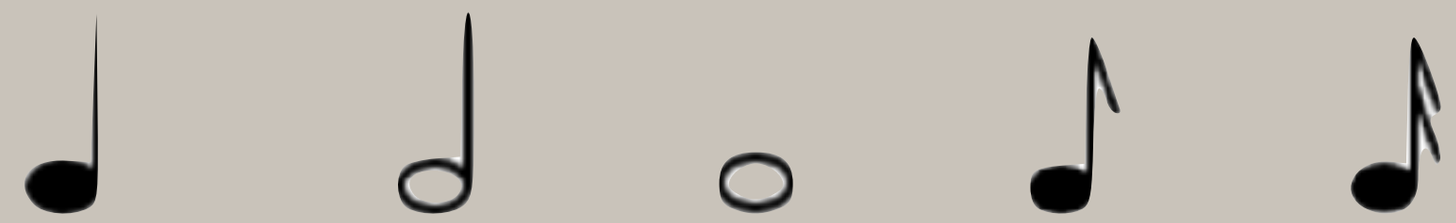
http://langrsoft.com





Notes

- Duration



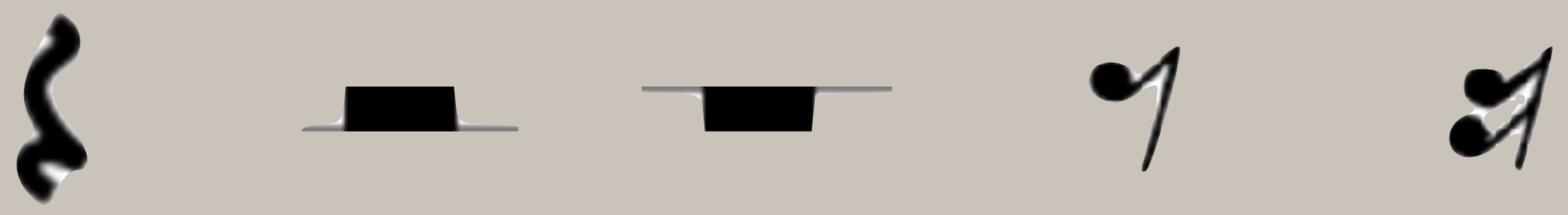
1/4	1/2	1	1/8	1/16
quarter	half	whole	eighth	sixteenth

- Dotted

One-and-a-half times
normal duration

Rests

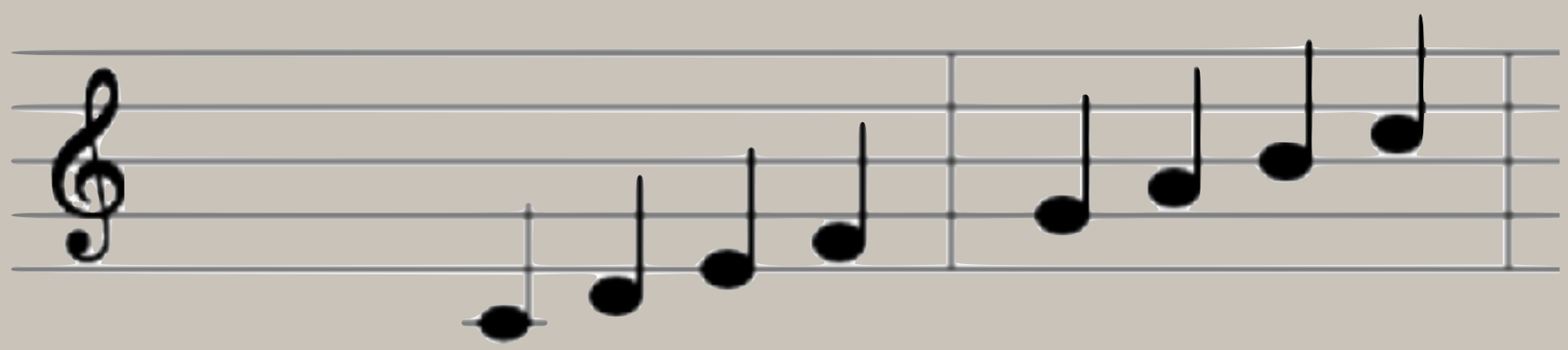
- Duration



1/4	1/2	1	1/8	1/16
quarter	half	whole	eighth	sixteenth

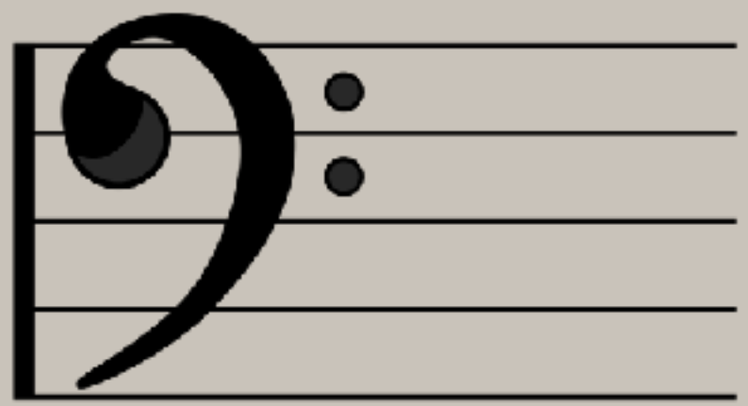
Notes Have Pitch

staff



- C D E F G A B C
- do re mi fa sol la ti do

a scale



Bass Clef

Treble Clef

@JLangr

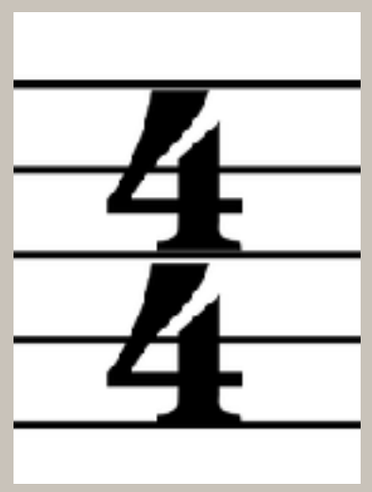
Sharps & Flats

- Sharp: half step up (semitone)

- Flat: half step down

- Applied to all notes of same pitch!

Measures & Beats



- 4/4 time:
  - - 4 beats per measure
  - - quarter note gets the beat

Geektone pomodoro

- Install

  `git clone https://github.com/jlangr/geektone`

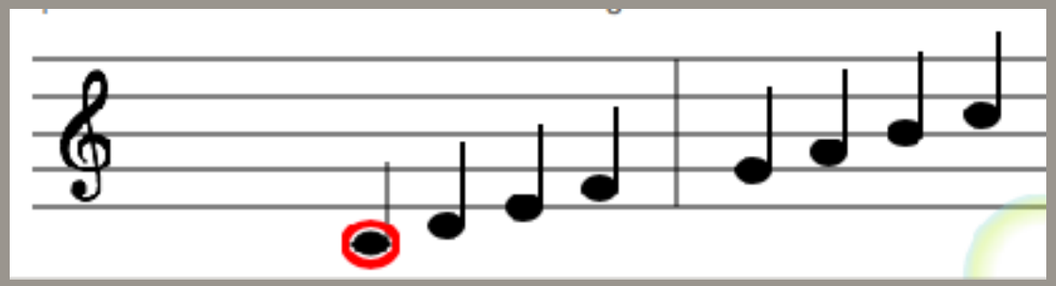
  Rest of instructions in README.md

- Explore

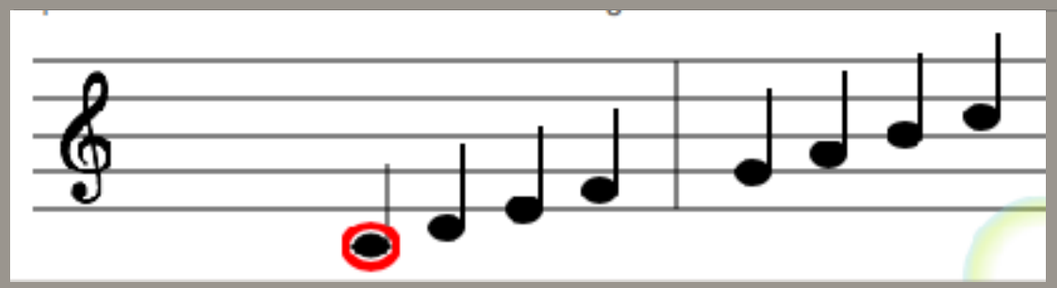
  Enter of “Twinkle Twinkle”

  Experiment with different tracks

- Use a 2-minute timer

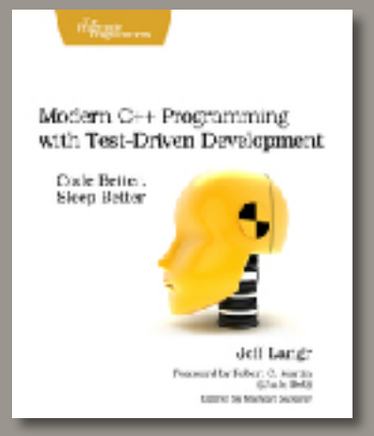


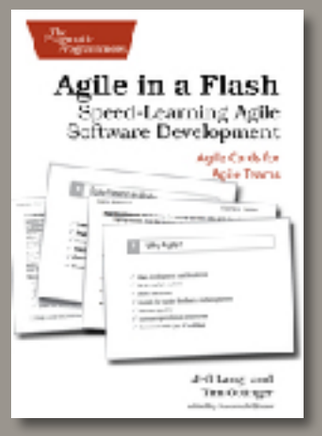
Composing Challenge

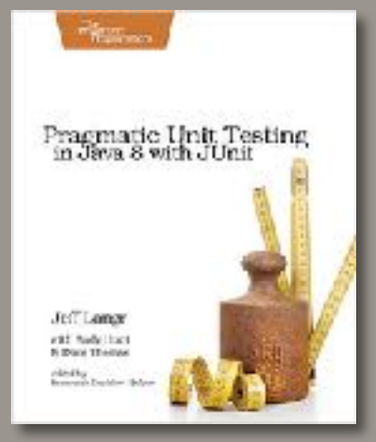


LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com







The Challenges

45 or 60 seconds

- Television / radio ad
  - Feel-good product ad, emotive charity ad, medical malady ad, ...
- Movie title track
  - Horror, comedy, drama, adventure, ...
- Television montage
  - Uplifting; increasingly desperate; tear-jerking, ...

Image: “Philips Pattern pm5644,” by Zacabeb
License: https://creativecommons.org/licenses/by-sa/4.0/legalcode

Mini design pomodoro

- Choose challenge (5 min)
- Discuss theme (5 min)
  - Agree on the core emotion(s) to provoke
    e.g. *anxiety, joy, relaxation*
  - Agree on a few goals
    e.g. *punchy, meandering, increasingly frantic*

Go !

Song Structure

Intro	Verse	Chorus	Verse	Chorus	Bridge	Verse	Chorus	Outro

@JLangr

(Basic) Melody

A common thread through a song

- Range: An octave and a half
- Perhaps contains some repeating elements
- Mostly "stepwise" with occasional leaps
- Climactic moment
  - Highest notes?

Verse

- Tells a story
  - Often with new lyrics
- Details of the song
- Supports the chorus

Intro	Verse	Chorus	Verse	Chorus	Bridge	Verse	Chorus	Outro

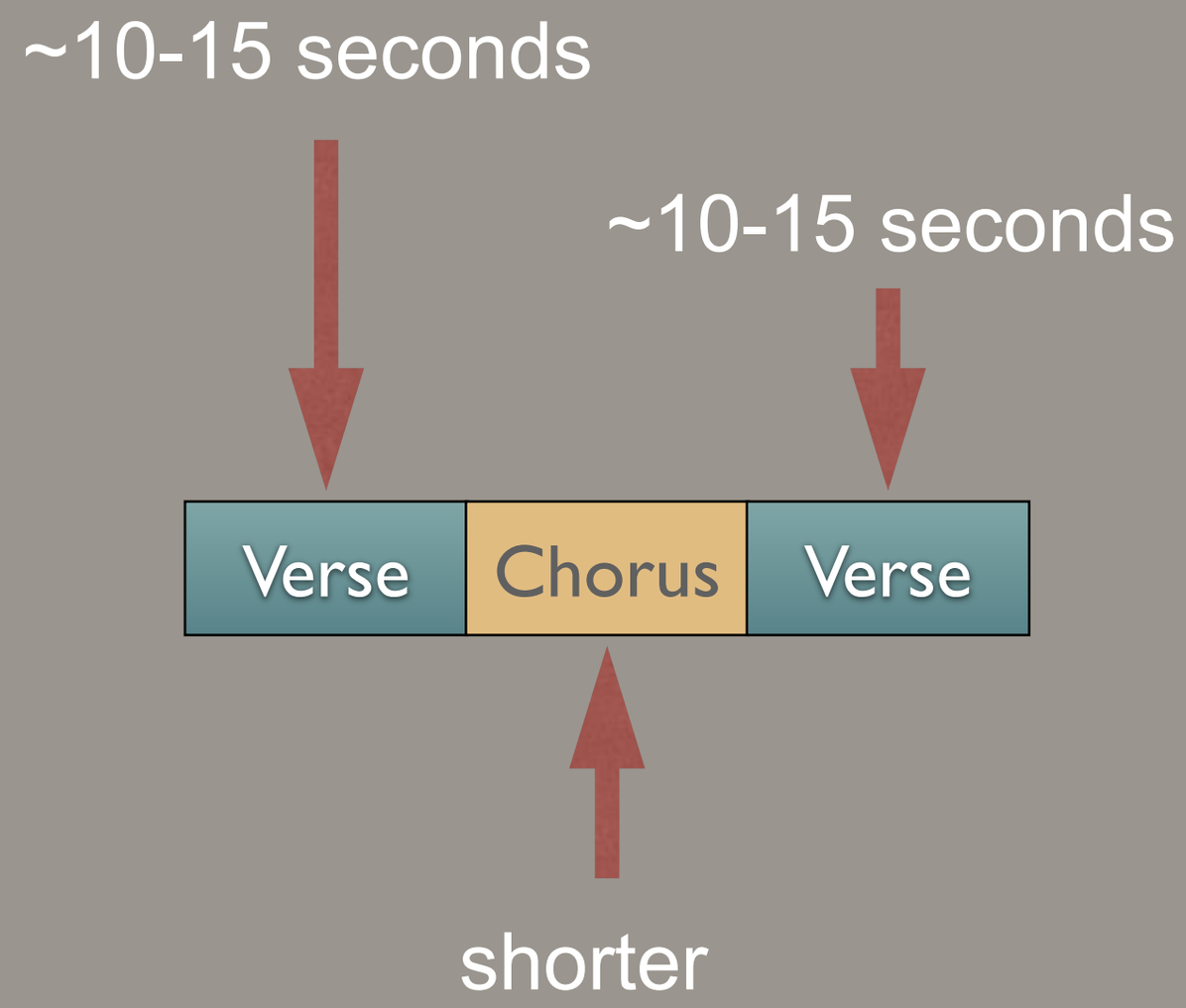
Chorus

- Repeated verse / phrase: a motif

Intro	Verse	Chorus	Verse	Chorus	Bridge	Verse	Chorus	Outro

- Short and simple!
- Repetition + simple variants
- Punctuate via:
  - Volume
  - Silence
  - Add'l instruments

Pomodoro: Compose a basic song



@JLangr

Creating "Space"

Silence is golden

Rests can:

- add interest to melodies
- create interesting rhythms
- create suspense

Rhythm

- Brings character to the music
- Keeps the song together
  … and propels it
- Makes us want to move

Ideas

- Listen to some basic rhythms
- Start simple: be repetitive
- Then tweak it.
- Clap it out

Pomodoro: Rhythm & Space

- Do some iteration, some incrementing
- Seek to introduce space in the verse / chorus
- Create a new track for rhythm

Tension / release

- Building unrest / conflict
- Needs release!
- Example: Chord progressions

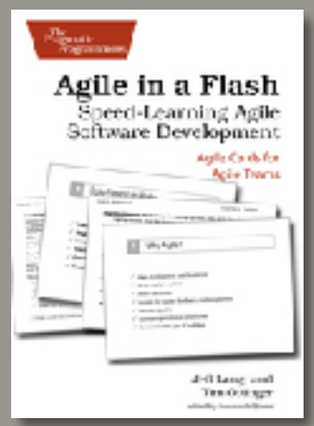
- Rhythmic tension
- Melodic tension
- Bridge tension
- Instrumental tension
- Dynamic tension

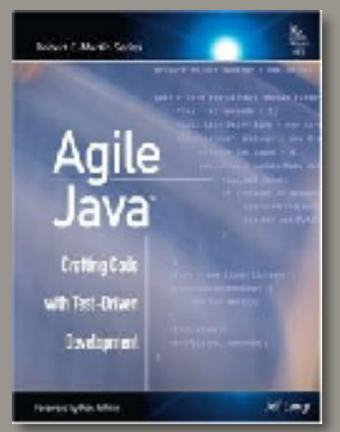
Pomodoro: Introduce tension

Additional Elements for Pomodoros

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com





Counter-Melody

- Subordinate to main melody
  - Uses same scale
- Sounds good alone
- Should oppose, not overlap

Intro

- Grab the listener's attention
- Establish style / mood

Intro	Verse	Chorus	Verse	Chorus	Bridge	Verse	Chorus	Outro

- Perhaps use materials from rest of song
- Seek contrast:
  - Stripped down
  - Slower / faster
  - Grabby hook!...

Outro / Conclusion

- Inverse of intro?
- Wraps things up

Intro	Verse	Chorus	Verse	Chorus	Bridge	Verse	Chorus	Outro

- No rules
- Simple
- Might repeat elements of chorus / verse

Bridge

- Optional transition
- Pause / reflect on earlier parts of song
- Prepare listener for climax

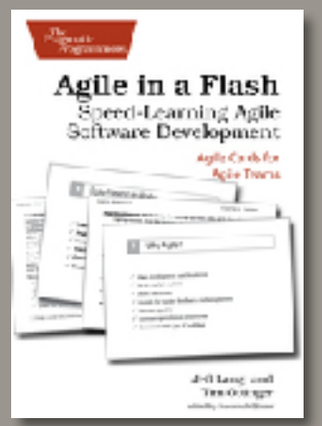
Intro	Verse	Chorus	Verse	Chorus	Bridge	Verse	Chorus	Outro

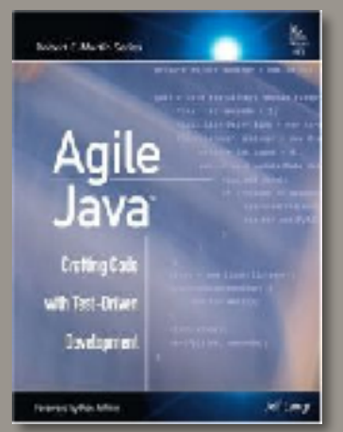
- Opposing melody, chord progression
- Deepen emotional impact
- Connect smoothly

Wrapping Up

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com

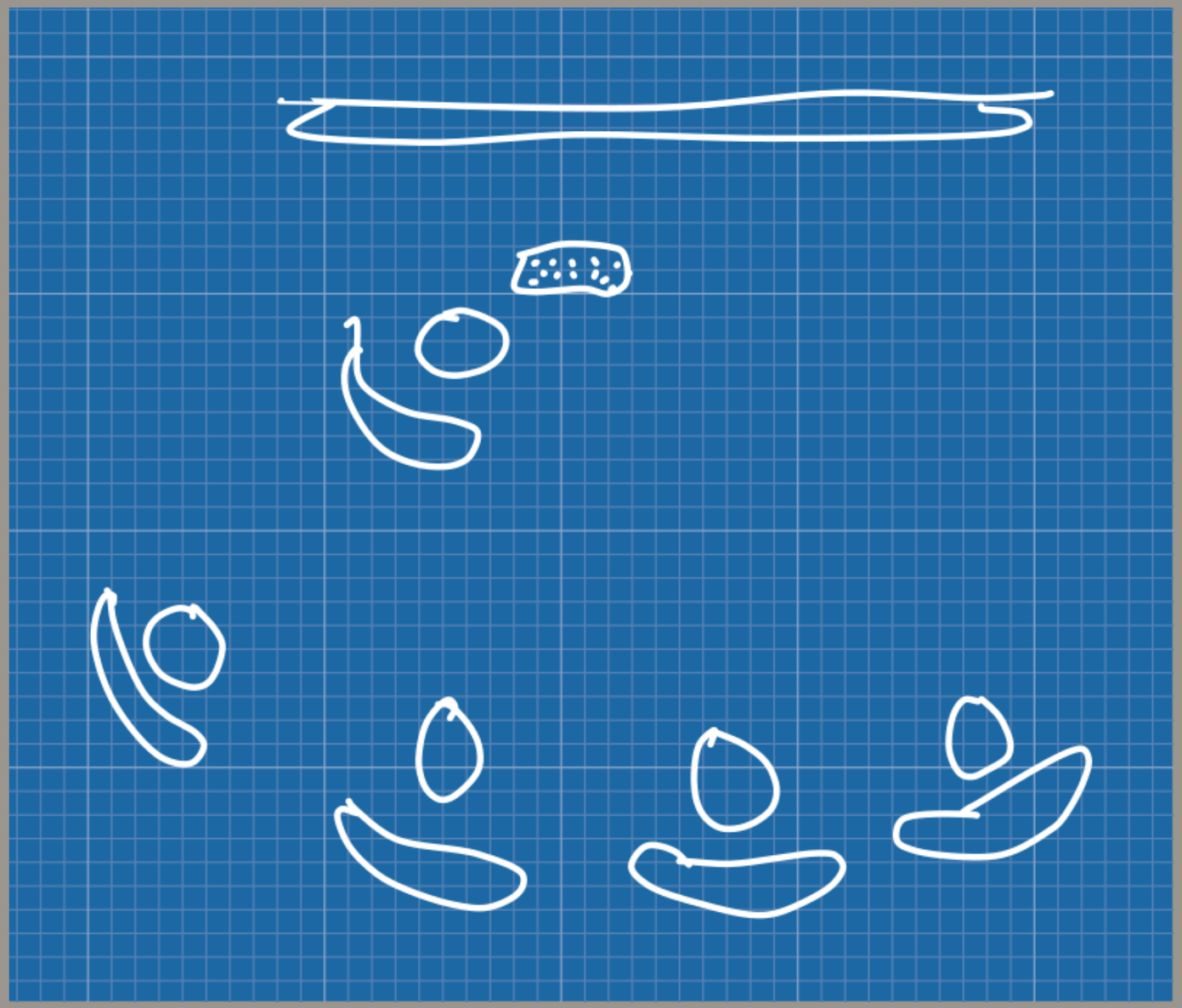




Kahoot!

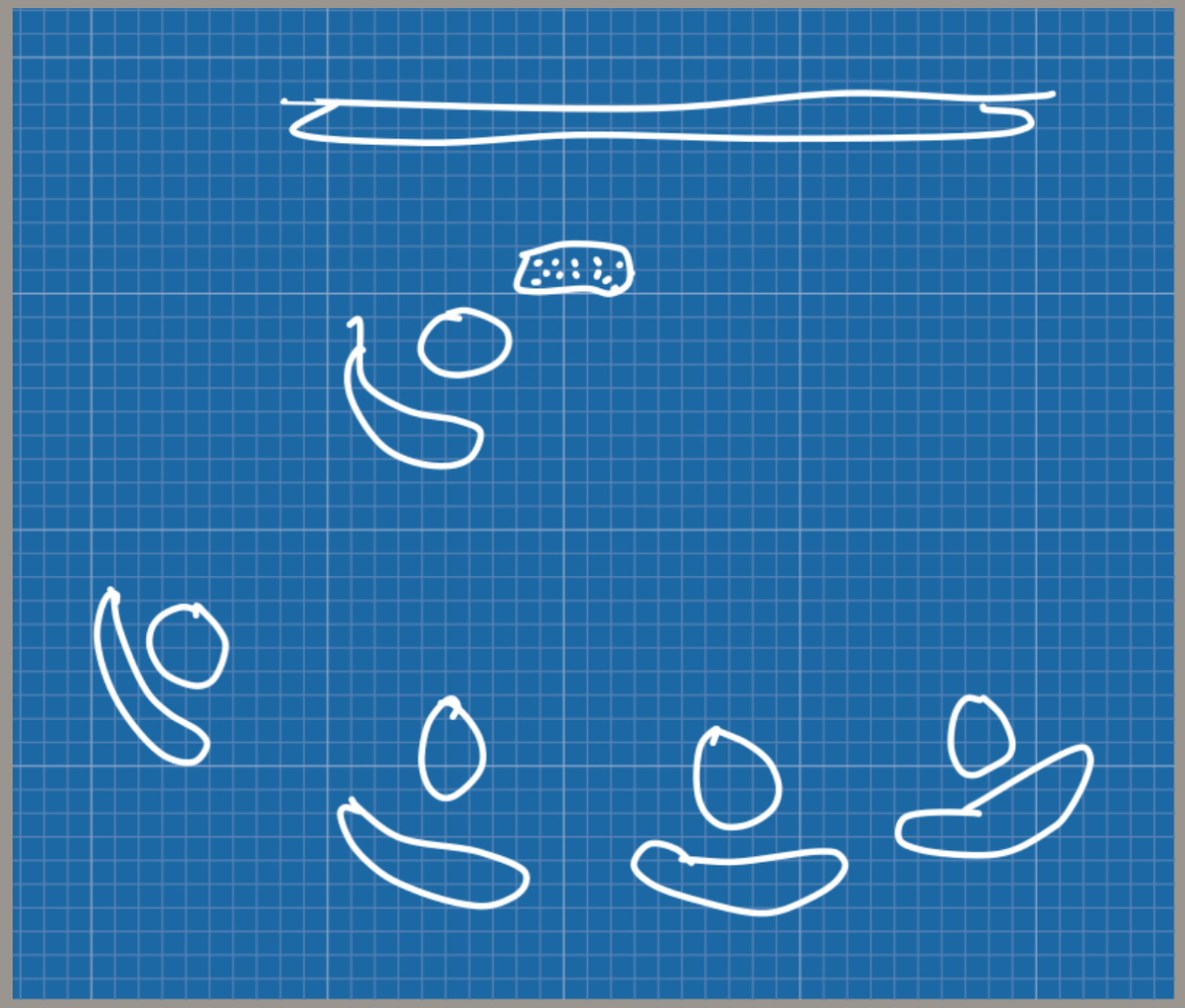
@JLangr

“We had a good time today.”



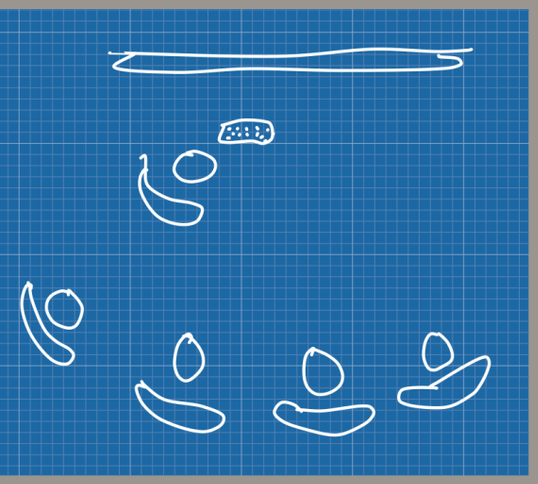
@JLangr

“We go faster.”



@JLangr

Possible reasons?



- WIP of one
- Important discussions happen before code integrated
- Fewer / simpler rituals / coordination efforts
  - Stand-ups, merges, iteration planning
  - More JIT efforts
- All the knowledge is here
- All the wisdom / expertise is here
- Everyone understands all the code
- The work never need stop
- Consistent solutions
- Adherence to quality standards / process
- Fewer defects
- Less rework
- Less merge hell
- Sensitive to delays / “lazy” / impatience
- Faster novice or new team member ramp-up

Mobbing? Hmm.

Things to Try

Guests

- experts
- managers
- ...

Warm-ups / katas

Speed challenges

Skills learning session

http://www.rtqe.net/ObliqueStrategies/

"Kata," courtesy https://www.flickr.com/photos/superwebdeveloper/
License: https://creativecommons.org/licenses/by/2.0/

Sacrificial lamb(s)

"This interruption is causing us to lose precious, active cycles. We are getting distracted from our primary purpose."

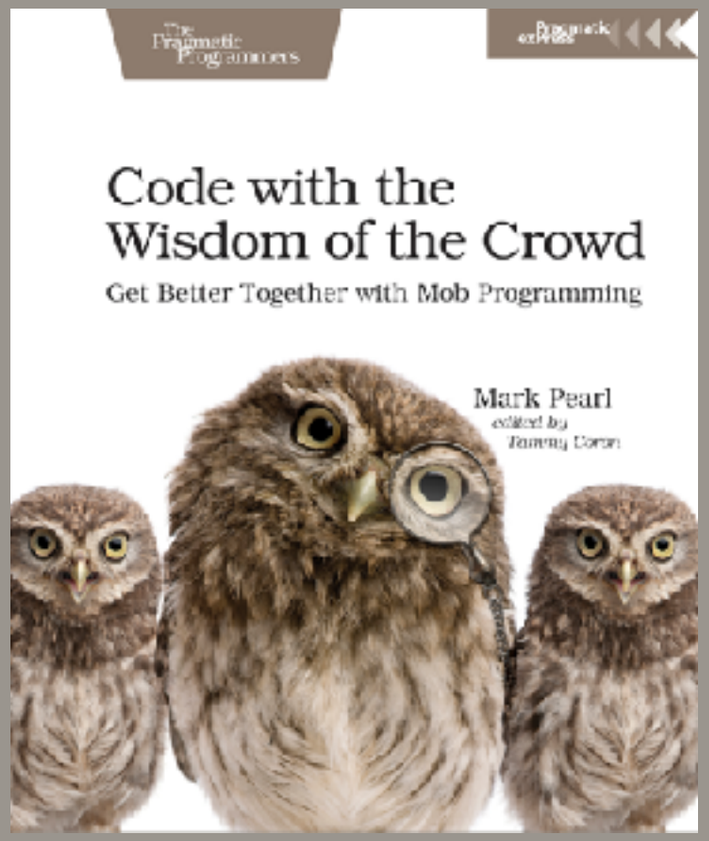
Alistair Cockburn, "A Diagnostic Model of Project Management"

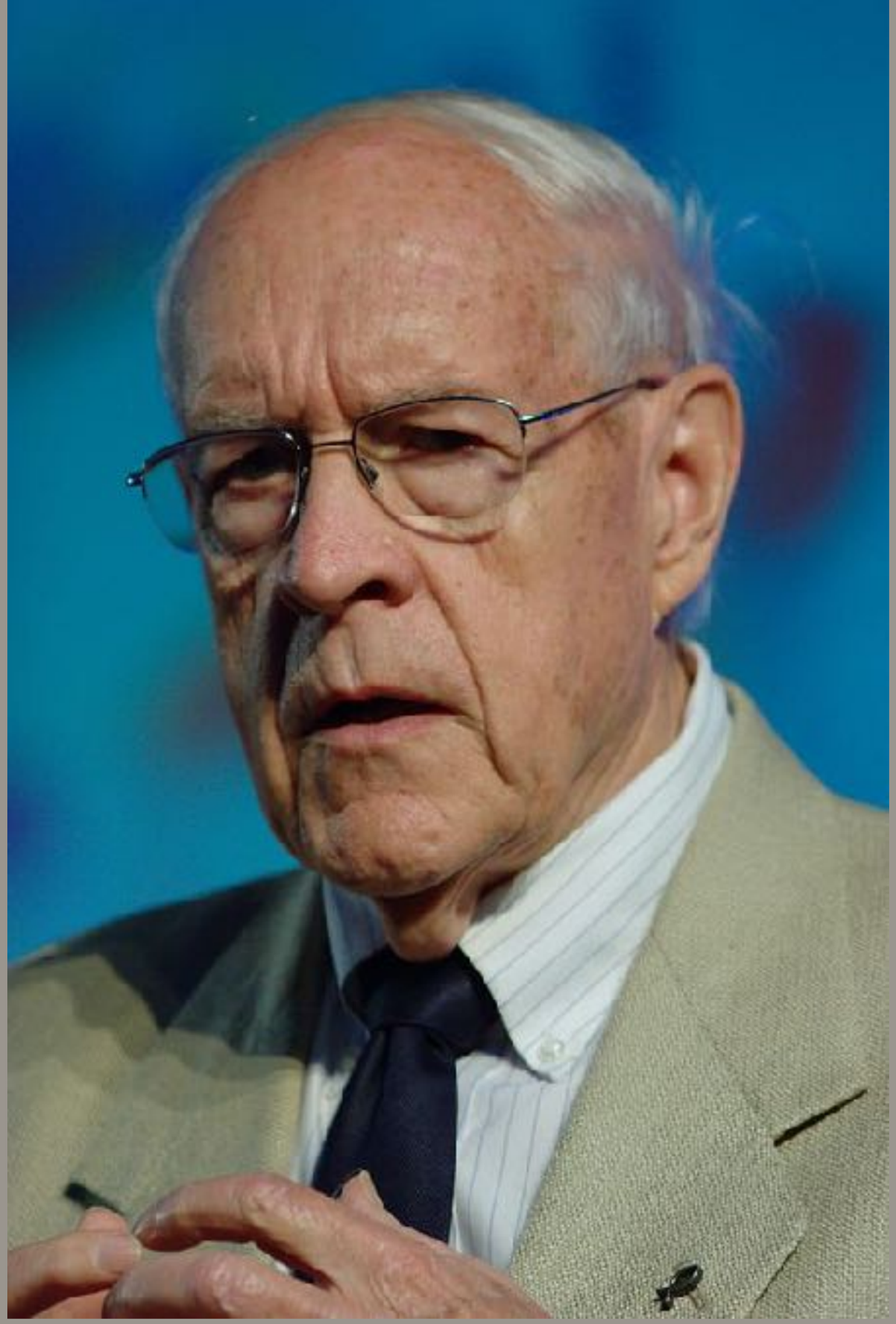
https://alistair.cockburn.us/wp-content/uploads/2018/02/7d3745cd-77c7-45b2-abdb-74c29f5a9ab4.pdf

Some resources

http://mobprogramming.org

"A Few Tips for Mob Programming" (IL)





https://commons.wikimedia.org/wiki/File:Frederick_Brooks_IMG_2279.jpg

Brooks' Law

“Adding manpower to a late software project makes it later.”

The Mythical Man-Month, 1975

What Next

Could your team do this?

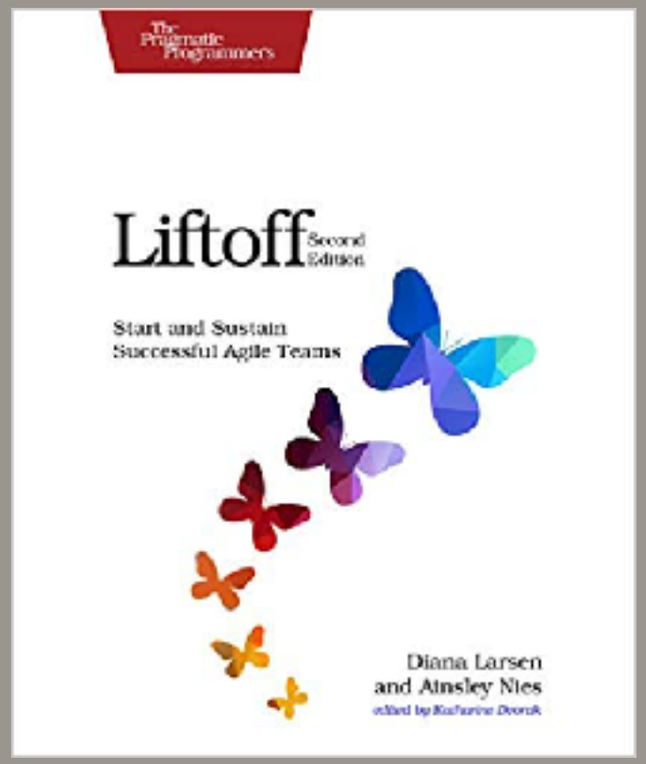
Agree to run experiment

"Mobbing Tuesdays?"

- or M-W, Tu-Th, 9-11:30, …
- better: M-Th, 9—noon

Create working agreements

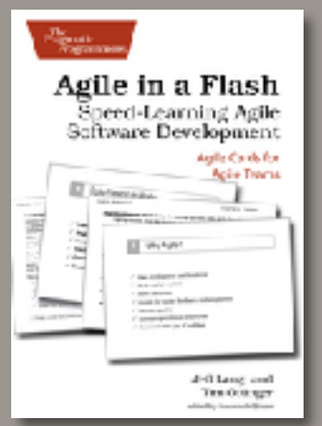
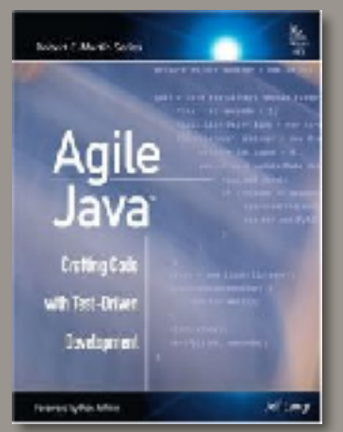
Solicit private feedback



Have fun with it

https://www.amazon.com/Liftoff-Start-Sustain-Successful-Agile/dp/1680501631

Thank you!

LANGR | SOFTWARE SOLUTIONS

http://langrsoft.com