

Quora's Approach To Moving Fast Sustainably

(In Ten Lessons)

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Qcon San Francisco, 11/18/2015



BHIWANI BOXING CLUB (BB)



IIT Delhi





Quora

The best answer to any question

Quora's Mission

To Grow And Share World's Knowledge

“Quora is a place where a normal teenager from a remote Asian country can get direct advice from world’s top astronauts, programmers, novelists and many others.”

Rajeeb Banstola

High School Student, Nepal

How much does eating ham and bacon increase your odds of getting cancer?

[Write Answer](#)[Re-Ask](#)

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6 Answers

**David Chan, MD from UCLA, Stanford Oncology Fellowship**

639 Views • David is a Most Viewed Writer in Cancer with 310+ answers.

It is very difficult to separate out specific food items from confounding variables. There is pretty good evidence that **obesity** puts people at risk for cancer. In fact, obesity is overtaking tobacco products as the leading cause of cancer in North America.

What are the things that obese people have in common. They eat a lot of calories. They don't exercise. They eat more meat (processed and others) and typically less fruit and

Would a rejection of the Iran nuclear deal by the US Congress be a vote for war?

Source: [Rejecting Iran nuclear deal is a vote for war, Obama says - BBC News](#)

 Write Answer

 Re-Ask

Follow

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10+

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80

...

39 Answers



Barack Obama, President of the United States

400.8k Views • Upvoted by Marc Bodnick, [Former Stanford PhD student in Politics](#) • Sina Taghva, [Born and living in Tehran](#) • David Waddell, [BBC journalist, international specialist](#) • Holly Gressley • Neeraj Agrawal • 68 others you follow
Answer featured in NBC News and 5 more.

The congressional vote on the [Iran nuclear agreement](#) is the most consequential foreign policy debate our country has had since the invasion of Iraq in 2003. So thank you for asking this question, it's an important one.

As Commander-in-Chief, I have no greater responsibility than keeping our country safe,



Most Viewed Writers in Software Engineering

The 10 writers with the most answer views in the last 30 days.

499,920

Views



Valentin Popescu, Software Architect

[View 15 Answers](#) • Endorse • Suggest Bio

469,393

Views



Quincy Larson, teacher at FreeCodeCamp.com

[View 68 Answers](#) • Endorse • Suggest Bio

330,294

Views



Drew Eckhardt, 20 years as a systems software engineer for business critical applications wi...

[View 280 Answers](#) • Endorse • Suggest Bio

@Quora {

Founded in 2010

65 Engineers

Python, JS, C++

}

1. Moving Fast
2. Moving Fast Recklessly
3. Ten Lessons For Sustainability

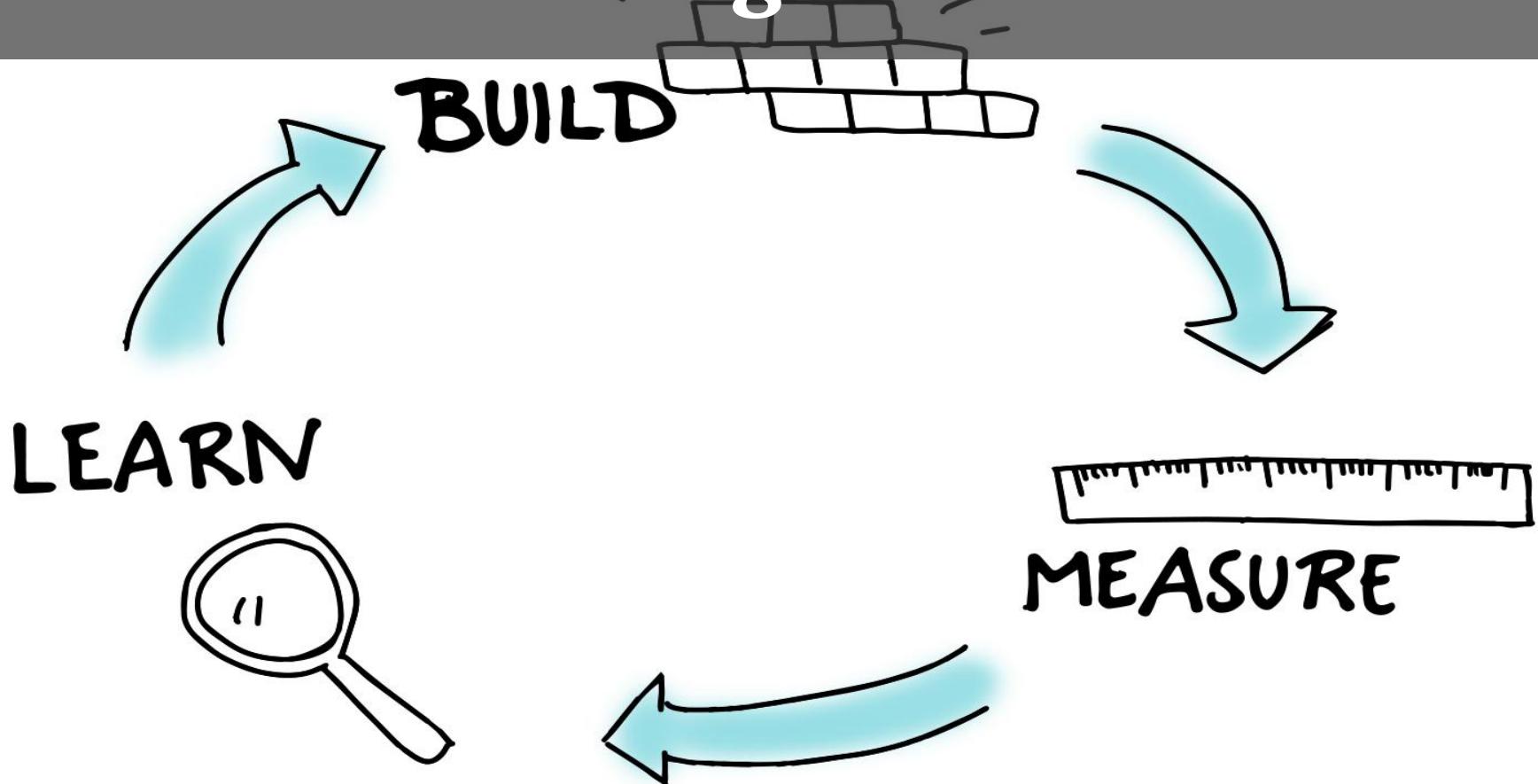
1. Moving Fast

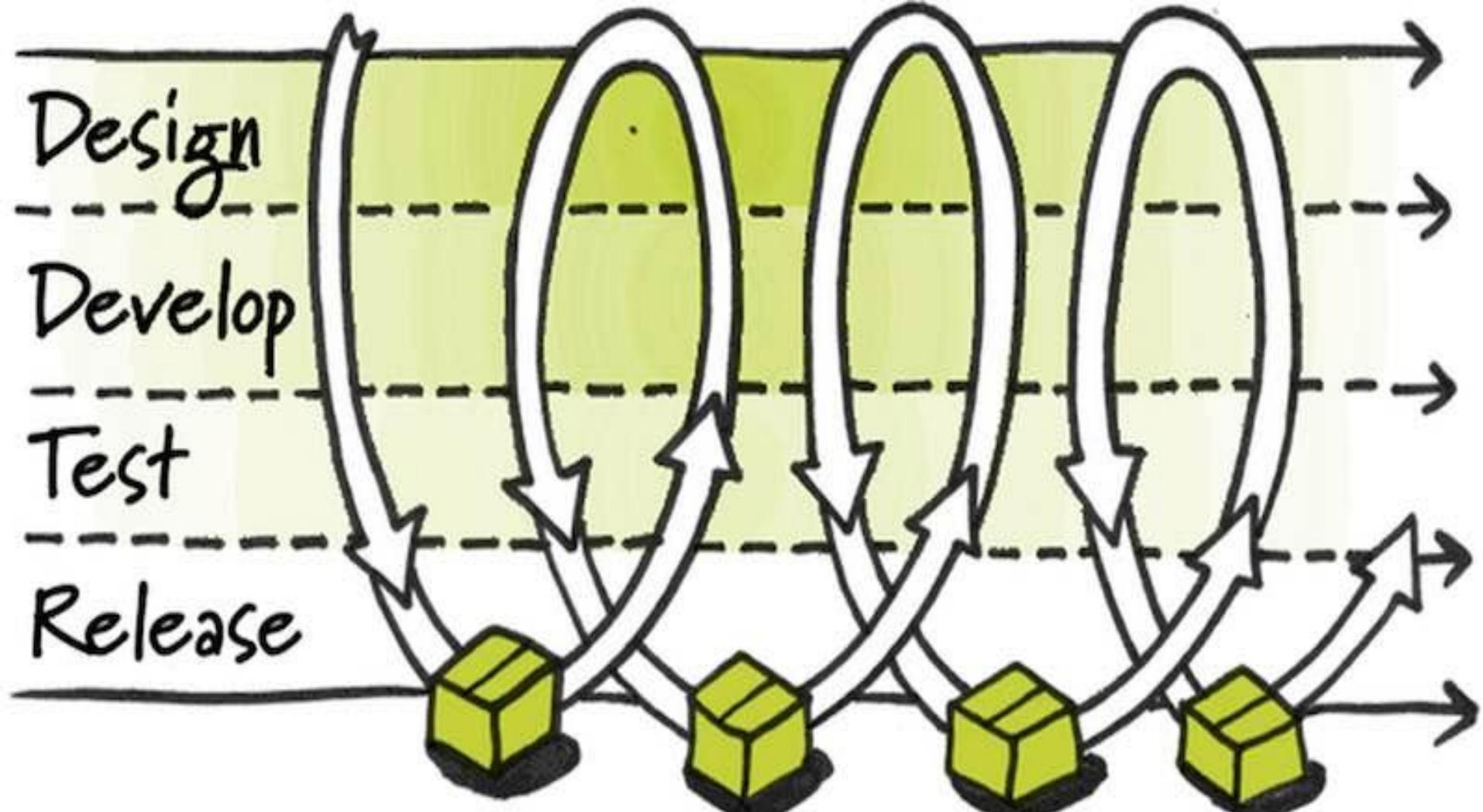
2. Moving Fast Recklessly

3. Ten Lessons For Sustainability



Maximizing Innovation





Winner Takes All

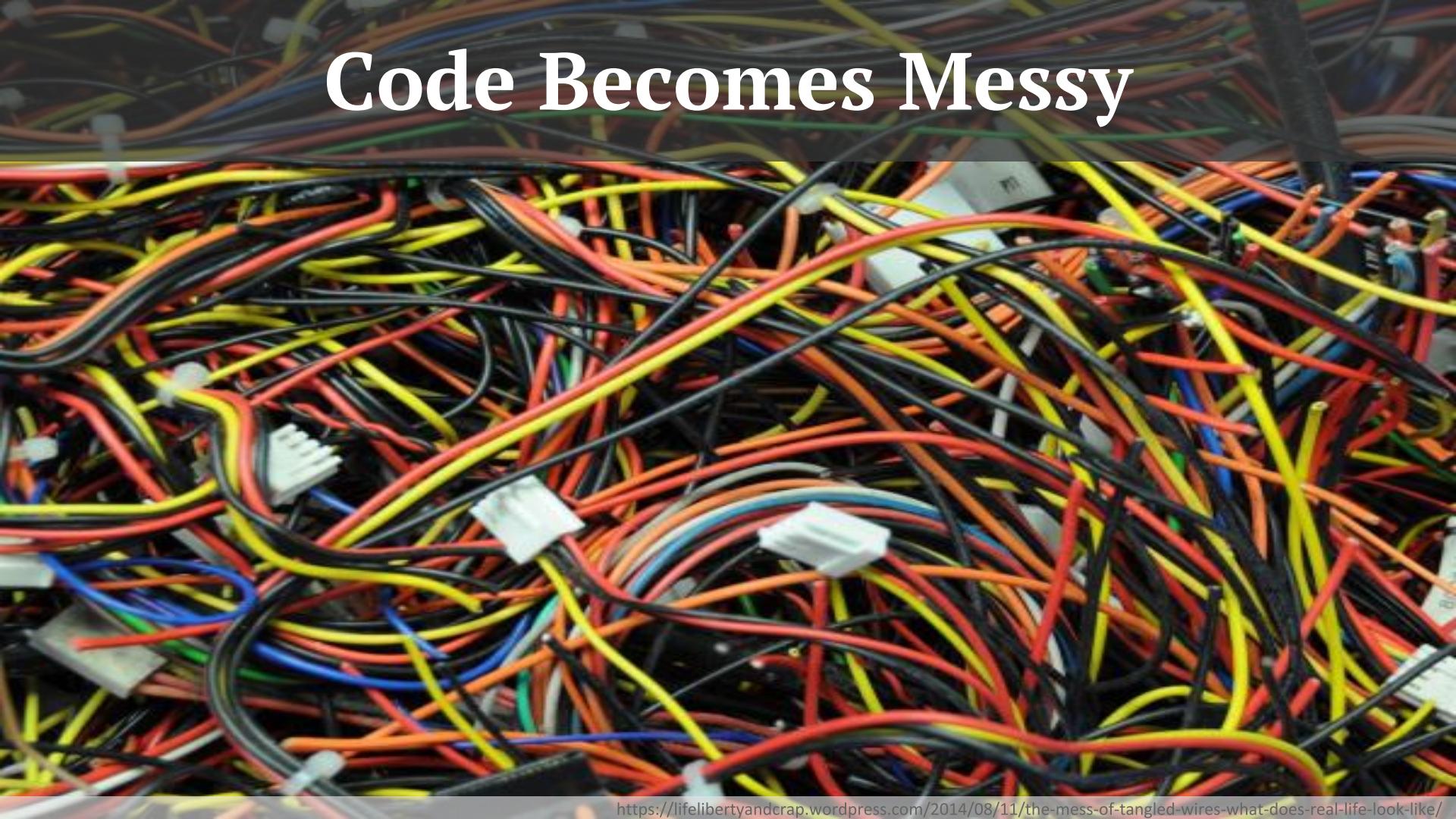


1. Moving Fast

2. Moving Fast Recklessly

3. Ten Lessons For Sustainability

Code Becomes Messy



Developers Become Unhappy



Development Can Just Halt



...So Must Move Fast, Sustainably



1. Moving Fast
2. Moving Fast Recklessly
3. Ten Lessons For Sustainability

1. Move Fast, On Average



2. Define Your Long-Enough Term



3. Do The Math. There IS Free Lunch



Building a Linter takes 4 weeks (160 hours)

Saves 1 hour per developer per week

At 50 developers, saves 50 hours per week

Saves 400 hours in 8 more weeks

Qlint: Quora's Python Linter



```
692
693     for tid, has_good_bio in zip(tids, has_good_bio_list):
694         if has_good_bio:
S>695             bio = yield get_best_bio_for_uid_tid.async(uid, tid)
696             _BestBioForUserAnswer(uid, aid).set(bio)
697             return
698
699 # if none of the bios are expert, return the user's profile bio.
700 profile_sig = a.model.sig.Sig(uid)
701             _BestBioForUserAnswer(uid, aid).set(profile_sig)
702
```

CWD: /home/nikhil/ans/web/lib/a ~/ans/web/lib/a/model/answer/credibility.py
E826 Avoid yielding in a loop in an asyncio function

model/answer/credibility.py:695: E826 Avoid yielding in a loop in an async function

```
has_good_bio_list = yield tuple(
    user_has_expert_or_world_expert_bio_for_topic.async(uid, tid) for tid in tids)

for tid, has_good_bio in zip(tids, has_good_bio_list):
    if has_good_bio:
        bio = yield get_best_bio_for_uid_tid.async(uid, tid)
        _BestBioForUserAnswer(uid, aid).set(bio)
        return

# if none of the bios are expert, return the user's profile bio.
profile_sig = a.model.sig.Sig(uid)
```

No replacement found. Edit manually? (e or y = edit [default], n = no, q = quit)? █

```
569         container_id,  
570         reply_to_id,  
571         include_deleted)  
572     for row in rows:  
573         comment = cls.from_row(row)  
574         # TODO(veni): this is temporary during comments cleanup  
575         comment._prime_row()
```

Lint: E809

[Line 575](#) [Previous](#) · [Next](#)

Accessing private member `comment._prime_row`. See

http://i.quora.com/internal/style_guide/python#imports-do-not-use-private-members-from-other-modules

```
576         yield  
577
```

Soon Going to Open Source Qlint :)



open Source



4. Commit Publicly



Define your long-enough term

Publicly commit to it

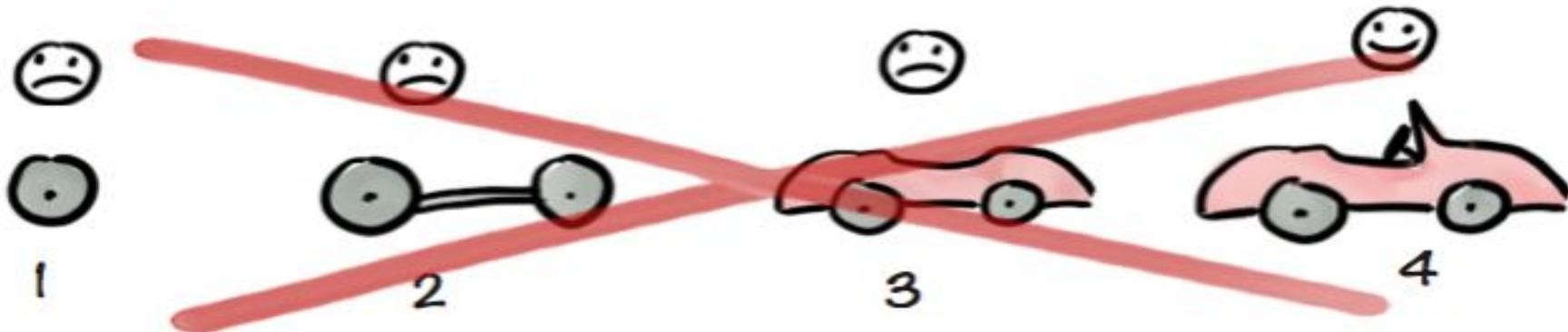
Empower developers to order free-lunch

Enjoy higher increased average speed

5. Cut Corners In Scope



Not like this....



Like this!





Most Viewed Writers in Software Engineering

The 10 writers with the most answer views in the last 30 days.

499,920

Views



Valentin Popescu, Software Architect

[View 15 Answers](#) • Endorse • Suggest Bio

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Views



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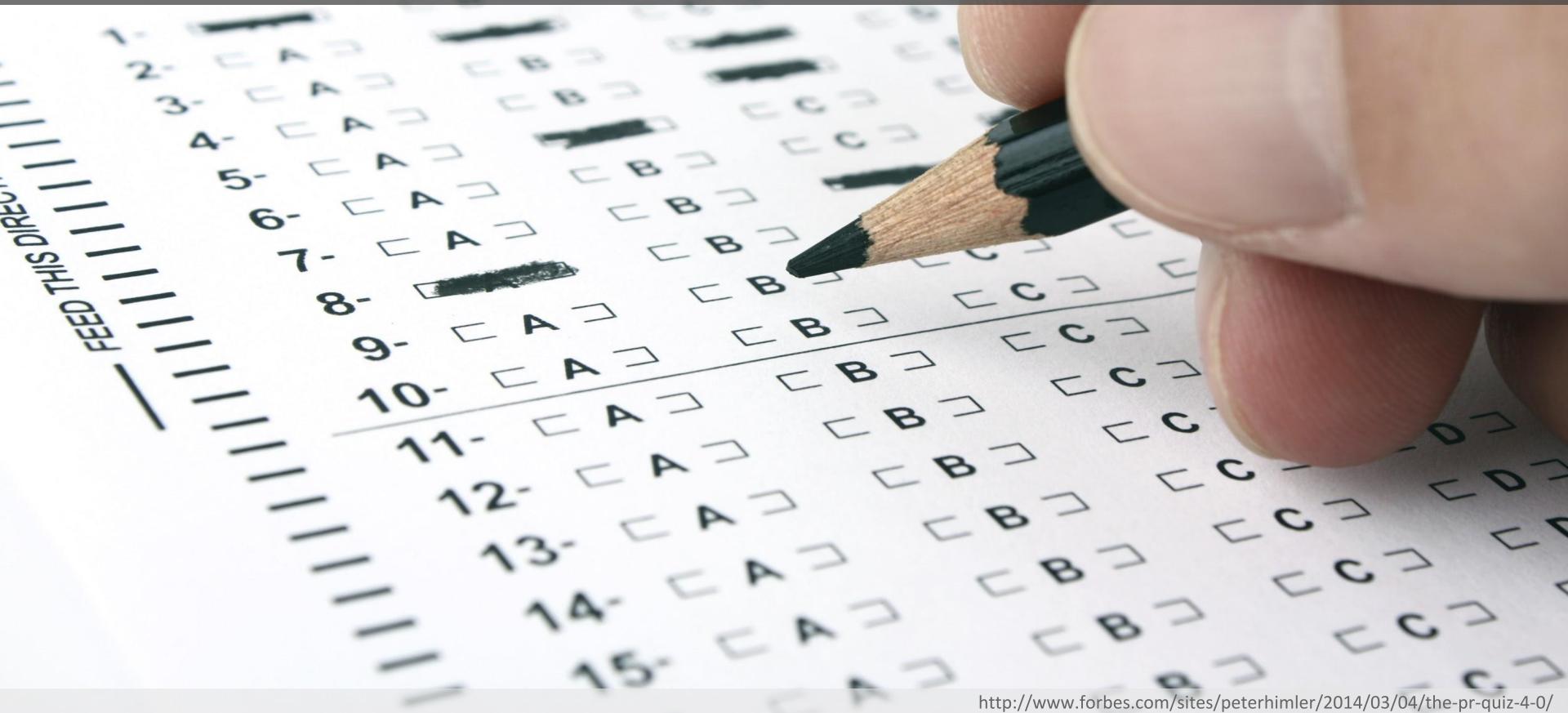
Drew Eckhardt, 20 years as a systems software engineer for business critical applications wi...

[View 280 Answers](#) • Endorse • Suggest Bio

6. Optimize Productivity Bottlenecks



Testing At Quora



Revision overview

Author / Rev	Enqueue time	Unit tests	Packages	Integration	Deploy status
Albert Sheu 2c59022	Apr 26 2013, 01:29:17 PM	in progress (37%, 2:11)	us-east-1 in progress (2:24) us-west-1 in progress (1:54)	not started	unreleased block
Nikhil Garg 8b8dcea	Apr 26 2013, 01:19:12 PM	passed (6:33)	us-east-1 ok (1:35) us-west-1 ok (3:17)	passed (4:03)	Apr 26 2013, 01:27:01 PM (97%)
Kah Seng Tay b0b3078	Apr 26 2013, 01:13:43 PM	passed (5:42)	us-east-1 ok (1:59) us-west-1 ok (2:57)	passed (3:45)	Apr 26 2013, 01:20:51 PM (3%)
Rebekah Cox be5e8eb	Apr 26 2013, 12:56:47 PM	passed (5:47)	us-east-1 ok (2:29) us-west-1 ok (3:21)	passed (3:20)	Apr 26 2013, 01:04:03 PM
Kah Hong Tay 79a0d3b	Apr 26 2013, 12:30:21 PM	passed (5:55)	us-east-1 ok (1:50) us-west-1 ok (2:57)	passed (3:32)	Apr 26 2013, 12:37:11 PM
Alex Yakunin 16cf597	Apr 26 2013, 12:21:39 PM	passed (6:06)	us-east-1 ok (1:44) us-west-1 ok (2:57)	passed (3:16)	Apr 26 2013, 12:28:20 PM

```
$ test-local
```

```
Checking for all stray .pyc files... DONE
```

```
Finding suitable test files for testing changes made between 1b622e5 and 0e35246 (including uncommitted changes)...
```

```
Found 2 Python test files containing 15 tests. Running nosetests on following:
```

```
* model/question/test_user.py  
* model/topic/test_merge.py
```

```
a.model.question.test_user.TestAllTopicQuestionsByUserByTime.test_simple ... ok  
a.model.question.test_user.TestQuestionsOfUserByTime.test_add ... ok  
a.model.question.test_user.TestQuestionsOfUserByTime.test_delete ... ok  
a.model.question.test_user.TestQuestionsOfUserInTimeRange.test_bound ... ok  
a.model.question.test_user.TestQuestionsOfUserInTimeRange.test_no_end ... ok  
a.model.question.test_user.TestQuestionsOfUserInTimeRange.test_no_range ... ok  
a.model.question.test_user.TestQuestionsOfUserInTimeRange.test_no_start ... ok  
a.model.question.test_user.test_all_questions_of_user.test_all_questions_of_user ... ok  
a.model.question.test_user.test_initial_anon.test_initial_anon ... ok  
a.model.question.test_user.test_privacy.test_privacy ... ok  
a.model.question.test_user.test_questions_of_user_in_year.test_questions_of_user_in_year ... ok  
a.model.topic.test_merge.test_follow_merge.test_follow_merge ... ok  
a.model.topic.test_merge.test_is_merged.test_is_merged ... ok  
a.model.topic.test_merge.test_iter_network_merges.test_iter_network_merges ... ok  
a.model.topic.test_merge.test_merge_exception.test_merge_exception ... ok
```

```
Ran 15 tests in 10.941s
```

```
OK
```

```
$
```

7. Reward Acceleration



Code Cleanup



Automation



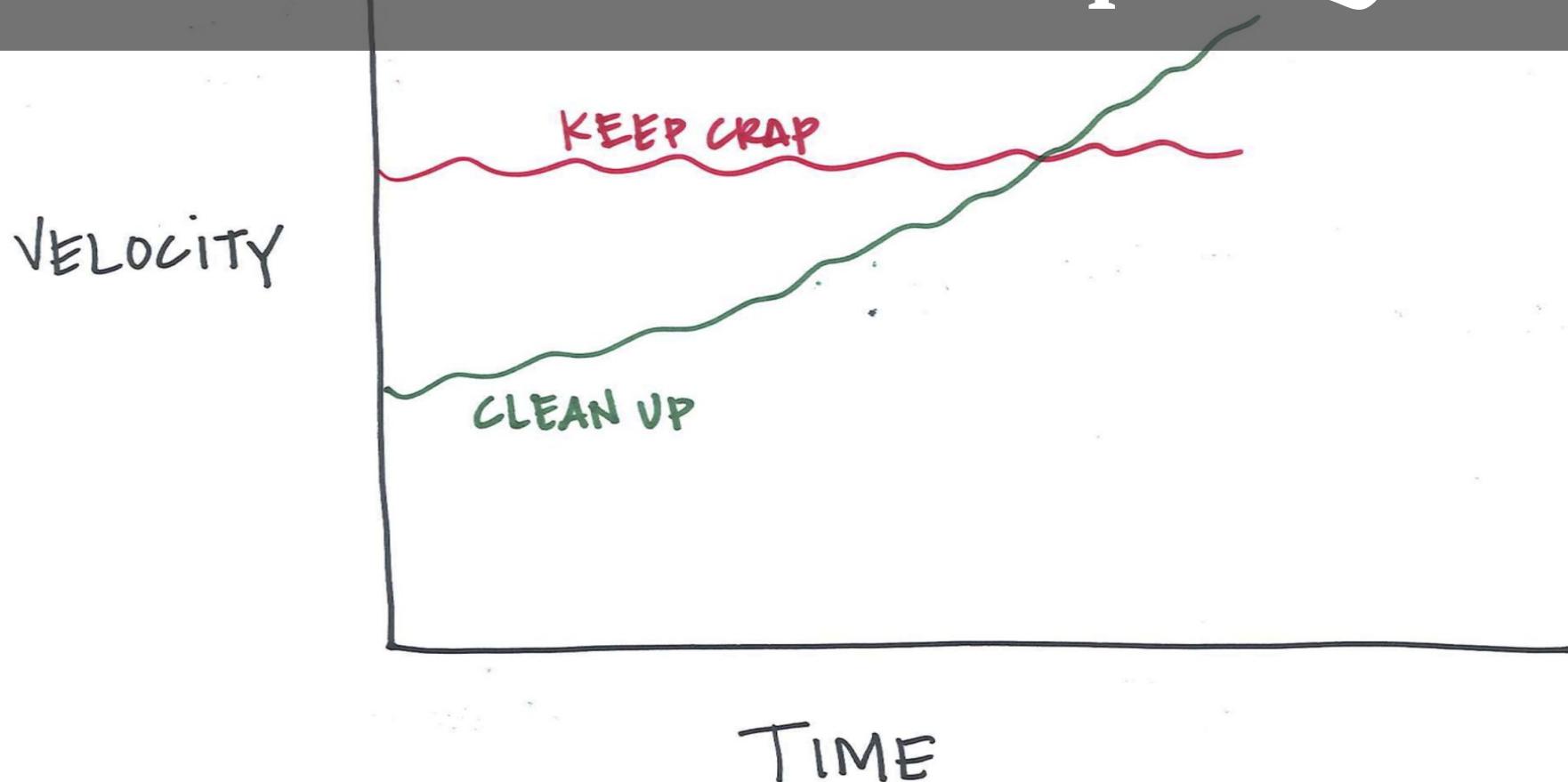
8. Prevent Deceleration



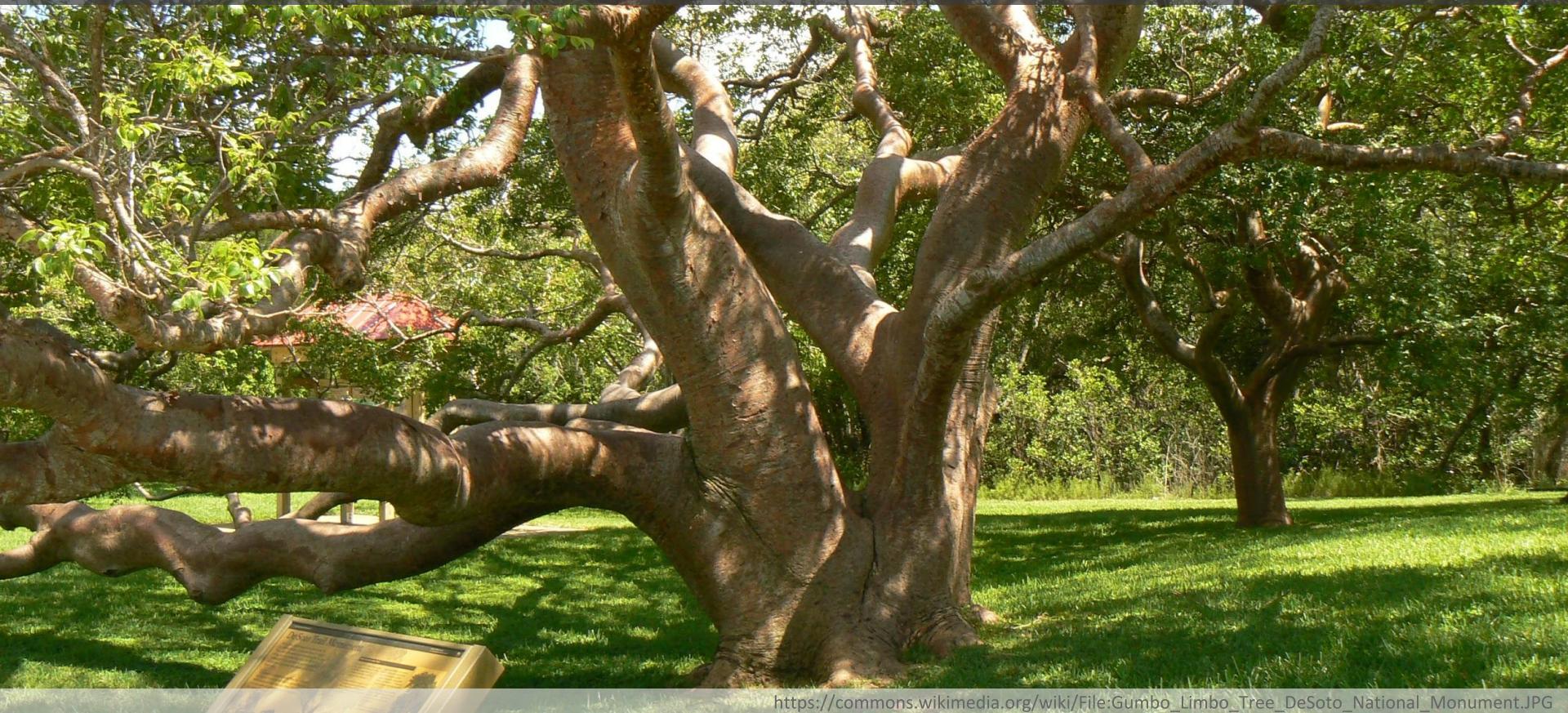
Slow Creep Of Complexity



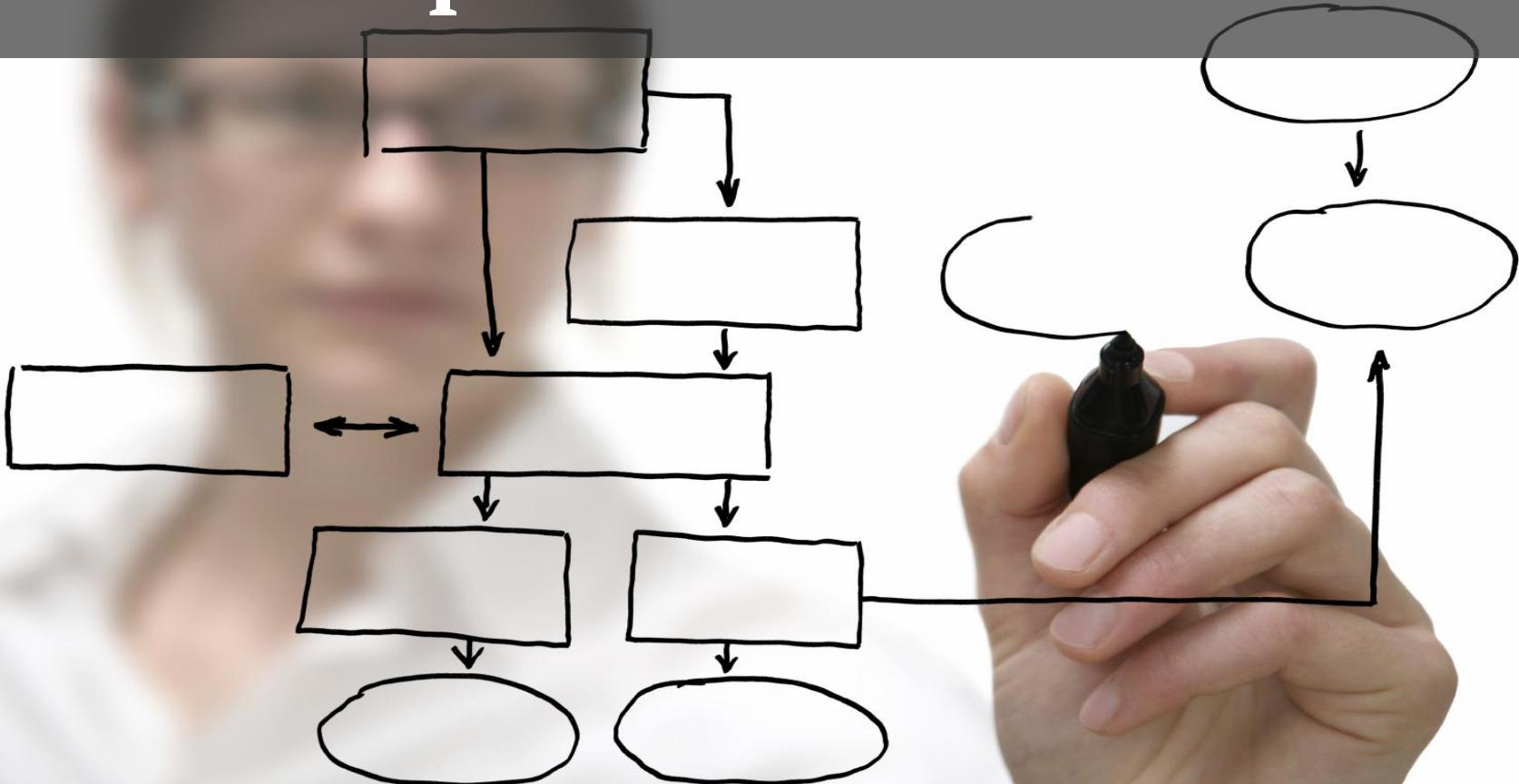
Batched Code Cleanup At Quora



Codebase Is A Tree



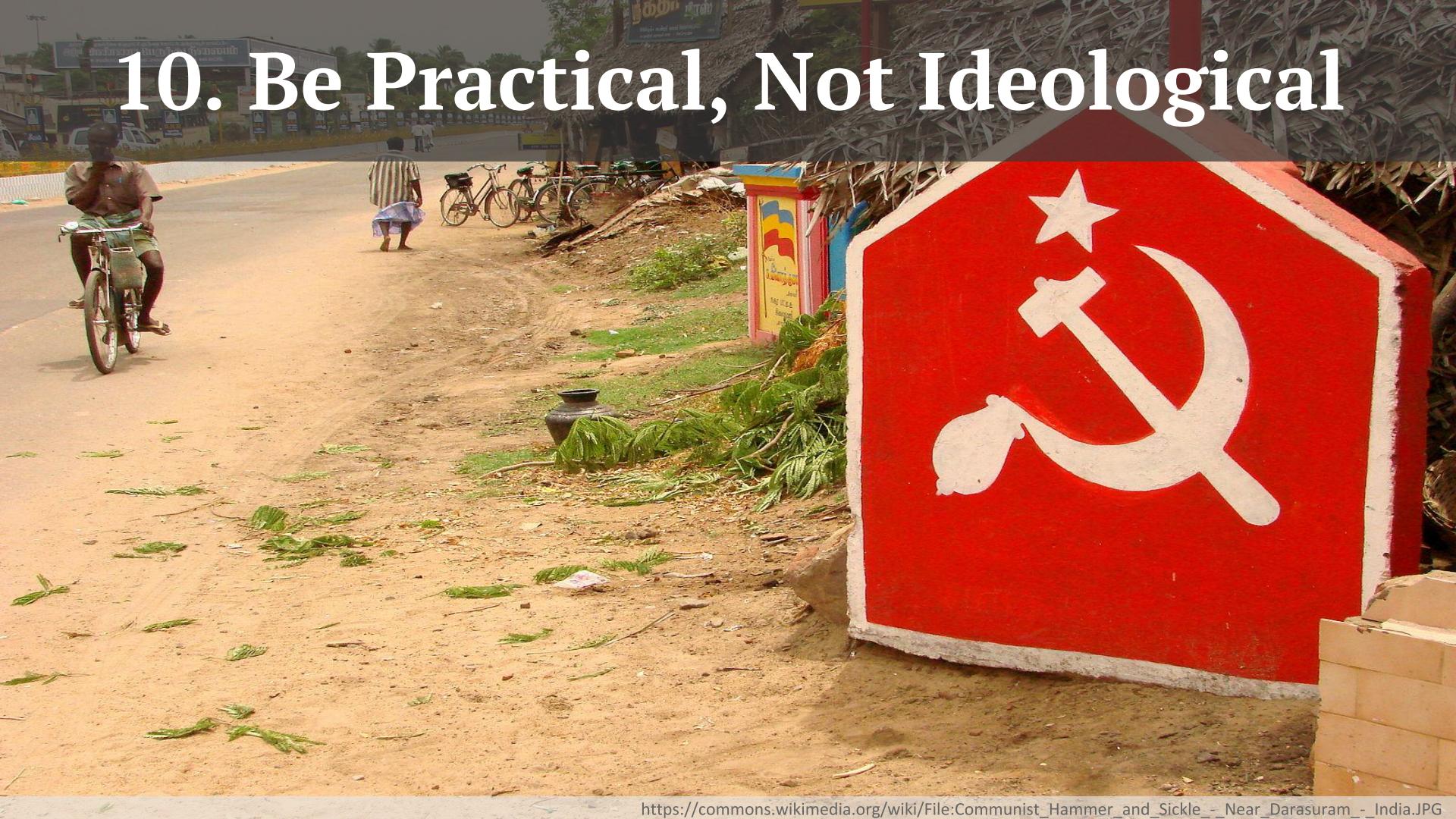
9. Optimize Processes



Continuous Deployment

‘Git Push’ To Production In 10 Minutes

10. Be Practical, Not Ideological



211
212
213

Close

Code Reviews Are Awesome

self.aid)

chunho

Line 213 [Previous](#) · [Next](#) · [Reply](#)

maybe add comment on why this is needed?

214
215
216
217
218
219
220
221
222

```
# only 1 answer (self.aid), return dictionary of value 1
assert_eq(
    {self.topic1.tid: 1, self.topic2.tid: 1},
    num_answers_by_topic_for_answer_uid(self.uid, self.aid))

# 20 answers in tid1, 15 in tid2
@async()
def mock_fn(uid, tid, include_collapsed=True):
```

chunho

Line 222 [Previous](#) · [Next](#) · [Reply](#)

ideally we should use `include_collapsed=False` here, since
`num_public_answers_of_user_by_topic` has this default value this way
or is it b/c it's causing extra complexity?

Style / Design

Education / Collaboration

Correctness [?]

[?] <http://research.microsoft.com/pubs/180283/ICSE%202013-codereview.pdf>

But Pre-Commit Reviews Are Costly



BLOCKED

Taking continuous deployment to the next level

Post Commit Code Reviews

(Code is reviewed after it goes to production)

Style / Design

Education / Collaboration

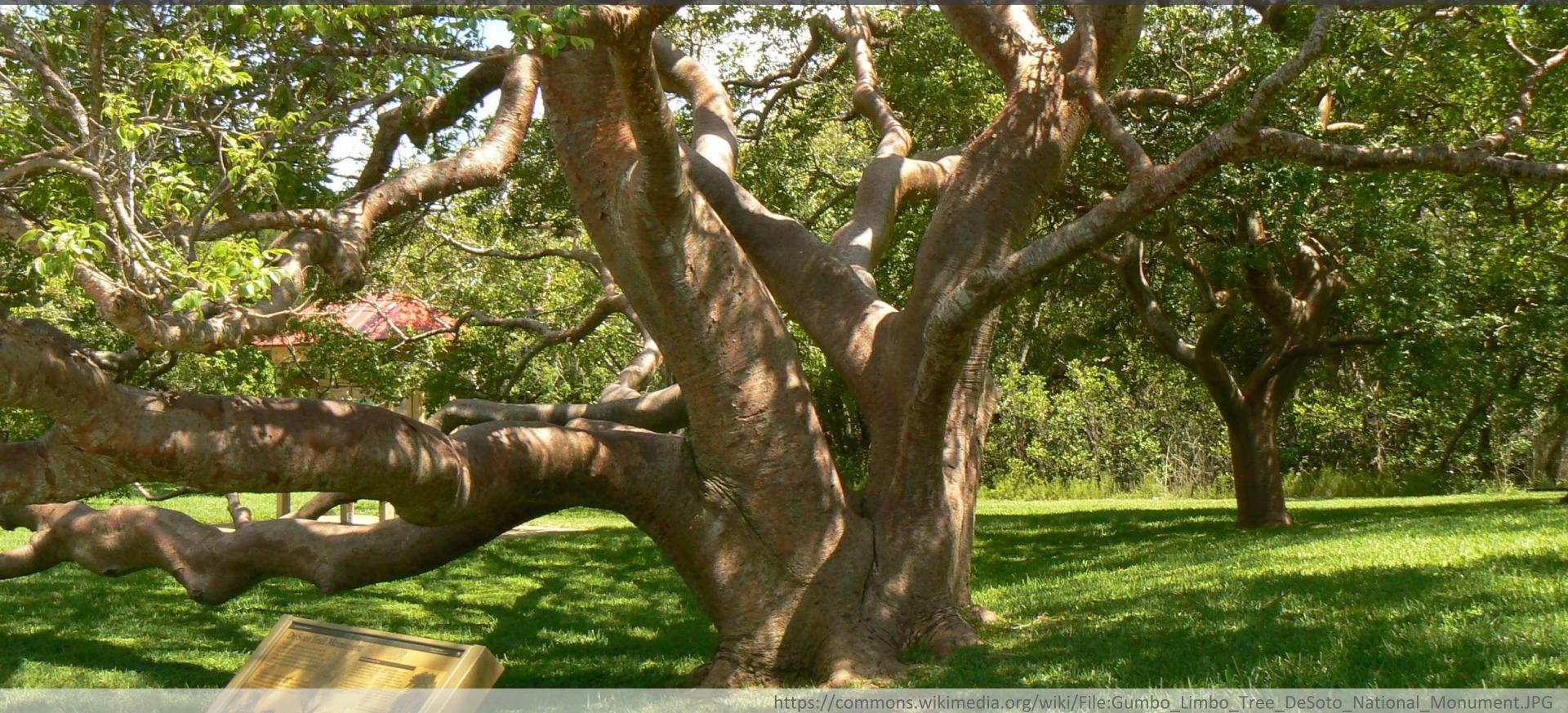
Correctness [?] → Testing

[?] <http://research.microsoft.com/pubs/180283/ICSE%202013-codereview.pdf>

Fall Back To Pre-Commit Reviews



Codebase Is A Tree



Easier to ask for forgiveness than permission!



Avoid truly terrible outcomes

Maximize expected speed

Minimize bad outcomes

Summary

Move Fast, On Average

Optimize Productivity Bottlenecks

Define Your Long Enough Term

Reward Acceleration

Do the Math. There IS Free Lunch

Prevent Deceleration

Commit Publicly

Optimize Processes

Cut Corners In Scope

Be Practical, Not Ideological

- Empower developers to move fast on average over long enough term by getting free lunch.
- Profile productivity like code, measure, optimize, make practical trade-offs.
- Post commit code reviews work, codebase is a tree.

Thank you!

Quora Is Hiring

Nikhil Garg

@nikhilgarg28 { Gmail, Github, Twitter, LinkedIn }