



RUBY CONF

-2023-

Testing in Production: there is a better way

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Sagrada Família

- 1882
Francisco de Paula del Villar.
- 1883
He resigned, and Antoni Gaudí started.
- 1884
Gaudí appointed Architect Director.
- 1926
Gaudí died. Project ¼ done.
- 1936
Spanish Civil War.
- 2017
ETA 2026.
- 2020
COVID-19.



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<https://commons.wikimedia.org/w/index.php?curid=122381649>

Confidence

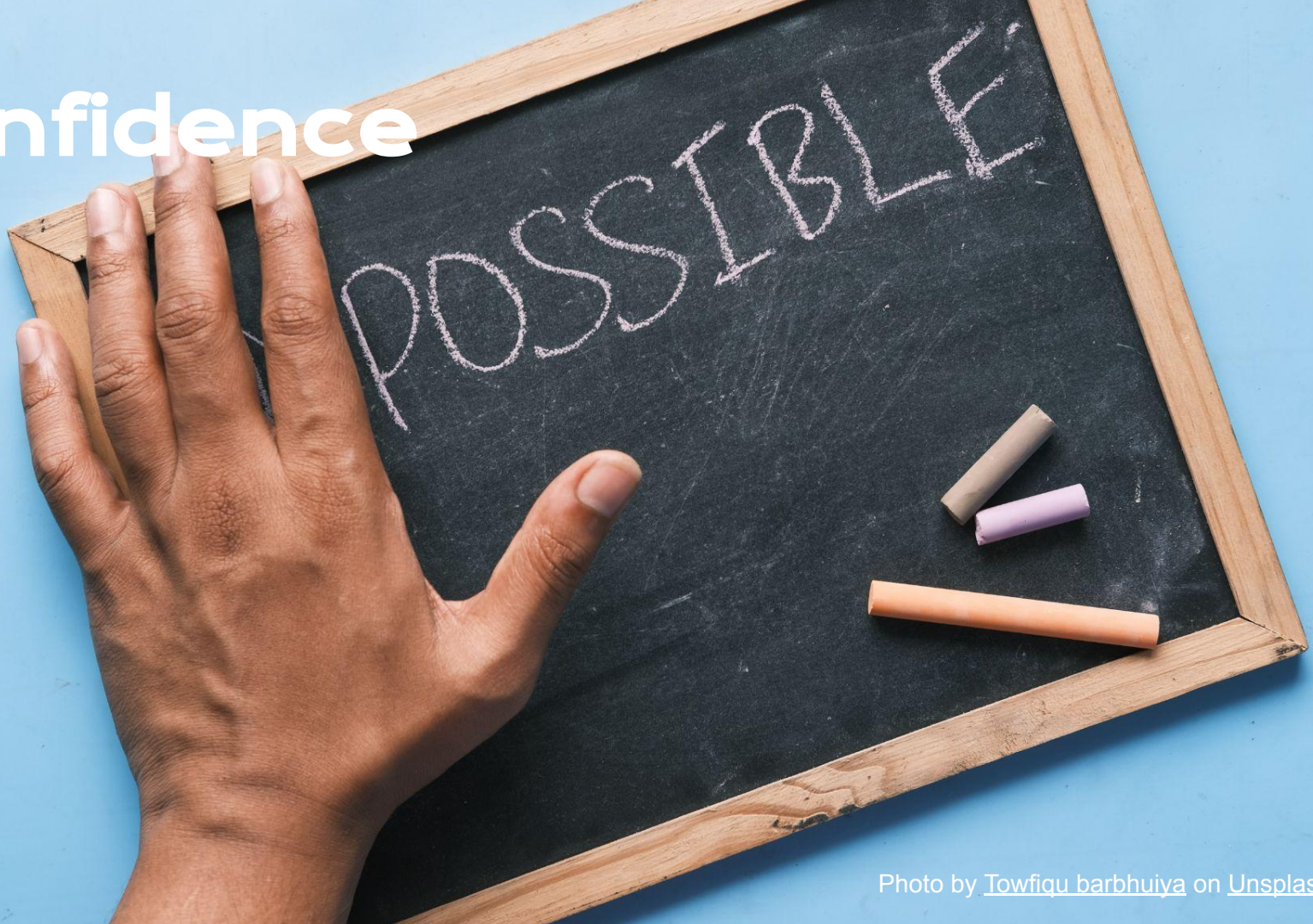


Photo by [Towfiq barbhuiya](#) on [Unsplash](#)

Refactoring/Rewrites

Why are devs afraid of refactoring?

- **Unexpected**
They don't know how it works.
- **Important**
It's a critical piece.

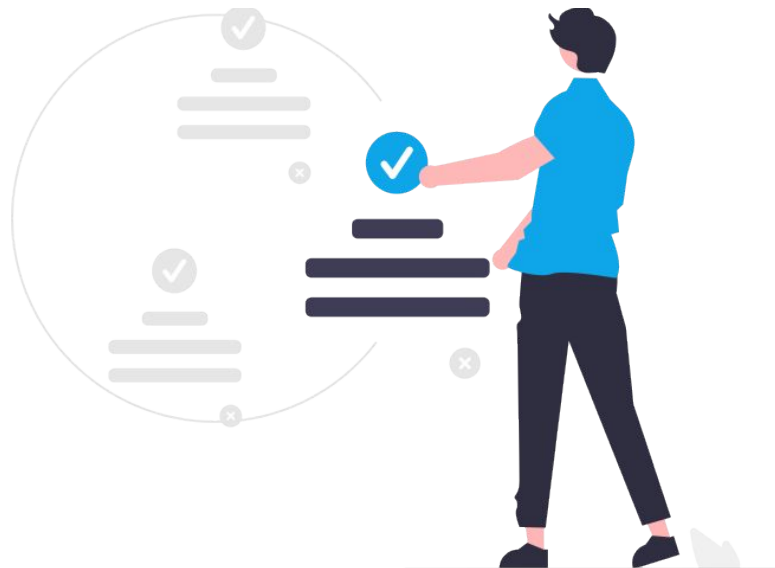


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Tests

Any problems with tests?

- Data Quality
- Best Effort
- Costly
- Costly



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Data

- **Inputs**

Do we have enough use-cases covered?

- **Outputs**

How do we know the new code is better, while still correct?



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Testing in Production

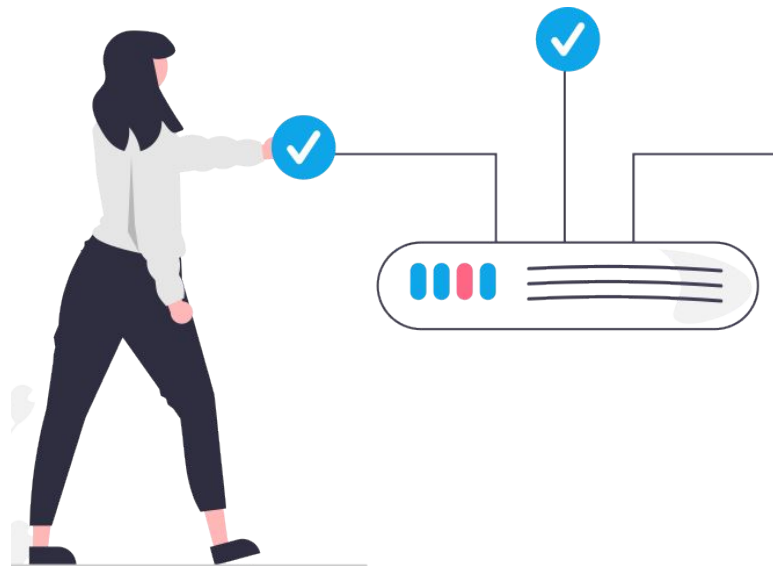
is a software development practice in which new code changes are tested on live user traffic rather than in a staging environment.



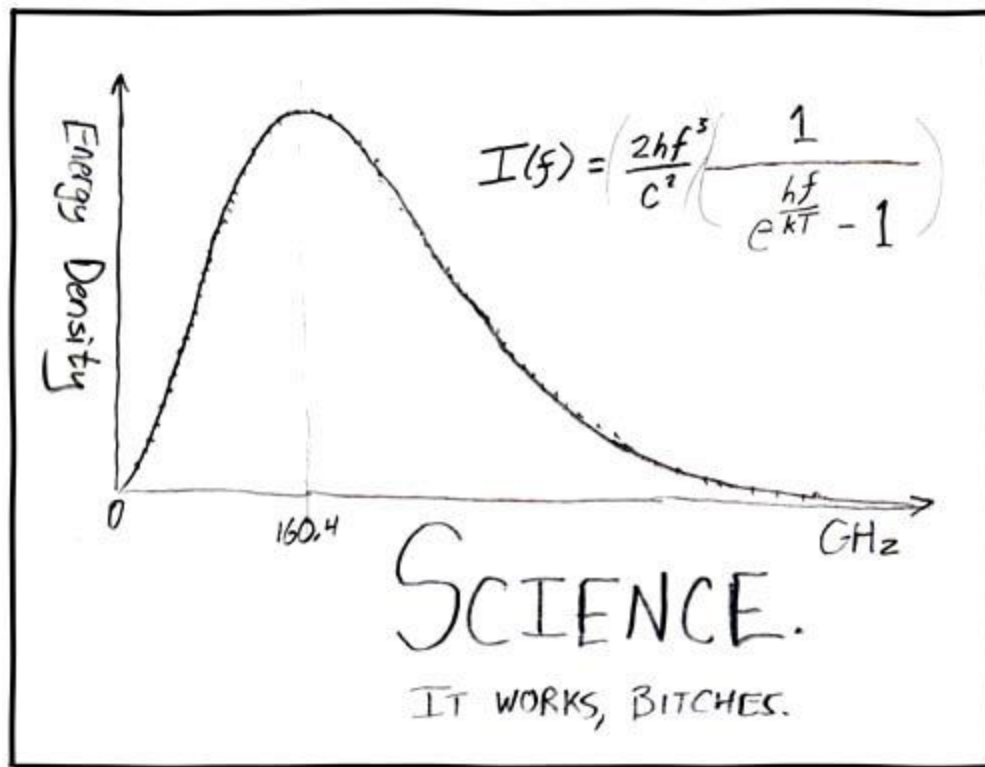
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Status Quo

- Feature flags
- Canary Deployments
- A/B Testing



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Elements of the scientific method

- Formulation of a question
- Hypothesis
- Prediction
- Testing
- Analysis



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Steps to big rewrites

**new
functionality**

dark ship

**migrate legacy
data**

**data will diverge
over time**

**double
write**

**migrate
again**

**find
bugs
in
the
old
system**

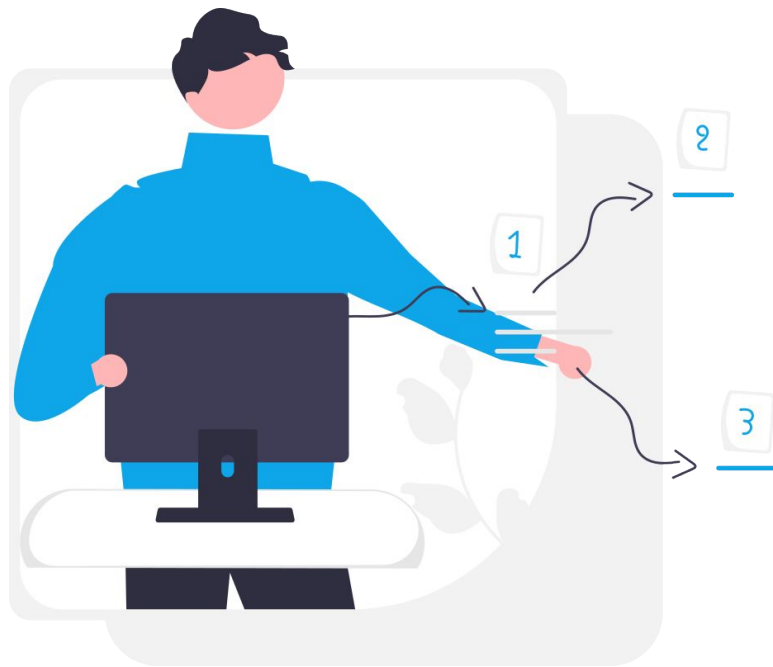


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Scientist

a Ruby library for carefully refactoring critical paths.

 [github/scientist](https://github.com/github/scientist)



Code Example



Set an experiment

```
science "widget-permissions" do |experiment|  
  experiment.use { model.check_user(user).valid? }  
  experiment.try { user.can?(:read, model) }  
end
```



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Users

GitHub

 **Trello**

Marvel



RealGeeks



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Myths

- Sandbox/Staging
- Static Types/Compiled
- High Load
- Only for refactoring
- Side Effects



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Experiments

API Keys

Elon

Sign out

Experiments

Overview

Events
3091
78% Accuracy

Rate
222
per hour

Rate
909
per day

Matches
657

Mismatches
179

Errors
73

Results



Experiments > Rails Demo > Events

Event ID 01GFPM5VSAM5MKT92HTT03Y4G

Matched

7 days ago

Event ID 01GFPM5GB08V3A16D67BABDQB6

Mismatched

control	candidate
- 50 %	+ 50 %

7 days ago

Event ID 01GFPM4PP3540GHPH7XCES381P

Errored

ZeroDivisionError: ZeroDivisionError

7 days ago

Event ID 01GFPM4GXWH7WKSYSK0TGNF9FC9

Mismatched

control	candidate
- 33.33 %	+ 33.33 %

7 days ago



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Thank you!

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