# Vidjil software development and quality

The Vidjil team

21 November 2017

# Testing the software

- Unit testing Testing that very small bricks have the expected behaviour
- ► **Functional testing** Testing that a software has the expected behaviour

# Unit testing Vidjil

Does the manual clustering does what is expected?

```
assert.equal(m.clone(0).getSize(), 0.05, "clone 0 : getsize = 0.05");
assert.equal(m.clone(1).getSize(), 0.1, "clone 1 : getsize = 0.1");
assert.equal(m.clone(2).getSize(), 0.125, "clone 2 : getsize = 0.125");

m.select(0)
m.select(1)
m.merge()
assert.deepEqual(m.clusters[0], [0,1], "merge 0 and 1: build cluster [0,1]");
assert.equal(m.clone(0).getSize(), 0.15, "cluster [0,1] : getsize = 0.15");
```

# Functional testing Vidjil

- ► **Algorithm**: testing that a sequence has the correct V(D)J designation
- ► Web application: testing that clicking on merge merges the clones

# A golden set of manually curated sequences

 $\sim$  250 sequences with hard-copy analysis available at vidjil.org/curated-vdj

>IGHV5-10-1\*01 2/CTTC/3 IGHD1-14\*01 1/GTTA/5 IGHJ5\*01 ggacaccgccatgtattactgtgcgaCTTCataaccggaaccaGTTA tggttcgactcctggggccaaggaaccctggtcaccgtctcctcag

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#### **Contribute** by sending any manually curated sequences

- Lille (A. Caillault, Y. Ferret)
- GOSH, London (G. Wright)
- Paris-Necker (F. Thonier)
- CLIP, Prague (M. Kotrova)
- Bristol (S. Wakeman, M. Duez)
- Rennes (A. Fievet)

Presented during RepSeq 2016

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Ability to encode alternative solutions:

>TRGV4\*02 (4/4/4 TRGJ1\*01, 4/4/1 TRGJ1\*02)

# Functional testing Vidjil

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### Continuous integration

#### Systematic tests, code review

#### numericalAxis: use nice\_number\_digits in FloatAxis

Closes #2731.

Edited 37 minutes ago by Mathieu Girau

Request to merge feature-c/2731-nice\_number\_dig... hinto dev

Pipeline #11003 passed for 658ff73a.

Deployed to review/feature-c/2731-nice\_number\_digits on
feature-c-2731-nice-number-digits.ci.vidjil.org/?data=analysis-example.vidjil 32 minutes ago
Stop environment

## Continuous integration

#### Systematic tests, code review

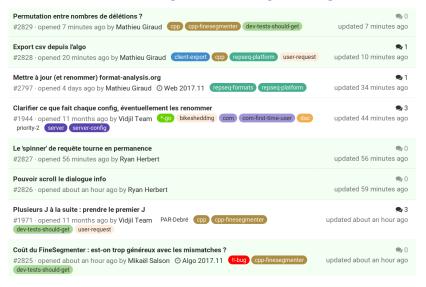
#### numericalAxis: use nice\_number\_digits in FloatAxis

Closes #2731.

Edited 37 minutes ago by Mathieu Girau

```
Request to merge feature-c/2731-nice_number_dig... 📭 into dev
      Pipeline #11003 (
                                        passed for 658ff73a.
      Deployed to review/feature-c/2731-nice number digits on
      ☑ feature-c-2731-nice-number-digits.ci.vidjil.org/?data=analysis-example.vidjil 32 minutes ago
        Stop environment
FloatAxis.prototype = Object.create(NumericalAxis.prototype);
   FloatAxis.prototype.getLabelText = function(value) {
        return parseFloat(value).toFixed(2)
        return parseFloat(value).toFixed( nice number digits(this.min, this.max, 2) )
```

## Follow your issues with gitlab.vidjil.org



Contribute or send your issues at support@vidjil.org

# Managing unexpected incidents

- Monitoring, to identify them quickly
- ► Taking actions to **prevent them**

# Monitoring unexpected events

Is the server still up?			
Statu	s Last 7 Days		Туре
	100.00%	bbi – Client	http
	100.00%	bbi – Network	ping
	93.996%	vda – Network	ping
	93.946%	vda – Server	http

## Monitoring unexpected events



#### Did an unexpected error occur on the web application?

Ticket: vidjil/134.206.27.125.2017-11-20.10-22-27.0042abe0-210e-4f11-8c66-f51f6396c7aa

At: /vidjil/tag/auto\_complete?keys=[1,2,3,4,5,6,7,8]

User: 134.206.27.125 Ryan\_Herbert

## In real life, there are production incidents

Incident 2017-04-04 (all times CEST)

- 12:02 First failed job, other jobs may be still working.
- 15:22 User AC report
- 15:27 User JB report
- 16:02 INCIDENT OPENED. Server Notification (Mathieu) Investigation (Rayan, Mikaël)
- 16:18 Restart of launch queue, test jobs seem to work. SOLVED ? Further investigation.
- 16:26 UNDERSTOOD: problem yesterday in a minor upgrade.

  Jobs were not launching since yesterday 19:10

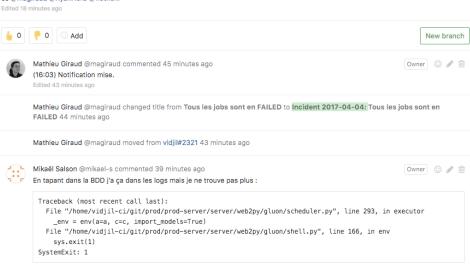
  (but there were no users until today 12:02)

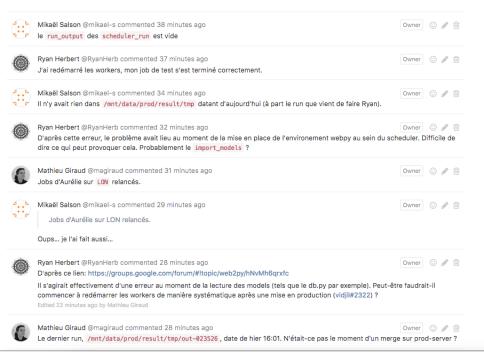
  Discussing prevention measures (#2322, #2323)
- 16:49 CLOSED, notification on the server, mail to users

#### Incident 2017-04-04: Tous les jobs sont en FAILED

Mails de Jack (15:27) et Aurélie (15:22)

cc @magiraud @RyanHerb @flothoni







Mikaël Salson @mikael-s mentioned in issue vidiil#2322 25 minutes ago



Owner ① / fill

Owner ① 🖋 🛍

Et même lancer systématiquement un job de test + des tests fonctionnels live (vidiil#2323).

Mikaël Salson @mikael-s commented 22 minutes ago Job COMPLETED ça doit être bon

Mikaël Salson @mikael-s commented 18 minutes ago Le merge sur prod-server :

Apr 3 19:12:05 vda ubuntu: vidjil-ci@134.206.27.223 [30986]: git pull [1]

Apr 3 19:12:11 vda ubuntu: vidjil-ci@134.206.27.223 [30986]: git reset --hard origin/prod-server [0]

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# In real life, very hard incidents also happen Incident 2017-10-24

- ▶ We lost a hard drive (storing all the websites, databases. . . )
- ► The service was down for several days
- ▶ We lost 1.5 days of data
- We discussed how to improve our backups

## As incidents happen, we need robust backups

- Sequences are **not** backup-ed
- Metadata, results and analyses are backup-ed
  - Once a month: a full backup
  - Twice a day (will be increased): All the metadata and new results and analyses since the start of the month