

FAST-CHECK

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INTRODUCCIÓN

- ¿Qué es *Fast-Check*?
- ¿Qué es *Property-Based testing*?

CARACTERÍSTICAS

- Property based testing
- Ejecución rápida y sencilla
- Permite generalización
- Aislamiento de fallos
- Reproducible
- Herramienta activa





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19 direct contributors



STAKEHOLDERS



JavaScript,
TypeScript, etc.
Testing developers

VENTAJAS DE PROPERTY BASED TESTING

- VENTAJAS:
- Al crear datos random es más probable que encuentre los fallos antes que nosotros.
- Los tests se ejecutan múltiples veces con diferentes datos aleatorios -> evita que un día funcionen y al otro día no.
- Reducción del input en caso de fallo.

DESVENTAJAS DE PROPERTY BASED TESTING

- DESVENTAJAS:
- No es exhaustivo por sí mismo: combinado con unit-testing adquiere mucha más robustez.
- Es complejo inicialmente.
- Si no sabemos darle el enfoque correcto no es totalmente efectivo.
- Error común de los usuarios: crear tests que reimplementan la lógica del código cuando queremos testear dicha lógica. **Add(a,b)==a+b**



PATRONES DE DISEÑO

PATRÓN DECORATOR

Branch: master

[fast-check](#) / [src](#) / [check](#) / [runner](#) / [DecorateProperty.ts](#)

Find file

Copy path



dubzzz Adapt and expose IRawProperty, IProperty and IAsyncProperty types (#...

5f54476 on 4 Nov 2019

1 contributor

23 lines (21 sloc) | 1.11 KB

Raw

Blame

History



```
1 import { IRawProperty } from '../property/IRawProperty';
2 import { SkipAfterProperty } from '../property/SkipAfterProperty';
3 import { TimeoutProperty } from '../property/TimeoutProperty';
4 import { UnbiasedProperty } from '../property/UnbiasedProperty';
5 import { QualifiedParameters } from './configuration/QualifiedParameters';
6
7 /** @hidden */
8 type MinimalQualifiedParameters<Ts> = Pick<
9   QualifiedParameters<Ts>,
10   'unbiased' | 'timeout' | 'skipAllAfterTimeLimit' | 'interruptAfterTimeLimit'
11 >;
12
13 /** @hidden */
14 export function decorateProperty<Ts>(rawProperty: IRawProperty<Ts>, qParams: MinimalQualifiedParameters<Ts>) {
15   let prop = rawProperty;
16   if (rawProperty.isAsync() && qParams.timeout != null) prop = new TimeoutProperty(prop, qParams.timeout);
17   if (qParams.unbiased === true) prop = new UnbiasedProperty(prop);
18   if (qParams.skipAllAfterTimeLimit != null)
19     prop = new SkipAfterProperty(prop, Date.now, qParams.skipAllAfterTimeLimit, false);
20   if (qParams.interruptAfterTimeLimit != null)
21     prop = new SkipAfterProperty(prop, Date.now, qParams.interruptAfterTimeLimit, true);
22   return prop;
23 }
```

Recorte rectangular

PATRÓN COMMAND

Branch: master ▾

[fast-check](#) / [src](#) / [check](#) / [model](#) / [command](#) /



dubzzz Add support for an async check method in commands ...

..



[AsyncCommand.ts](#)

Add support for an async check method in commands



[Command.ts](#)

Add basic interfaces and runners for model based testing



[ICommand.ts](#)

Add support for an async check method in commands

Branch: master ▾

[fast-check](#) / [src](#) / [check](#) / [model](#) / [commands](#) /



dubzzz 🦖 Stack overflows while shrinking large arrays of commands (#541)

..



[CommandWrapper.ts](#)

Migrate from tslint to eslint (#440)



[CommandsArbitrary.ts](#)



Stack overflows while shrinking large arrays of commands (#541)



[CommandsIterable.ts](#)

Add replay ability for commands










[CommandsSettings.ts](#)

Document CommandsSettings and replay of commands

ARQUITECTURA DE LA APLICACIÓN

Arquitectura modular

Divide los distintos elementos de la aplicación en módulos que se comunican y dependen unos de otros

Branch: master ▾		fast-check / src / check /	
 dubzzz		🌟 Better typings for oneof and frequency (#556) ...	
..			
	arbitrary	🌟	Better typings for oneof and frequency (#556)
	model	🐛	Stack overflows while shrinking large arrays of commands (#541)
	precondition	🌟	Implement interruptAfterTimeLimit (#428)
	property		Allow looser return types for AsyncProperty beforeEach and afterEach (#...
	runner	🌟	Add xoroshiro128plus in RandomType (#537)
	symbols.ts		Handle unpure generated values (1st commit)

INSTALACIÓN DEL MODULO

```
yarn add fast-check --dev  
npm install fast-check --save-dev
```

EJEMPLOS

- <https://github.com/dubzzz/fast-check>
- <https://codesandbox.io/s/github/dubzzz/fast-check/tree/master/example?previewwindow=tests>

```
1 import fc from 'fast-check';  
2 import { decompPrime } from './src/decompPrime';  
3  
4 // Above this number a*b can be over 2**31-1  
5 const MAX_INPUT = 65536;  
6  
7 describe('decompPrime', () => {  
8   it('should produce an array such as the product equals the input', () => {  
9     fc.assert(  
10       fc.property([fc.nat(MAX_INPUT), n => {  
11         const factors = decompPrime(n);  
12         const productOfFactors = factors.reduce((a, b) => a * b, 1);  
13         return productOfFactors === n;  
14       }])  
15     );  
16   });  
17  
18   it('should be able to decompose a product of two numbers', () => {  
19     fc.assert(  
20       fc.property([fc.nat(MAX_INPUT), n => {  
21         const factors = decompPrime(n);  
22         const productOfFactors = factors.reduce((a, b) => a * b, 1);  
23         return productOfFactors === n;  
24       }])  
25     );  
26   });  
27 })
```

Running Test Suites... 3 passed 12 total 22547ms

Test Summary 7 passed 45 total

There are no failing tests, congratulations!

Console Problems React DevTools

No problems!

DEPENDENCIAS

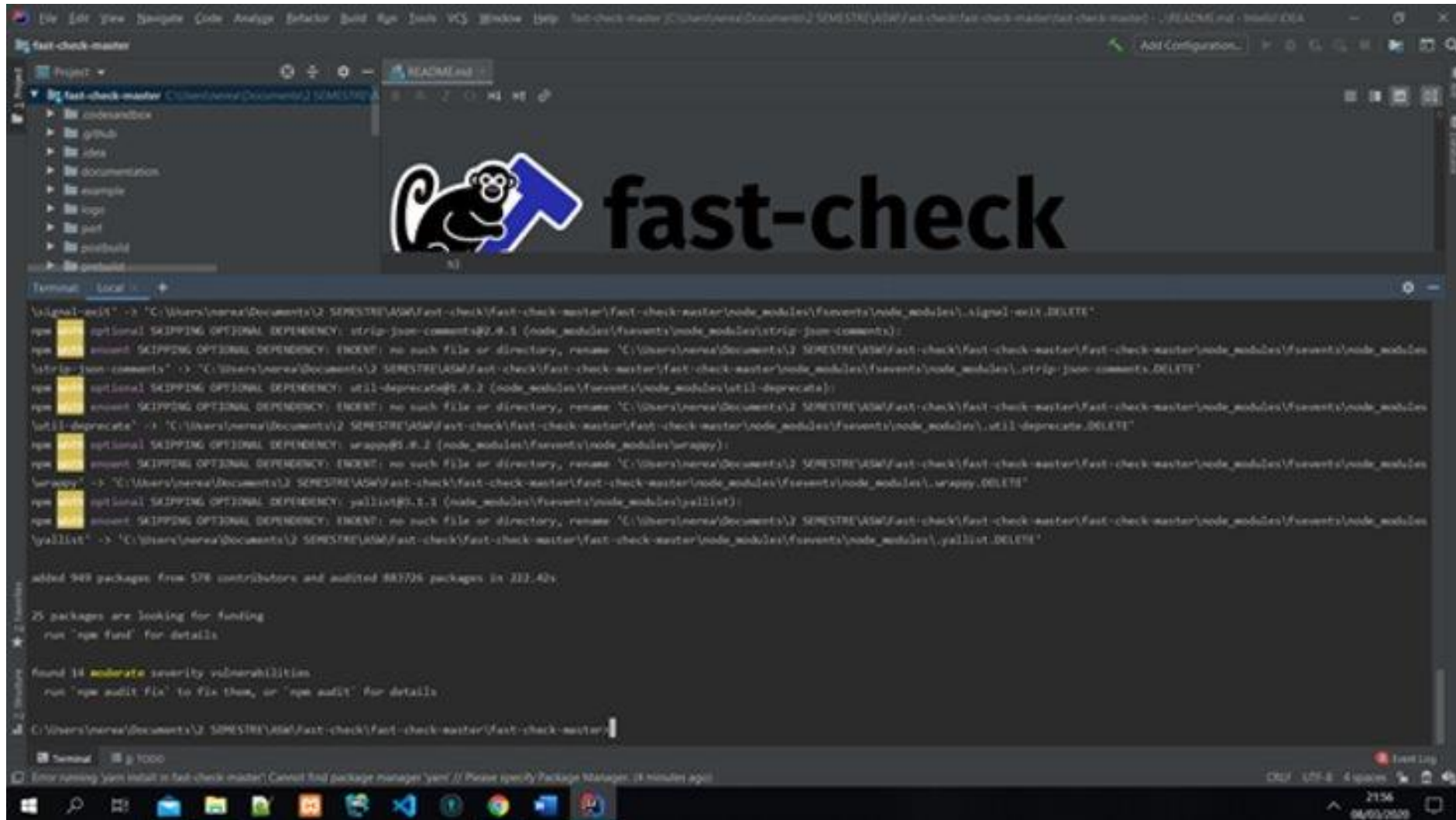
package.json

- Node
- Jest
- TypeScript-ESLint
- Prettier
- Benchmark

```

{
  "name": "my-app",
  "version": "1.0.0",
  "description": "A simple web application",
  "main": "index.js",
  "scripts": {
    "start": "node index.js",
    "build": "tsc",
    "test": "jest",
    "lint": "eslint .",
    "format": "prettier --write ."
  },
  "dependencies": {
    "express": "^4.18.2",
    "body-parser": "^1.20.0",
    "cors": "^2.8.5",
    "dotenv": "^16.0.3",
    "helmet": "^5.1.1",
    "morgan": "^1.10.0",
    "typescript": "^5.0.4",
    "typescript-eslint": "^5.59.1",
    "eslint-plugin-prettier": "^4.2.1",
    "prettier": "^2.8.7",
    "jest": "^29.3.1",
    "ts-jest": "^29.0.5",
    "ts-node": "^10.9.1",
    "tsconfig-paths": "^4.1.1",
    "benchmark": "^2.1.2"
  },
  "devDependencies": {
    "@types/express": "^4.17.14",
    "@types/body-parser": "^1.19.2",
    "@types/cors": "^2.8.13",
    "@types/dotenv": "^8.2.0",
    "@types/helmet": "^4.0.0",
    "@types/morgan": "^1.9.4",
    "@types/node": "^18.11.18",
    "@types/react": "^18.0.26",
    "@types/react-dom": "^18.0.10",
    "@types/jest": "^29.2.5",
    "@types/ts-jest": "^29.0.0",
    "@types/benchmark": "^2.1.2"
  },
  "jest": {
    "preset": "ts-jest",
    "testEnvironment": "node",
    "moduleFileExtensions": [
      "ts",
      "tsx",
      "js",
      "jsx",
      "json",
      "node"
    ]
  }
}
```

EJECUCIÓN FAST-CHECK



The screenshot shows a VS Code editor with the 'fast-check-master' project open. The file explorer on the left lists directories: 'codeandbox', 'github', 'idea', 'documentation', 'example', 'logs', 'jest', and 'postbuild'. The main editor area displays the 'README.md' file, which features the 'fast-check' logo (a monkey holding a blue arrow) and the text 'fast-check'. Below the editor, a terminal window is open, showing the output of an 'npm install' command. The terminal output includes several warnings about optional dependencies being skipped due to missing files or directories, such as 'strip-json-comments@2.0.1', 'util-deprecate@0.0.2', and 'wrappy@0.0.2'. It also reports that 949 packages were added from 576 contributors and 88776 packages were audited in 212.42s. At the bottom, it states '25 packages are looking for funding' and 'found 14 moderate severity vulnerabilities'. The system tray at the bottom shows the date as 09/03/2020 and the time as 21:36.

```
fast-check-master (C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master) - README.md - Node.js
Project
  fast-check-master C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master
    codeandbox
    github
    idea
    documentation
    example
    logs
    jest
    postbuild

Terminal Local
  \original> npm install --> "C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\signal-exit.DELETE"
  npm WARN optional SKIPPING OPTIONAL DEPENDENCY: strip-json-comments@2.0.1 (node_modules\fs-events\node_modules\strip-json-comments):
  npm WARN   ENOENT: no such file or directory, rename 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\strip-json-comments' -> 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\strip-json-comments.DELETE'
  npm WARN optional SKIPPING OPTIONAL DEPENDENCY: util-deprecate@0.0.2 (node_modules\fs-events\node_modules\util-deprecate):
  npm WARN   ENOENT: no such file or directory, rename 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\util-deprecate' -> 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\util-deprecate.DELETE'
  npm WARN optional SKIPPING OPTIONAL DEPENDENCY: wrappy@0.0.2 (node_modules\fs-events\node_modules\wrappy):
  npm WARN   ENOENT: no such file or directory, rename 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\wrappy' -> 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\wrappy.DELETE'
  npm WARN optional SKIPPING OPTIONAL DEPENDENCY: yallist@0.1.1 (node_modules\fs-events\node_modules\yallist):
  npm WARN   ENOENT: no such file or directory, rename 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\yallist' -> 'C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master\node_modules\fs-events\node_modules\yallist.DELETE'

  added 949 packages from 576 contributors and audited 88776 packages in 212.42s

  25 packages are looking for funding
  run `npm fund` for details

  found 14 moderate severity vulnerabilities
  run `npm audit fix` to fix them, or `npm audit` for details

  C:\Users\neroa\Documents\2 SEMESTRE\ASW\fast-check\fast-check-master\fast-check-master>
```

¿PREGUNTAS?

Gracias por
vuestra atención