

Testing NR1 Nerdpacks

An Introduction

New Relic Labs | November 3rd, 2020



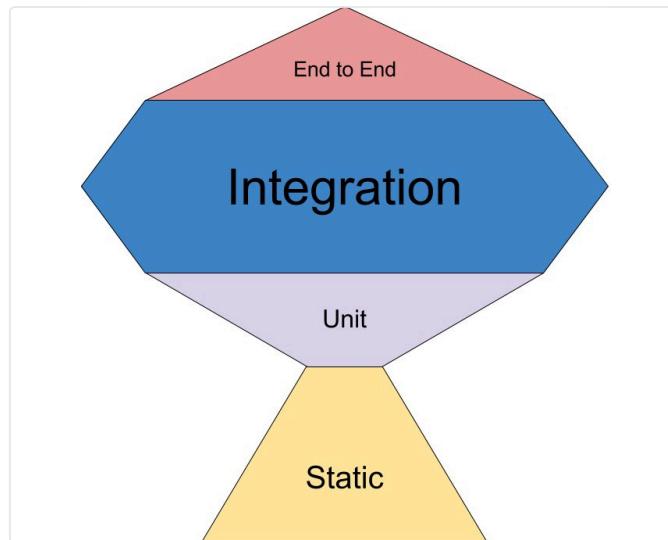
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"The Testing Trophy" 🏆

A general guide for the **return on investment** 💰 of the different forms of testing with regards to testing JavaScript applications.

- End to end w/ @Cypress_io 🚗
- Integration & Unit w/ @fbjest 🤖
- Static w/ @flowtype ⚡ and @geteslint 🔍



7:53 PM - Feb 5, 2018

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github.com/amit-y/nr1-testing-intro

git checkout 1-init

Jest

git checkout 2-jest

- Test Runner 
- From the same authors as React
- Fairly simple to get started with little to no config
- Easy mocks and spies
- Coverage reports
- Comprehensive API

```
npm i --save-dev jest babel-jest @babel/preset-env @babel/preset-react
```

babel.config.js

```
module.exports = {  
  presets: ['@babel/preset-env', '@babel/preset-react'],  
};
```

package.json

```
"scripts": {  
  "test": "jest",  
}
```

```
jest --init
```

```
npx jest --init
```

`jest.config.js`

```
modulePathIgnorePatterns: [           testPathIgnorePatterns: [
  "npm-cache",                      "/node_modules/",
  ".npm"                            "/__mocks__/"
],                                     ],
rootDir: ".",                         verbose: true,
testMatch: [                           ]
  "**/?(*.)+(spec|test).[tj]s?(x)" ] ,
```

src/utils/number.js

```
exports.dollarFormatted = amount =>  
  new Intl.NumberFormat('en-US', {  
    style: 'currency',  
    currency: 'USD',  
  }).format(amount);
```

src/utils/number.spec.js

```
const number = require('./number');

describe('in number module', () => {
  test('dollarFormatted fn to return correctly formatted',
() => {
  expect(number.dollarFormatted(9.99)).toBe('$9.99');
});
});
```

```
[amit@macbook-pro nr1-testing-intro % npm test  
> nr1-testing-intro@1.22.1 test /Users/amit/Web/nr1-testing-intro  
> jest  
  
PASS  src/utils/number.spec.js  
  in number module  
    ✓ dollarFormatted fn to return correctly formatted (14 ms)  
  
Test Suites: 1 passed, 1 total  
Tests:       1 passed, 1 total  
Snapshots:   0 total  
Time:        0.937 s, estimated 1 s  
Ran all test suites.  
amit@macbook-pro nr1-testing-intro %
```

Enzyme

git checkout 3-enzyme

- Testing Utility 
- Created specifically for React
- Popular for testing React w/ Jest
- jQuery like API for DOM manipulation/traversal

```
npm i --save-dev enzyme enzyme-adapter-react-16
```

test/utils/setupTests.jsx

```
import { configure } from 'enzyme';
import Adapter from 'enzyme-adapter-react-16';

configure({ adapter: new Adapter() });
```

`jest.config.js`

```
setupFiles: ["<rootDir>/test/utils/setupTests.jsx"],  
testPathIgnorePatterns: [  
  "/node_modules/",  
  "/__mocks__/",  
  "__snapshots__"  
,
```

nerdlets/nr1-testing-intro-nerdlet/index.spec.js

```
import React from 'react';
import { render } from 'enzyme';

import Nr1TestingIntroNerdletNerdlet from './index';

describe('<Nr1TestingIntroNerdletNerdlet />', () => {
  const wrapper = render(<Nr1TestingIntroNerdletNerdlet />);

  test('matches the index page snapshot', () => {
    expect(wrapper).toMatchSnapshot();
  });
});
```

```
nr1-testing-intro — zsh — 80x24
[amit@macbook-pro nr1-testing-intro % npm test

> nr1-testing-intro@1.22.1 test /Users/amit/Web/nr1-testing-intro
> jest

  PASS  src/utils/number.spec.js
    in number module
      ✓ dollarFormatted fn to return correctly formatted (14 ms)

  PASS  nerdlets/nr1-testing-intro-nerdlet/index.spec.js
    <Nr1TestingIntroNerdletNerdlet />
      ✓ matches the index page snapshot (3 ms)

  > 1 snapshot written.
Snapshot Summary
  > 1 snapshot written from 1 test suite.

Test Suites: 2 passed, 2 total
Tests:       2 passed, 2 total
Snapshots:   1 written, 1 total
Time:        1.664 s, estimated 2 s
Ran all test suites.
amit@macbook-pro nr1-testing-intro %
```

```
nr1-testing-intro — zsh — 80x24
[amit@macbook-pro nr1-testing-intro % npm test

> nr1-testing-intro@1.22.1 test /Users/amit/Web/nr1-testing-intro
> jest

PASS  nerdlets/nr1-testing-intro-nerdlet/index.spec.js
  <Nr1TestingIntroNerdletNerdlet />
    ✓ matches the index page snapshot (3 ms)

PASS  src/utils/number.spec.js
  in number module
    ✓ dollarFormatted fn to return correctly formatted (14 ms)

Test Suites: 2 passed, 2 total
Tests:       2 passed, 2 total
Snapshots:   1 passed, 1 total
Time:        1.383 s
Ran all test suites.
amit@macbook-pro nr1-testing-intro %
```

nerdlets/nr1-testing-intro-nerdlet/_snapshots_/index.spec.js.snap

```
// Jest Snapshot v1, https://goo.gl/fbAQLP

exports[`<Nr1TestingIntroNerdletNerdlet /> matches the index page
snapshot 1`] =
initialize {
  "0": Object {
    "attribs": Object {},
    "children": Array [
      Object {
        "data": "Hello, nr1-testing-intro-nerdlet Nerdlet!",
        "next": null,
        "parent": [Circular],
        "prev": null,
        "type": "text",
      },
    ],
    "name": "h1",
    "namespace": "http://www.w3.org/1999/xhtml",
    "next": null,
    "parent": null,
    "prev": null,
    "root": Object {
      "attribs": Object {},
      "children": Array [
        [Circular],
      ],
      "name": "root",
      "namespace": "http://www.w3.org/1999/xhtml",
    }
  }
}
```

Enzyme's Full Rendering API

git checkout 4-mount

```
jest --updateSnapshot
```

```
npx jest --updateSnapshot
```

nerdlets/nr1-testing-intro-nerdlet/index.spec.js

```
import React from 'react';
import { mount } from 'enzyme';

import Nr1TestingIntroNerdletNerdlet from './index';

describe('<Nr1TestingIntroNerdletNerdlet />', () => {
  const wrapper = mount(<Nr1TestingIntroNerdletNerdlet />);
  const h1 = wrapper.find('h1');

  test('renders the default header', () => {
    expect(h1).toHaveLength(1);
  });
});
```

```
nr1-testing-intro — zsh — 80x24
[amit@macbook-pro nr1-testing-intro % npm test

> nr1-testing-intro@1.22.1 test /Users/amit/Web/nr1-testing-intro
> jest

PASS  nerdlets/nr1-testing-intro-nerdlet/index.spec.js
  <Nr1TestingIntroNerdletNerdlet />
    ✓ renders the default header (2 ms)

PASS  src/utils/number.spec.js
  in number module
    ✓ dollarFormatted fn to return correctly formatted (13 ms)

Test Suites: 2 passed, 2 total
Tests:       2 passed, 2 total
Snapshots:   0 total
Time:        1.374 s
Ran all test suites.
amit@macbook-pro nr1-testing-intro %
```

Nerdlet Testing

git checkout 5-icon

nerdlets/nr1-testing-intro-nerdlet/index.js

```
import React from 'react';

import { Icon } from 'nr1';

export default class Nr1TestingIntroNerdletNerdlet extends React.Component {
  render() {
    return (
      <div>
        <h1>Hello, nr1-testing-intro-nerdlet Nerdlet!</h1>
        <Icon type={Icon.TYPE.HARDWARE_AND_SOFTWARE_SOFTWARE_PLUGIN_S_OK} />
      </div>
    );
  }
}
```



nr1-testing-intro — zsh — 80x24

FAIL nerdlets/nr1-testing-intro-nerdlet/index.spec.js

- Test suite failed to run

Cannot find module 'nr1' from 'nerdlets/nr1-testing-intro-nerdlet/index.js'

Require stack:

```
nerdlets/nr1-testing-intro-nerdlet/index.js
nerdlets/nr1-testing-intro-nerdlet/index.spec.js
```

However, Jest was able to find:

```
'./nr1.json'
```

You might want to include a file extension in your import, or update your 'moduleFileExtensions', which is currently ['js', 'json', 'jsx', 'ts', 'tsx', 'node'].

See <https://jestjs.io/docs/en/configuration#modulefileextensions-arraystring>

```
1 | import React from 'react';
2 |
> 3 | import { Icon } from 'nr1';
| ^
4 | 
```

Mocks

git checkout 6-mocks

```
import React from 'react';

const defaultOptions = {
  tagType: 'div',
};

function proxyStaticProperties(element) {
  /**
   * These properties are the list of static properties that
   nr1 components can have.
   * Every property is an object with more properties inside,
   so this function will automatically
   * add one proxy for the first access of the property, and an
   echo for the second access.
   */
  const ALLOWED_STATICS = [
    'SPACING_TYPE',
    'TYPE',
    'TAG_TYPE',
    'DIRECTION_TYPE',
    'GAP_TYPE',
    'HORIZONTAL_TYPE',
    'VERTICAL_TYPE',
    'ICON_TYPE',
    'SIZE_TYPE',
    'PLACEMENT_TYPE',
    'SORTING_TYPE',
    'ALIGNMENT_TYPE',
  ];
}

export default proxyStaticProperties;
```

```
nr1-testing-intro — zsh — 80x24
[amit@macbook-pro nr1-testing-intro % npm test

> nr1-testing-intro@1.22.1 test /Users/amit/Web/nr1-testing-intro
> jest

PASS  src/utils/number.spec.js
  in number module
    ✓ dollarFormatted fn to return correctly formatted (15 ms)

PASS  nerdlets/nr1-testing-intro-nerdlet/index.spec.js
  <Nr1TestingIntroNerdletNerdlet />
    ✓ renders the default header

Test Suites: 2 passed, 2 total
Tests:       2 passed, 2 total
Snapshots:   0 total
Time:        1.398 s
Ran all test suites.
amit@macbook-pro nr1-testing-intro %
```

Jest's Mock Functions

git checkout 7-spies

src/components/toggle-button.js

```
import React from 'react';
import PropTypes from 'prop-types';

import { Button } from 'nr1';

export default class ToggleButton extends React.Component {
  static propTypes = {
    btnState: PropTypes.bool,
    onClick: PropTypes.func,
  };

  render() {
    const { btnState, onClick } = this.props;

    return (
      <Button onClick={onClick}>
        {btnState ? 'Off' : 'On'}
      </Button>
    );
  }
}
```

src/components/toggle-button.spec.js

```
import React from 'react';
import { mount } from 'enzyme';

import ToggleButton from './toggle-button';

describe('<ToggleButton />', () => {
  test('renders a button element', () => {
    const wrapper = mount(<ToggleButton />);
    expect(wrapper.find('button')).toHaveLength(1);
  });

  test('onClick fn is called when button is clicked', () => {
    const mockOnClick = jest.fn();
    const wrapper = mount(<ToggleButton onClick={mockOnClick} />);
    wrapper.find('button').simulate('click');
    expect(mockOnClick.mock.calls.length).toBe(1);
  });
});
```

```
npm i --save-dev @babel/plugin-proposal-class-properties
```

babel.config.js

```
module.exports = {  
  presets: ['@babel/preset-env', '@babel/preset-react'],  
  plugins: ['@babel/plugin-proposal-class-properties'],  
};
```

```
nr1-testing-intro — zsh — 80x24
[amit@macbook-pro nr1-testing-intro % npm test

> nr1-testing-intro@1.22.1 test /Users/amit/Web/nr1-testing-intro
> jest

PASS  src/utils/number.spec.js
  in number module
    ✓ dollarFormatted fn to return correctly formatted (16 ms)

PASS  src/components/toggle-button.spec.js
<ToggleButton />
  ✓ renders a button element (29 ms)
  ✓ onClick fn is called when button is clicked (5 ms)

PASS  nerdlets/nr1-testing-intro-nerdlet/index.spec.js
<Nr1TestingIntroNerdletNerdlet />
  ✓ renders the default header (1 ms)

Test Suites: 3 passed, 3 total
Tests:       4 passed, 4 total
Snapshots:   0 total
Time:        1.967 s, estimated 2 s
Ran all test suites.
amit@macbook-pro nr1-testing-intro %
```

Links

- jestjs.io/
- enzymejs.github.io/enzyme/
- babeljs.io/docs/en/babel-preset-env
- babeljs.io/docs/en/babel-preset-react
- babeljs.io/docs/en/babel-plugin-proposal-class-properties

Fin

expect(presentation).toBe(helpful)