Better Code Hub

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pedro-c/atom

Last analysis: 2 minutes ago

Write Short Units of Code

Guideline

- Small units are easier to understand, reuse, and test.
- When writing new units, don't let them grow above 15 lines of code.
- When a unit grows beyond 15 lines of code, you need to shorten it by splitting it in smaller units of no longer than 15 lines of code.
- The list on the right side contains the top 30 of units that violate this guideline, sorted by severity. The severity is indicated by the colors of the checkboxes.
- Further reading: Chapter 2 of Building Maintainable Software

Refactoring candidates

✓ Unit

- text-editor-component-spec.js:DefaultUnit
- deprecated-syntax-selectors.js:DefaultUnit
- text-editor-registry-spec.js:DefaultUnit
- config-schema.js:DefaultUnit
- atom-application.test.js:DefaultUnit
- jasmine.js:DefaultUnit
- buffered-process.js:DefaultUnit
- update-process-env-spec.js:DefaultUnit
- reopen-project-menu-manager-spec.js:DefaultUnit

at most 15 lines of code | more than 15 lines of code | more than 30 lines of code | more than 60 lines of code

Write Simple Units of Code

Guideline

- Keeping the number of branch points (if, for, while, etc.) low makes units easier to modify and test.
- Try to limit the McCabe complexity, that is number of branch points minus 1, in a unit to at most 5.

You can reduce complexity by extracting

Refactoring candidates

✓ Unit

- atom.sh:$default
- jasmine.js:Env.equals_
- text-editor-component-spec.js:DefaultUnit
- atom-application.test.js:DefaultUnit

- sub-branches to separate units of no more than 4 branch points.
- The list on the right side contains the top 30 of units that violate this guideline, sorted by severity. The severity is indicated by the colors of the checkboxes.
- Further reading: Chapter 3 of Building Maintainable Software

jasmine.js:DefaultUnit
parse-command-line.js:parseCommandLine
create-debian-package.js:exports
install-application.js:exports

McCabe of at most 5 | McCabe above 10
McCabe above 5 | McCabe above 25

Write Code Once

Guideline

- When code is copied, bugs need to be fixed in multiple places. This is both inefficient and error-prone.
- Avoid duplication by never copy/pasting blocks of code.
- Reduce duplication by extracting shared code, either to a new unit or to a superclass.
- The list on the right side contains the top 30 sets of modules (grouped by highlighting) which contain the same duplicated code block.
- Further reading: Chapter 4 of Building Maintainable Software

Refactoring candidates

✓ Module

text-editor-component-spec.js
text-editor-component-spec.js
update-process-env-spec.js
update-process-env-spec.js
text-editor-component-spec.js
text-editor-component-spec.js
text-editor-component-spec.js
text-editor-component-spec.js
atom-application-test.js

non-duplicated code | duplicated code

Keep Unit Interfaces Small

Guideline

- Keeping the number of parameters low makes units easier to understand and reuse.
- Limit the number of parameters per unit to at most 4.
- The number of parameters can be reduced by grouping related parameters into objects.
- The list on the right side contains the top 30 of units that violate this guideline, sorted by severity. The severity is

Refactoring candidates

✓ Unit

lines-tile-component.js:LinesTileComponent.constru...
buffered-node-process.js:BufferedNodeProcess.const...
reopen-project-menu-manager.js:ReopenProjectMenuMa...
buffered-process.js:constructor
jasmine.js:jasmine.WaitsForBlock
jasmine.js:Env.equals_
jasmine.js:Env.compareObjects_
tooltip.js:Tooltip.getViewportAdjustedDelta

indicated by the colors of the checkboxes.

› Further reading: Chapter 5 of Building Maintainable Software

- [ ] at most 2 parameters
- [ ] more than 2 parameters
- [ ] more than 4 parameters
- [ ] more than 6 parameters

Separate Concerns in Modules

Guideline

› Keep the codebase loosely coupled, as it makes it easier to minimize the consequences of changes.

› Identify and extract responsibilities of large modules to separate modules and hide implementation details behind interfaces.

› Strive to get modules to have no more than 10 incoming calls.

› The list on the right side contains the top 30 of modules that violate this guideline, sorted by severity. The severity is indicated by the colors of the checkboxes.

› Further reading: Chapter 6 of Building Maintainable Software

Refactoring candidates

✓ Module

- [ ] `initialize-benchmark-window.js`
- [ ] `color.js`
- [ ] `electron-shims.js`

- [ ] at most 10 incoming calls
- [ ] more than 10 incoming calls
- [ ] more than 20 incoming calls
- [ ] more than 50 incoming calls

Couple Architecture Components Loosely

Guideline

› Having loose coupling between top-level components makes it easier to maintain components in isolation.

› Do this by minimising the amount of interface code; that is, code in modules that are both called from and call modules of other components (throughput), and code in modules that are called from modules of other components (incoming).

› You can hide a component's implementation details through various means, e.g. using the "abstract factory" design pattern.

› The list on the right side contains the top 30 of modules that violate this guideline, starting with the modules that contain throughput code.

Refactoring candidates

✓ Module

- [ ] `style-manager.js`
- [ ] `compile-cache.js`
- [ ] `file-system-blob-store.js`
- [ ] `color.js`
- [ ] `reopen-project-menu-manager.js`
- [ ] `initialize-benchmark-window.js`
- [ ] `native-compile-cache.js`
- [ ] `electron-shims.js`

- [ ] hidden code
- [ ] interface code

- Further reading: Chapter 7 of Building Maintainable Software

Keep Architecture Components Balanced

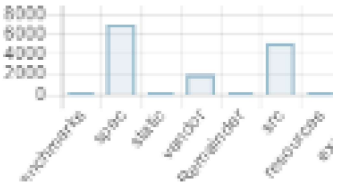
Guideline

- Balancing the number and relative size of components makes it easier to locate code.
- Organize source code in a way that the number of components is between 2 and 12, and ensure the components are of approximately equal size (keep component size uniformity less than 0.71).
- Organising components based on functionality makes it easier to divide your code into components.
- Further reading: Chapter 8 of Building Maintainable Software

Components overview

0.66
Component size uniformity

9
Components



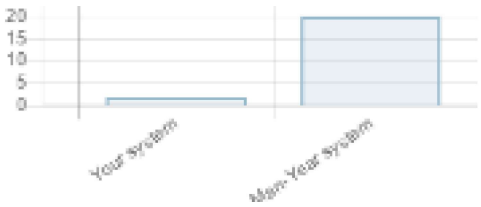
Keep Your Codebase Small

Guideline

- Keeping your codebase small improves maintainability, as it's less work to make structural changes in a smaller codebase.
- Avoid codebase growth by actively reducing system size.
- Refactor existing code to achieve the same functionality using less volume, and prefer libraries and frameworks over "homegrown" implementations of standard functionality.
- Strive to keep volume below 20 Man-years.
- Further reading: Chapter 9 of Building Maintainable Software

Volume overview

17
Man-months



Automate Tests

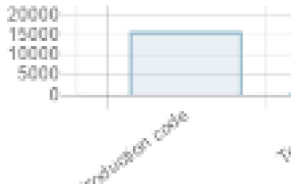
Guideline

Testing overview

- Automating tests for your codebase makes development more predictable and less risky.
- Add tests for existing code every time you change it.
- For small systems (less than 1,000 lines of code), you should have at least some test code and one assertion (currently only checked for Java and C# systems).
- For medium systems (less than 10,000 lines of code), the total lines of test code should be at least 50% of the total lines of production code, and the assert density (percentage of lines of test code containing assertions) should be at least 1% (currently only checked for Java and C# systems).
- For large systems (more than 10,000 lines of code), the total lines of test code should be at least 50% of the total lines of production code, and the assert density should be at least 5% (currently only checked for Java and C# systems).

Further reading: Chapter 10 of Building Maintainable Software

15,903	0%
Lines of production code	Test code percentage
57	-
Lines of test code	Assert density



Write Clean Code ✓

Guideline

- Clean code is more maintainable.
- Proactively search and remove code smells.
- Remove useless comments, commented code blocks, and dead code. Refactor poorly handled exceptions, magic constants, and poorly names units or variables.
- The list on the right side contains a selection of violations for this guideline.

Further reading: Chapter 11 of Building Maintainable Software

Refactoring candidates

✓ Module

- ☐ create-windows-installer.js
- ☐ create-windows-installer.js
- ☐ create-windows-installer.js
- ☐ download-chromedriver.js
- ☐ package-application.js
- ☐ auto-update-manager.js
- ☐ text-editor-registry.js
- ☐ jasmine.js
- ☐ jasmine.js

✓

☐ clean code ☐ code smell

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