TEST REPORT

Course ID: COMP.SE.200-2021-2022-1 Software Testing

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GitHub project: https://github.com/DiyazY/COMP.SE.200-2021-2022-1

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Definitions, acronyms and abbreviations

- QA – Quality Assurance;
- CI – Continuous Integration;
- LCOV – LTP GCOV extension.

Introduction

This document aims to report testing results regarding the test plan v1.0. The document contains 5 sections, which are

- Definitions, acronyms and abbreviations – contains all definitions, acronyms and abbreviations.
- Introduction – introduction to the document
- Test environment – describes tools, packages, libraries, etc. of the environment. The section shows updated view of test environment.
- Test cases – this part answers to following questions: "What to test?", "How to test?", "How to evaluate?"
- References – contains all cites.

The document reveals the current state of testing on this project, and answers several questions "What have (not) been tested?", "What is the coverage?", "Are there any issues?". This document is primarily for QA engineers (testers), however, it might be observed by anyone from the team.

Test environment

The initial test environment has been changed due to changes in the agreement of the Travis CI provider. Nevertheless, the majority of components are the same, except the CI service and additional test coverage library, now they are GitHub Actions[1] and (c8 [2]) respectively.
The diagram bellow depicts a new environment, and it also shows the sequence of testing.

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Testing View: Testing Sequence
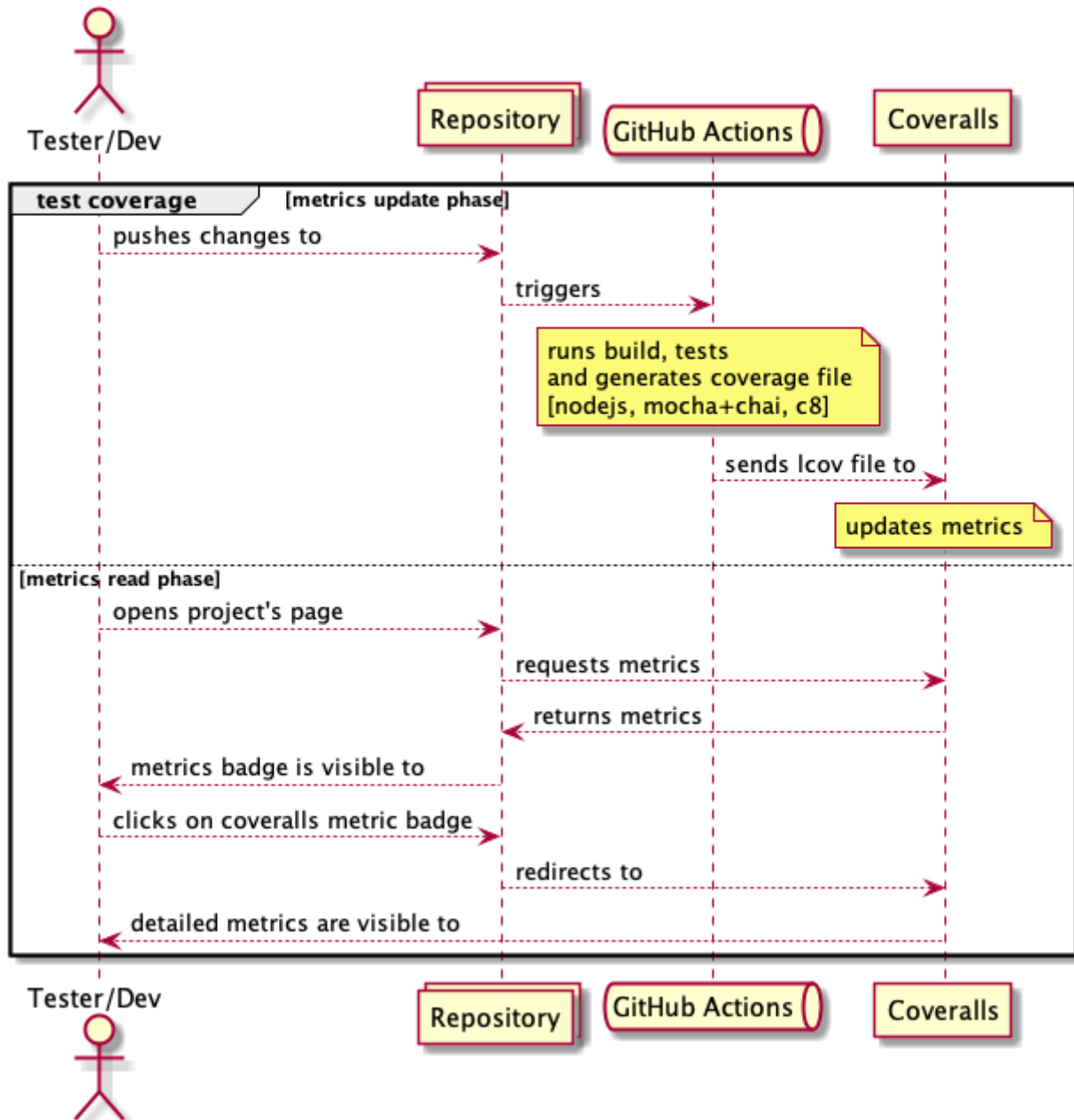
Legend
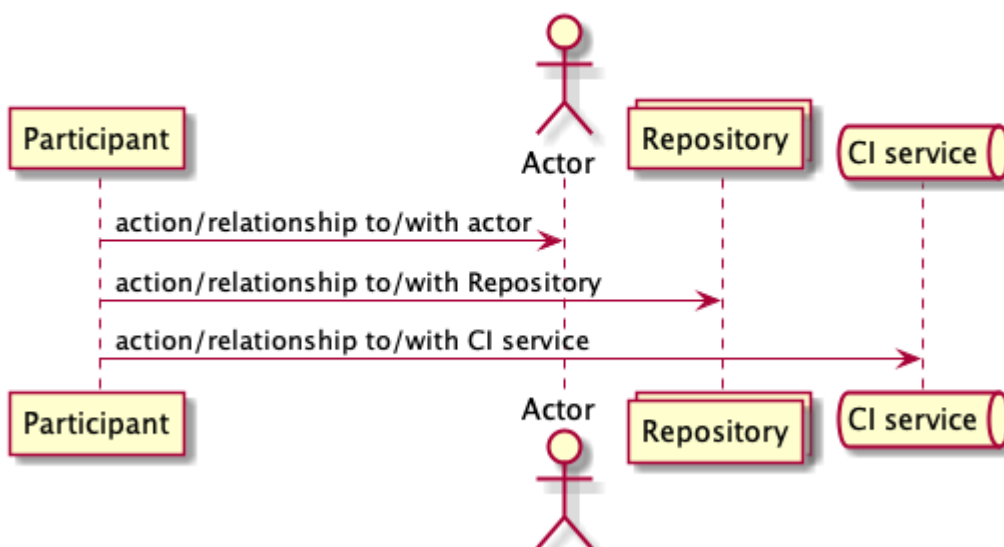
Test Cases

Almost all planned tests were implemented, and the coverage was already satisfactory, it was around 80%. However, during the test writing, some of the coverage metrics were not in good condition. Therefore the team decided to add extra tests that cover more functions. Additional tests are listed in the following list of functions:

- clamp
- compact
- filter
- isBuffer
- isDate
- isTypedArray
- slice
- toNumber

One test case was covered by testing another function because it was a dependency, but the coverage was 100% at all levels. Consequently, we just skipped testing of that function (reduce).

Findings and conclusions

The table bellow shows bugs that were found during the testing.

ID	Func	Test case	input	expected output	actual output
1	chunk function	if values are ['a', 'b', 'c', 'd'] and 2, it should return [['a', 'b'],['c', 'd']]	`(['a', 'b', 'c', 'd'],2)`	`[['a', 'b'], ['c', 'd']]`	`[[ 'c', 'd' ],]`
2	clamp function	if it clamps 10 with -5 and 5, it should return 5	`(10,-5,5)`	`5`	`-5`
3	compact function	if value is ['a', 'b', null, 0, undefined, '',NaN], it should return ['a', 'b','c']	`['a', 'b', null, 0, undefined, '',NaN]`	`['a','b']`	`['b','-1':'a']`

ID	Func	Test case	input	expected output	actual output
4	countBy function	if collection has a match return findings	`([{ user: "barney", active: true },{ user: "fred", active: false },{ user: "tutu", active: false }], (value) => value.active))`	`{ true: 1, false: 2 }`	`{ true: 0, false: 1 }`
5	drop function	it should return empty array if array param is string 'qwe'	`('qwe')`	`[]`	`['w','e']`
6	isBuffer function	if value is a buffer return true	`(new ArrayBuffer(8))`	`true`	`false`
7	isEmpty function	if prototype is seeded return false	`(someObj.prototype)`	`true`	`TypeError: Cannot read property 'equal' of undefined`

The severity of bugs is pretty high because the library might be used in any place of the business logic, hence, it may be a cause of serious malfunctions. We can't guarantee the correctness of its works. Despite the good quality (we think it is good because the number of bugs are low) of the library, the team's advice is not to use it in production yet. Moreover, the code-base even not covered fully, and there is a chance to find more issues. Nevertheless, after fixing listed bugs, it is possible to use it in production with a great cautious. It is due to the fact that not all branches and statements are covered (more tests may fix that). Presently, the overall test coverage is 91%, which is a good result. For more information visit this page

References

[1] Github Actions website, https://github.com/features/actions;
[2] Github project of c8 library, https://github.com/bcoe/c8;