University of Pretoria
Software Engineering - COS 301

Testing Policy

Contrapositives
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Authors:

Brendan Bath	**u16023359**
Musa Mathe	**u15048030**
Jessica da Silva	**u16045816**
Natasha Draper	**u16081758**

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1 Definition

Testing is a process aimed to detect any errors, defects, or undesirable results in the software being developed. The other purpose of testing is to determine if the software and the results comply with the requirements that have been specified. By testing, the project can continuously be improved upon and chance for risks and errors to occur will be reduced.

2 Description of Tests

There are 3 types of testing that are being utilized:

- Unit testing

- Linting

- End-to-End

Unit testing tests individual units of code. The purpose of unit testing is to verify that the individual components are working properly, so that the system as a whole is unaffected. For the backend, each API endpoint is tested, and for the frontend each individual screen is tested.

Linting tests if code meets the coding standards and style standards, as well as checking for syntax errors. Linting is done to make sure that the code is more readable and understandable, which in turn will make it easier to find errors in code and improve the code overall. It also ensures that the code is uniform; different styles used in multiple places reduces the readability of the code. Both linting and unit testing are done on the frontend and the backend.

End-to-End (E2E) or Integration testing tests the whole application as if a user were using it. It can simulate mouse presses and typing; things that a user can do when using the application. E2E can also tests if the front and back are working together.
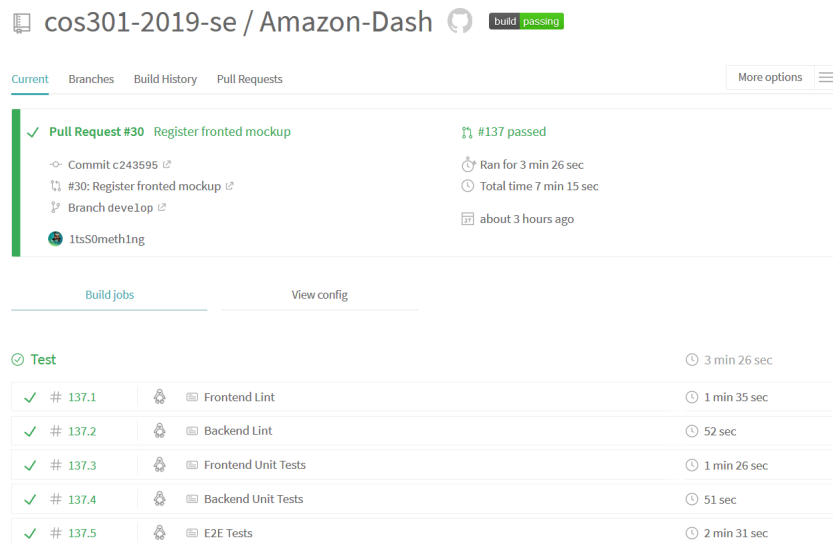
3 Test Evaluation

We test the return value of functions and make assertions. This is to ensure that they match the desired result or that they throw an appropriate exception. If an exception is thrown, the cause of the error can be easily identified and resolved.

4 Link to Travis CI

Travis-CI

5 Screenshots
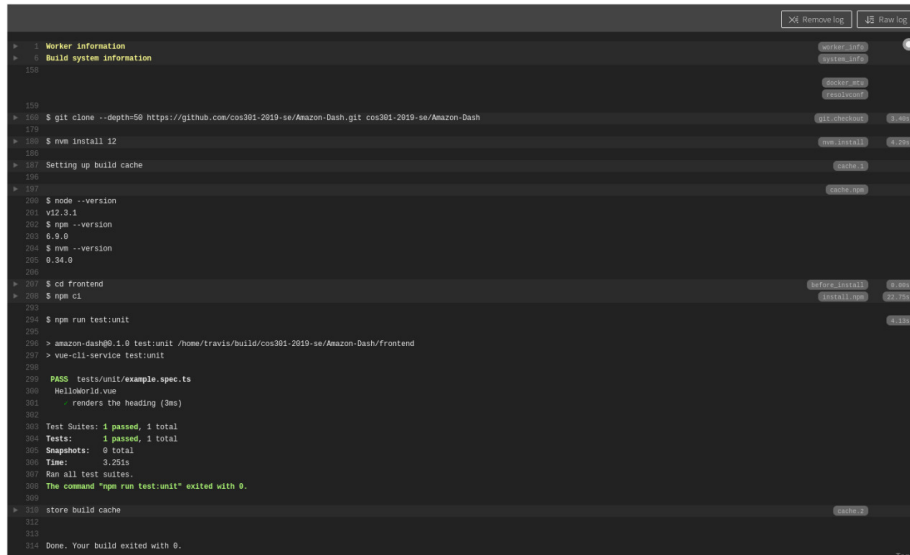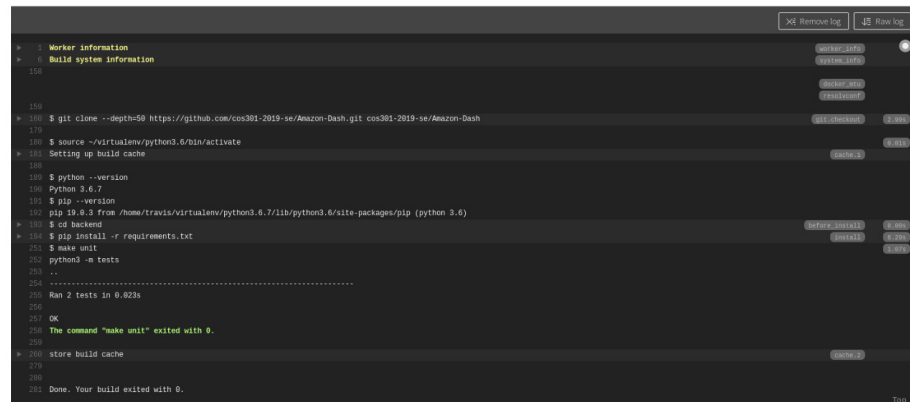
Figure 1: Travis CI repository

Figure 2: Frontend Unit Testing

Figure 3: Backend Unit Testing

https://www.overleaf.com/6667523733rrcczmrfhxqq

Figure 4: Frontend Linting

Figure 5: Backend Linting