

CS 1632 - DELIVERABLE 2: Unit Testing CitySim9006

Jordan Grogan

(Monday/Wednesday 11am)

GitHub Username: jordangrogan

<https://github.com/jordangrogan/CitySim9006>

This was my first experience in writing automated unit tests. My biggest issue was writing in an extremely object oriented way such that I could test each method, which required me to break methods up into smaller blocks that just do one thing. I spent a lot of time refactoring code for better testing and sprouting off methods that made sense.

In this refactoring process, I realized that stubbing of methods is really useful because I can stub a method, that's called inside the method that I'm testing, to return nil and not have to test that method in the current unit test.

One issue that I ran into was my ArgsChecker passing its tests, but in reality the code was incorrect. Originally, the `check_args(arr)` method that I wrote checked to see if the argument was an Integer object, and if it wasn't, return the seed 0. But, I realized that I was testing an integer array, not a string array, which is what ARGV returns. This caused my tests to pass, but my actual code returned a 0 seed all the time.

My other major challenge was just figuring out what to test in a particular method. For all but one method, I was able to figure out one or more tests to make sure the method was working properly. However, I ended up not writing any tests for `City.traverse_city(prng, driver)` because there was nothing that I could think of that was testable (that is, nothing was being returned and no methods for an object were called). All the method did was loop through executing methods of its own class based on local variable state, so there was nothing being returned or called outside of the City class. Overall, though, I feel like I have a lot of good tests for the City class' helper methods.

Screenshot of the Executed Unit Tests

```
CitySim9006 — -bash — 92x57

[Jordans-MacBook-Pro-2:CitySim9006 jordangrogan$ for file in *_test.rb; do ruby $file; done ]
Run options: --seed 25442

# Running:

.....

Finished in 0.001528s, 3926.7014 runs/s, 3926.7014 assertions/s.

6 runs, 6 assertions, 0 failures, 0 errors, 0 skips
Run options: --seed 16298

# Running:

...

Finished in 0.000862s, 3480.2785 runs/s, 3480.2785 assertions/s.

3 runs, 3 assertions, 0 failures, 0 errors, 0 skips
Run options: --seed 42854

# Running:

.....

Finished in 0.003421s, 1753.8731 runs/s, 2046.1853 assertions/s.

6 runs, 7 assertions, 0 failures, 0 errors, 0 skips
Run options: --seed 45078

# Running:

.....

Finished in 0.001052s, 8555.1328 runs/s, 12357.4140 assertions/s.

9 runs, 13 assertions, 0 failures, 0 errors, 0 skips
Run options: --seed 63369

# Running:

....

Finished in 0.000937s, 4268.9435 runs/s, 9605.1230 assertions/s.

4 runs, 9 assertions, 0 failures, 0 errors, 0 skips
Run options: --seed 38221

# Running:

..

Finished in 0.000991s, 2018.1635 runs/s, 2018.1635 assertions/s.

2 runs, 2 assertions, 0 failures, 0 errors, 0 skips
Jordans-MacBook-Pro-2:CitySim9006 jordangrogan$
```