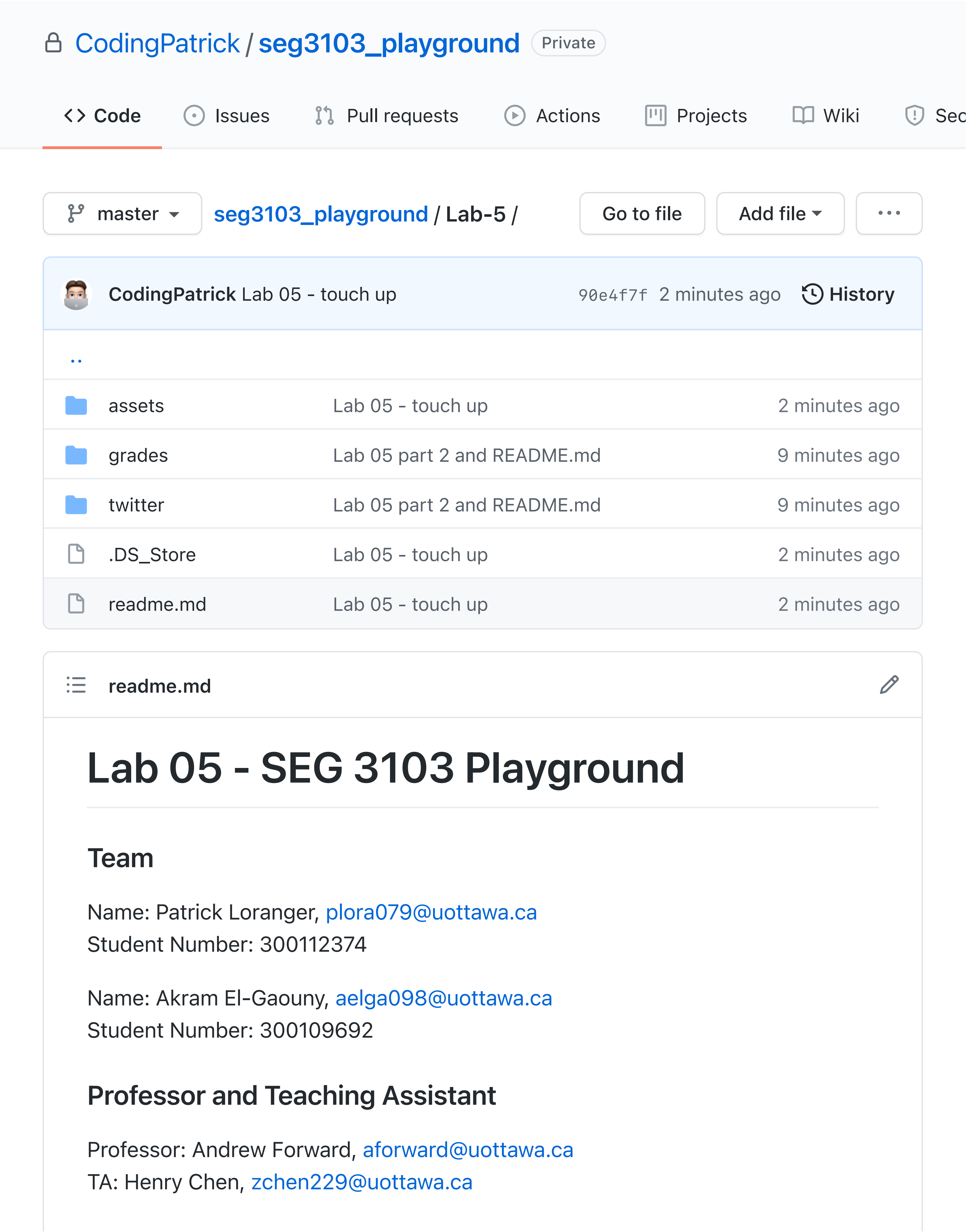


seg3103_playground / Lab-5 /

CodingPatrick Lab 05 - touch up 90e4f7f 2 minutes ago

..

assets	Lab 05 - touch up	2 minutes ago
grades	Lab 05 part 2 and README.md	9 minutes ago
twitter	Lab 05 part 2 and README.md	9 minutes ago
.DS_Store	Lab 05 - touch up	2 minutes ago
readme.md	Lab 05 - touch up	2 minutes ago

readme.md

Lab 05 - SEG 3103 Playground

Team

Name: Patrick Loranger, plora079@uottawa.ca
Student Number: 300112374

Name: Akram El-Gaouny, aelga098@uottawa.ca
Student Number: 300109692

Professor and Teaching Assistant

Professor: Andrew Forward, aforward@uottawa.ca
TA: Henry Chen, zchen229@uottawa.ca

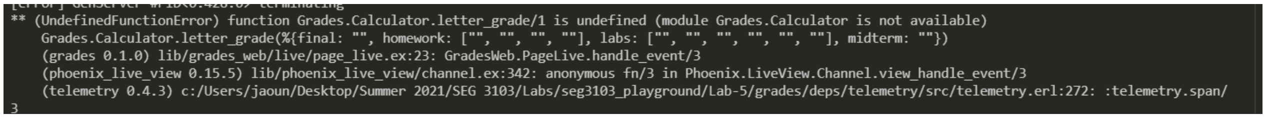
Course: SEG 3103
Date: Friday July 2, 2021

Link for deliverable

- https://github.com/CodingPatrick/seg3103_playground
- The pdf file of the screencapture is found in the submission folder in Brightspace

Part 1: Stubbing Grades.Calculator

Before Stubbing:

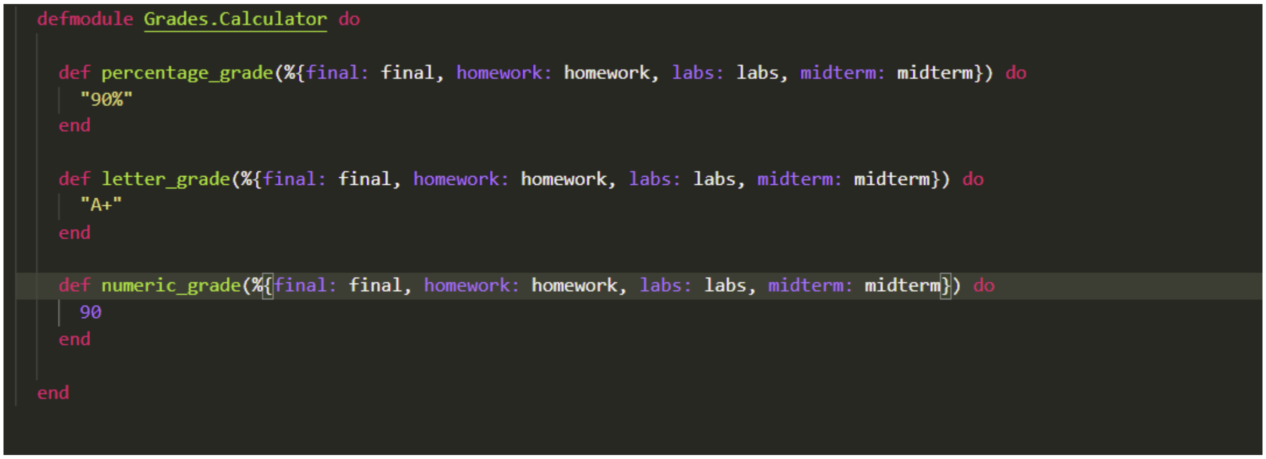


```
[error] GenServer #PID<0.428.0> terminating
** (UndefinedFunctionError) function Grades.Calculator.letter_grade/1 is undefined (module Grades.Calculator is not available)
    Grades.Calculator.letter_grade(%{final: "", homework: ["", "", "", ""], labs: ["", "", "", "", "", ""], midterm: ""})
    (grades 0.1.0) lib/grades_web/live/page_live.ex:23: GradesWeb.PageLive.handle_event/3
    (phoenix_live_view 0.15.5) lib/phoenix_live_view/channel.ex:342: anonymous fn/3 in Phoenix.LiveView.Channel.view_handle_event/3
    (telemetry 0.4.3) c:/Users/jaoun/Desktop/Summer 2021/SEG 3103/Labs/seg3103_playground/Lab-5/grades/deps/telemetry/src/telemetry.erl:272: :telemetry.span/
3
```

We can clearly see that there is no module called Grades.Calculator and thus the web application is failing. So, to avoid the faliure (or make it fail in a way that ensures that the web application is not failing due to an error in the web app code) we need to stub Grades.Calculator.

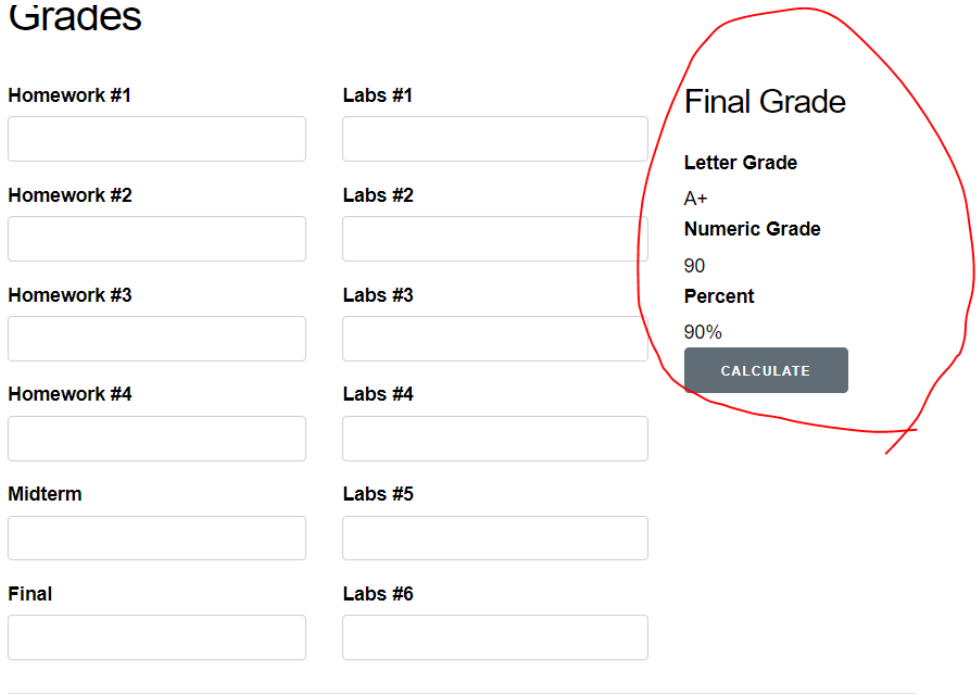
After Stubbing:

Here's the stubs that were created



```
defmodule Grades.Calculator do

  def percentage_grade(%{final: final, homework: homework, labs: labs, midterm: midterm}) do
    "90%"
  end

  def letter_grade(%{final: final, homework: homework, labs: labs, midterm: midterm}) do
    "A+"
  end

  def numeric_grade(%{final: final, homework: homework, labs: labs, midterm: midterm}) do
    90
  end

end
```

Here's the effect of the stubs on the interface



Grades

Homework #1

Homework #2

Homework #3

Homework #4

Midterm

Final

Labs #1

Labs #2

Labs #3

Labs #4

Labs #5

Labs #6

Final Grade

Letter Grade

A+

Numeric Grade

90

Percent

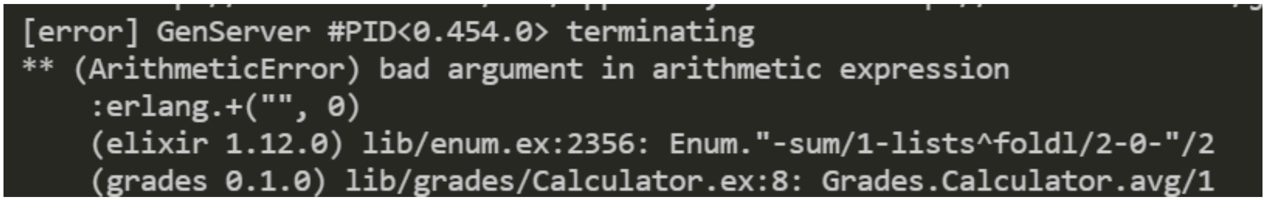
90%

Now, after stubbing we know that if there's a faliure in the application, it won't be from the web application but rather from another module.

Since that we have tested the interface between the UI and the Grades.Calculator module, we can be sure that when we implement the actual logic in the Grades.Calculator module it won't fail due to an issue of communication (interface) between the UI and the module.

Implementing The Actual Logic:

After implementing the actual logic from the A2 calculator module (As seen in this commit). The button and the logic don't work and I believe the reason it does not work is because of the addition operations. The interface (UI) calls the calculator functions with STRING parameters as opposed to int parameters therefore the A2 impleemntation is not compatiable with the web application. The error below is what I got when I implemented the logic of A2.



```
[error] GenServer #PID<0.454.0> terminating
** (ArithmeticError) bad argument in arithmetic expression
    :erlang.+("", 0)
    (elixir 1.12.0) lib/enum.ex:2356: Enum."-sum/1-lists^foldl/2-0-"/2
    (grades 0.1.0) lib/grades/Calculator.ex:8: Grades.Calculator.avg/1
```

Part 2: Mocks and Twitter

First, once I opened the Twitter, I made sure everything worked according to plan.

I ran the command lines to compile the code:

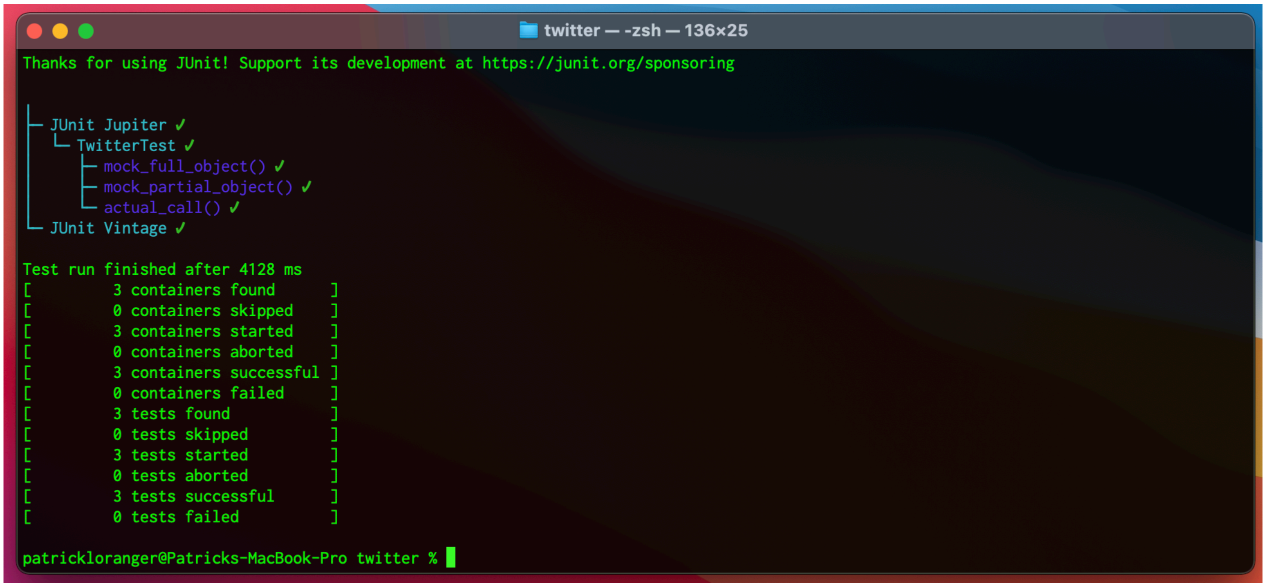
```
javac -encoding UTF-8 --source-path src -d dist src/*.java
```

```
javac -encoding UTF-8 --source-path test -d dist -cp dist:lib/easymo
```

Then, once the code was properly compile, I ran:

```
./bin/test
```

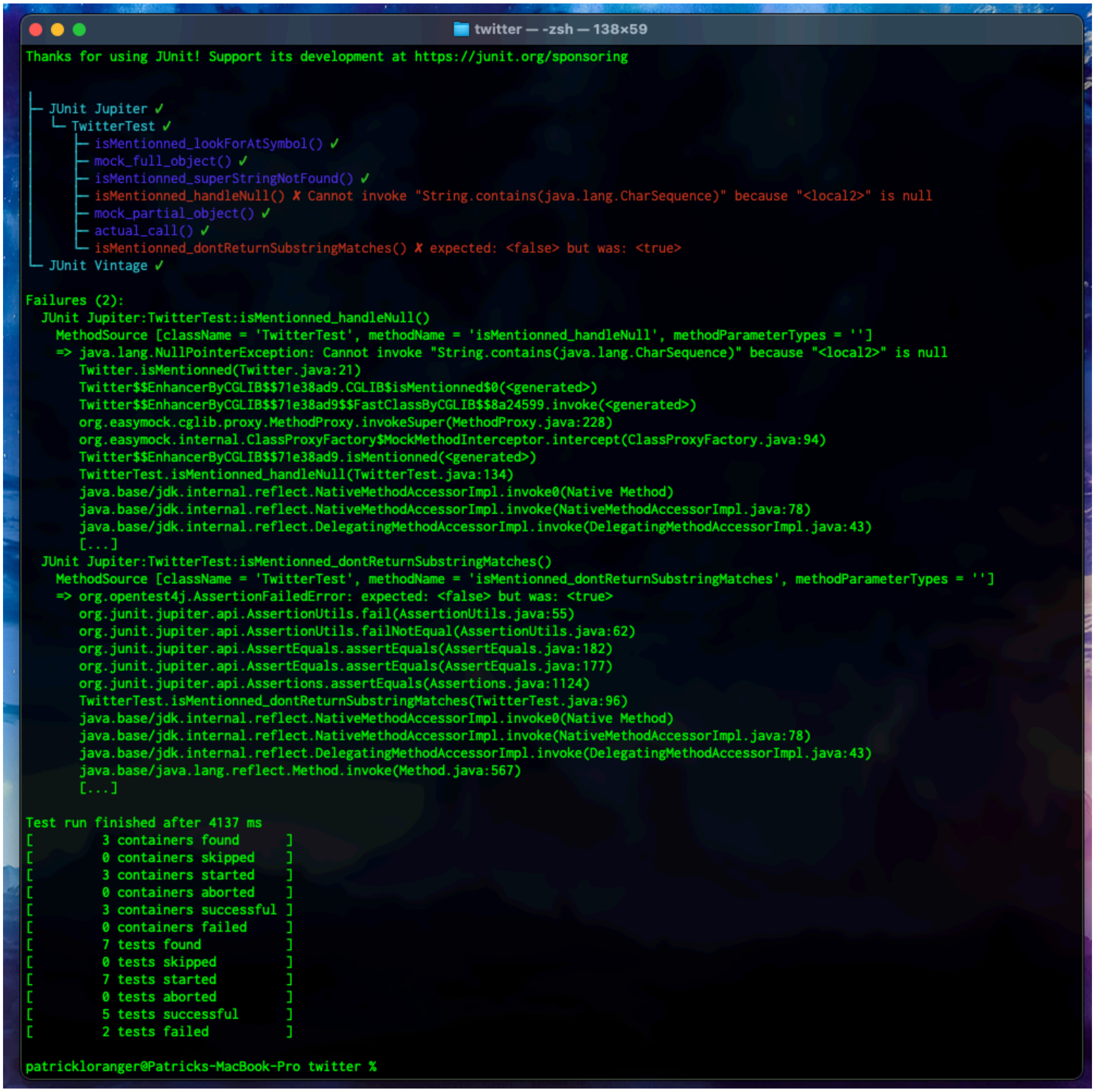
When I ran this command line, I got the following output:



```
Thanks for using JUnit! Support its development at https://junit.org/sponsoring


├─ JUnit Jupiter ✓
│  └─ TwitterTest ✓
│     ├─ mock_full_object() ✓
│     ├─ mock_partial_object() ✓
│     └─ actual_call() ✓
└─ JUnit Vintage ✓

Test run finished after 4128 ms
[         3 containers found      ]
[         0 containers skipped    ]
[         3 containers started    ]
[         0 containers aborted    ]
[         3 containers successful ]
[         0 containers failed     ]
[         3 tests found           ]
[         0 tests skipped         ]
[         3 tests started         ]
[         0 tests aborted         ]
[         3 tests successful      ]
[         0 tests failed          ]

patrickloranger@Patricks-MacBook-Pro twitter % 
```

Then, I implemented all the new Mocks in TwitterTest.java: See commit: Implemented Mocks

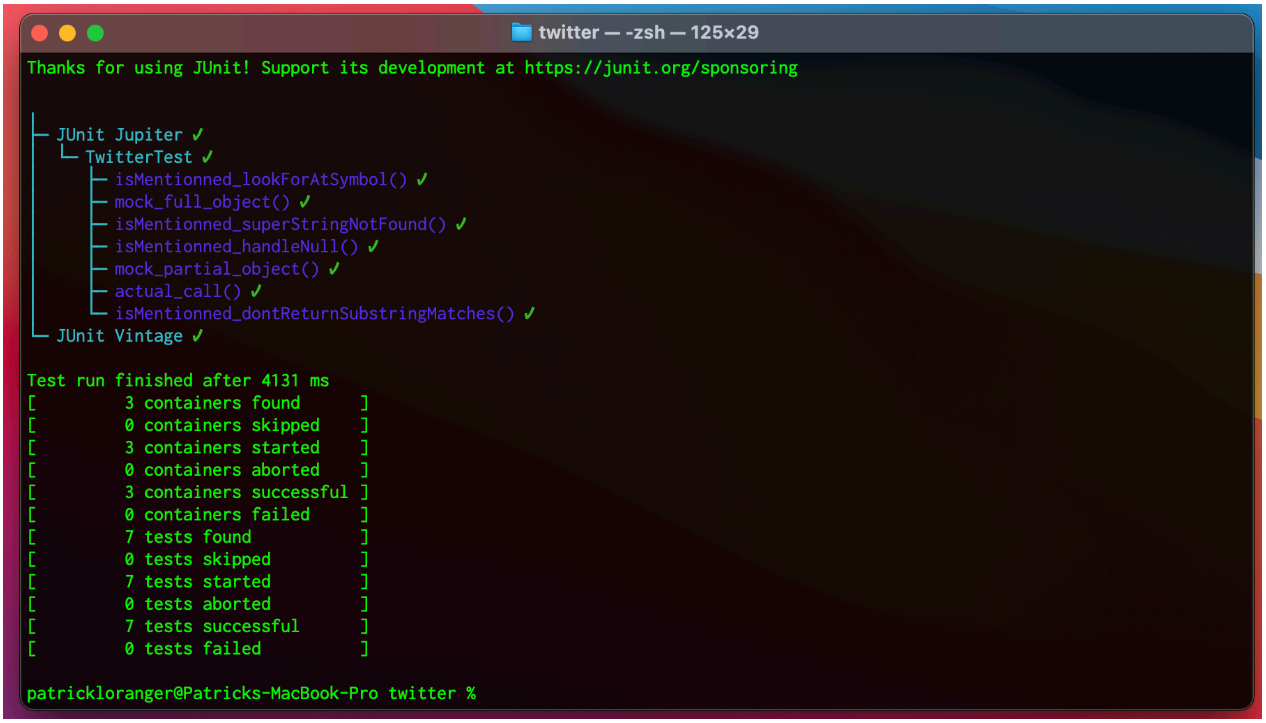
When I ran ./bin/test again, this was the results:



```
Thanks for using JUnit! Support its development at https://junit.org/sponsoring


├─ JUnit Jupiter ✓
│  └─ TwitterTest ✓
│     ├─ isMentionned_lookForAtSymbol() ✓
│     ├─ mock_full_object() ✓
│     ├─ isMentionned_superStringNotFound() ✓
│     ├─ isMentionned_handleNull() ✗ Cannot invoke "String.contains(java.lang.CharSequence)" because "<local2>" is null
│     ├─ mock_partial_object() ✓
│     ├─ actual_call() ✓
│     └─ isMentionned_dontReturnSubstringMatches() ✗ expected: <false> but was: <true>
└─ JUnit Vintage ✓

Failures (2):
  JUnit Jupiter:TwitterTest:isMentionned_handleNull()
    MethodSource [className = 'TwitterTest', methodName = 'isMentionned_handleNull', methodParameterTypes = '']
    => java.lang.NullPointerException: Cannot invoke "String.contains(java.lang.CharSequence)" because "<local2>" is null
       Twitter.isMentionned(Twitter.java:21)
       Twitter$$EnhancerByCGLIB$$71e38ad9.CGLIB$isMentionned$0(<generated>)
       Twitter$$EnhancerByCGLIB$$71e38ad9$$FastClassByCGLIB$$8a24599.invoke(<generated>)
       org.easymock.cglib.proxy.MethodProxy.invokeSuper(MethodProxy.java:228)
       org.easymock.internal.ClassProxyFactory$MockMethodInterceptor.intercept(ClassProxyFactory.java:94)
       Twitter$$EnhancerByCGLIB$$71e38ad9.isMentionned(<generated>)
       TwitterTest.isMentionned_handleNull(TwitterTest.java:134)
       java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
       java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:78)
       java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
       [...]
  JUnit Jupiter:TwitterTest:isMentionned_dontReturnSubstringMatches()
    MethodSource [className = 'TwitterTest', methodName = 'isMentionned_dontReturnSubstringMatches', methodParameterTypes = '']
    => org.opentest4j.AssertionFailedError: expected: <false> but was: <true>
       org.junit.jupiter.api.AssertionUtils.fail(AssertionUtils.java:55)
       org.junit.jupiter.api.AssertionUtils.failNotEqual(AssertionUtils.java:62)
       org.junit.jupiter.api.AssertEquals.assertEquals(AssertEquals.java:182)
       org.junit.jupiter.api.AssertEquals.assertEquals(AssertEquals.java:177)
       org.junit.jupiter.api.Assertions.assertEquals(Assertions.java:1124)
       TwitterTest.isMentionned_dontReturnSubstringMatches(TwitterTest.java:96)
       java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
       java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:78)
       java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
       java.base/java.lang.reflect.Method.invoke(Method.java:567)
       [...]

Test run finished after 4137 ms
[         3 containers found      ]
[         0 containers skipped    ]
[         3 containers started    ]
[         0 containers aborted    ]
[         3 containers successful ]
[         0 containers failed     ]
[         7 tests found           ]
[         0 tests skipped         ]
[         7 tests started         ]
[         0 tests aborted         ]
[         5 tests successful      ]
[         2 tests failed          ]

patrickloranger@Patricks-MacBook-Pro twitter %
```

I realized that I need to fix the isMentionned(String name) function in Twitter.java: See commit: Changed isMentionned()

Once everything was completed, I ran ./bin/test one last time and everything works.



```
Thanks for using JUnit! Support its development at https://junit.org/sponsoring

│
├─ JUnit Jupiter ✓
│  └─ TwitterTest ✓
│     ├─ isMentionned_lookForAtSymbol() ✓
│     ├─ mock_full_object() ✓
│     ├─ isMentionned_superStringNotFound() ✓
│     ├─ isMentionned_handleNull() ✓
│     ├─ mock_partial_object() ✓
│     ├─ actual_call() ✓
│     └─ isMentionned_dontReturnSubstringMatches() ✓
└─ JUnit Vintage ✓

Test run finished after 4131 ms
[         3 containers found      ]
[         0 containers skipped    ]
[         3 containers started    ]
[         0 containers aborted    ]
[         3 containers successful ]
[         0 containers failed     ]
[         7 tests found           ]
[         0 tests skipped         ]
[         7 tests started         ]
[         0 tests aborted         ]
[         7 tests successful      ]
[         0 tests failed          ]

patrickloranger@Patricks-MacBook-Pro twitter %
```