UNIT TESTING BEST PRACTICES

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WHY UNIT TESTING?

SAY "MICROSERVICES"

ONE MORE TIME

memegenerator.net

Importance of Unit Testing is growing with time

I've failed multiple times with unit testing

I love Unit Testing

WHAT IS UNIT TESTING?

WHAT DOES A GREAT UNIT TEST LOOK LIKE?

IS THIS A GREAT UNIT TEST?

```java
@Test
public void testClientProductSum3()
            throws DifferentCurrenciesException {

    List<Product> products = new ArrayList<Product>();

    products.add(new ProductImpl(100, "Product 15",
            ProductType.BANK_GUARANTEE,
            new AmountImpl(new BigDecimal(
                    "5.0"), Currency.EURO)));

    products.add(new ProductImpl(120, "Product 20",
            ProductType.BANK_GUARANTEE,
            new AmountImpl(new BigDecimal(
                    "6.0"), Currency.EURO)));
```

LET'S REFACTOR

RANGA'S 1 MINUTE RULE

ANOTHER EXAMPLE

What should you think about when writing unit tests?

UNIT TESTING IS CODE!

Four Principles of Simple Design

ALL TESTS PASS

CLARITY IN CODE

- 1 Minute Rule
  - Test Names
  - Highlight Important Values
  - Use Proper Language Constructs
  - Mockito
  - Hamcrest Matchers, assertj and JSON Path
  - @SpringBootTest, @WebMvcTest, @DataJpaTest

NO DUPLICATION (DRY)

Less Duplication

SMALL

- One Condition per Test
- Small Scope - One Layer

UNIT TESTING SPECIFIC PRINCIPLES

TESTS FAILS ONLY WHEN THERE IS A PROBLEM WITH PRODUCTION CODE

TESTS SHOULD FIND ALL IMPORTANT PROBLEMS WITH PRODUCTION CODE

```
becomeTimidAndTestEverything
while writingTheSameThingOverAndOverAgain
    becomeMoreAggressive
    writeFewerTests
    writeTestsForMoreInterestingCases
    if getBurnedByStupidDefect
      feelStupid
      becomeTimidAndTestEverything
    end
end
```

TESTS SHOULD RUN QUICKLY

Spring Context > Mocking > Pure Unit Tests

TESTS ARE BETTER WRITTEN BEFORE CODE (TDD)

TESTS ARE MORE IMPORTANT THAN CODE

TESTS ARE RUN AS OFTEN AS POSSIBLE

GOAL

Tests as Documentation

QUESTIONS