# Spending less time bug fixing by spending more time unit testing
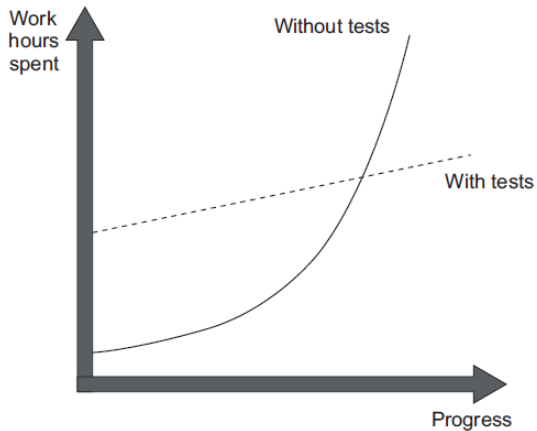
**\<Name\>**

*There's much more to unit testing than the act of writing tests.*

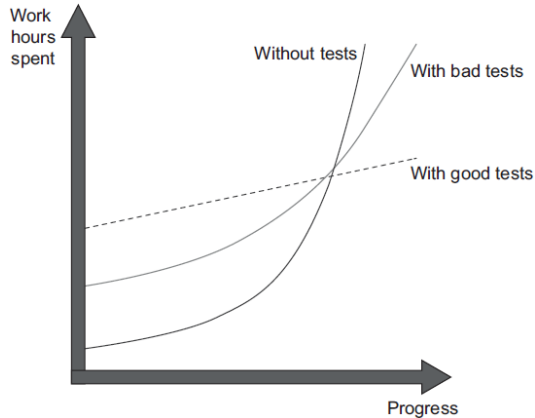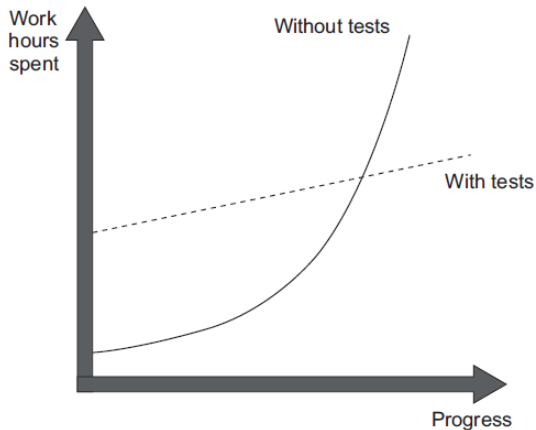—*Khorikov*, Unit Testing Principles, Practices, and Patterns, 3

# The goal of unit testing

To enable **sustainable** growth of software project.

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# Coverage metrics

Statement vs Branch vs ~~Path~~ vs ~~Condition~~

```
1   def is_fizzbuzz(num: int) -> bool:
2       if num % 3 and num % 5:
3           return True
4       return some_var
5
6   def test_fizzbuzz():
7       result = is_fizzbuzz(3)
8       assert result
```

$$\frac{Number\ of\ statements\ executed}{Total\ number\ of\ statements}$$

$$\approx 67\%$$

# Coverage metrics

Statement vs Branch vs ~~Path~~ vs ~~Condition~~

```
1  def is_fizzbuzz(num: int) -> bool:
2      return True if num % 3 and num % 5 else some_var
3
4  def test_fizzbuzz():
5      result = is_fizzbuzz(3)
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```

$$\frac{\textit{Number of statements executed}}{\textit{Total number of statements}}$$
$$= 100\%$$

# Coverage metrics

Statement vs Branch vs ~~Path~~ vs ~~Condition~~

```
1  def is_fizzbuzz(num: int) -> bool:
2      return True if num % 3 and num % 5 else some_var
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6      assert result
```

$$\frac{\textit{Branches traversed}}{\textit{Total number of branches}}$$
$$= 50\%$$

# Coverage metrics

Statement vs Branch vs ~~Path~~ vs ~~Condition~~

```
1  def is_fizzbuzz(num: int) -> bool:
2      return True if num % 3 and num % 5 else some_var
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