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## TDD – Test Driven Development

Squad Regulatórios

# Tópicos

- 1) Contextualização
- 2) Problemas na ausência de Testes
- 3) Cenário ideal
- 4) Tipos de Testes
- 5) Ferramentas de Testes
- 6) Metodologias (TDD, BDD e ATDD)
- 7) Hands on – TDD no frontend
- 8) Hands on – TDD no backend

# Contextualização

Os **softwares** estão sujeitos a constantes **mudanças** e com isso susceptíveis a **falhas** e **bugs**.

Será que podemos **reduzir** os **riscos** melhorando a **qualidade** da aplicação baseada no **código**?





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## Problemas na ausência de Testes

Na ausência de **testes** existem diversos **problemas** que podem vir a ocorrer em um **sistema**.

Novas implementações afetando  
antigas implementações



Falta de **cobertura** de testes  
não permitem subidas para  
**produção**



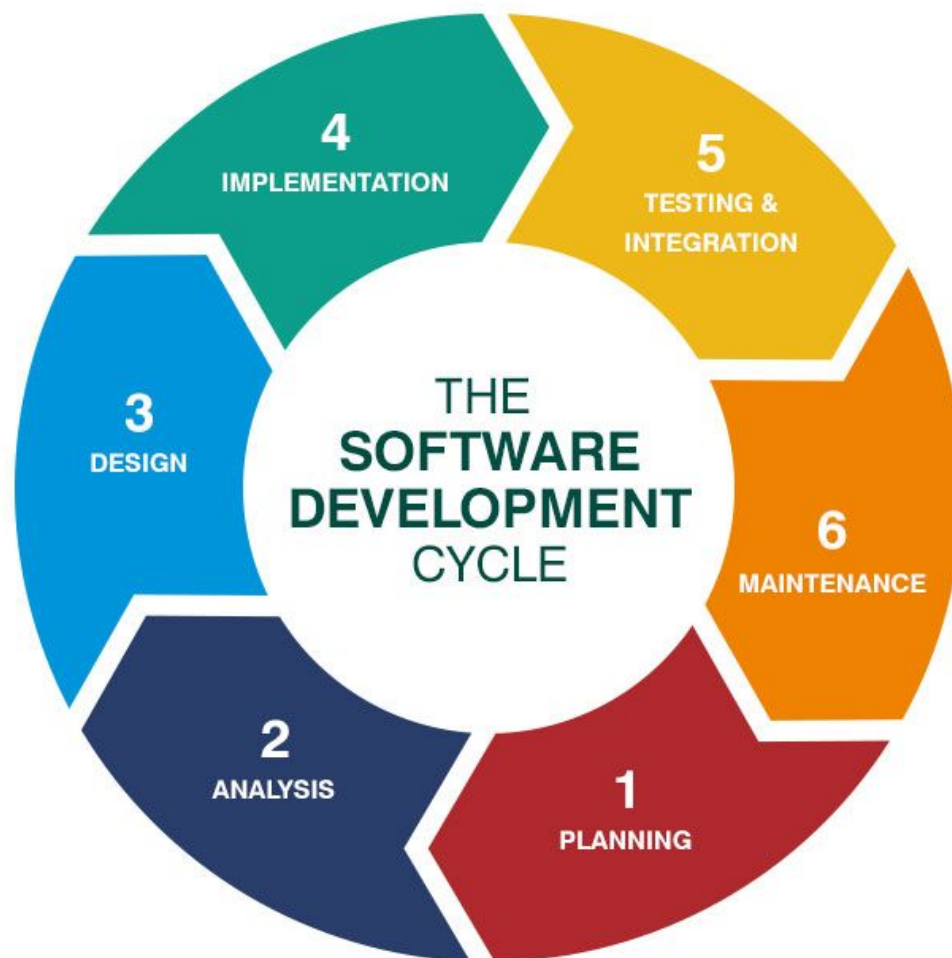
O **custo** para resolver um  
problema em **produção**

...

...

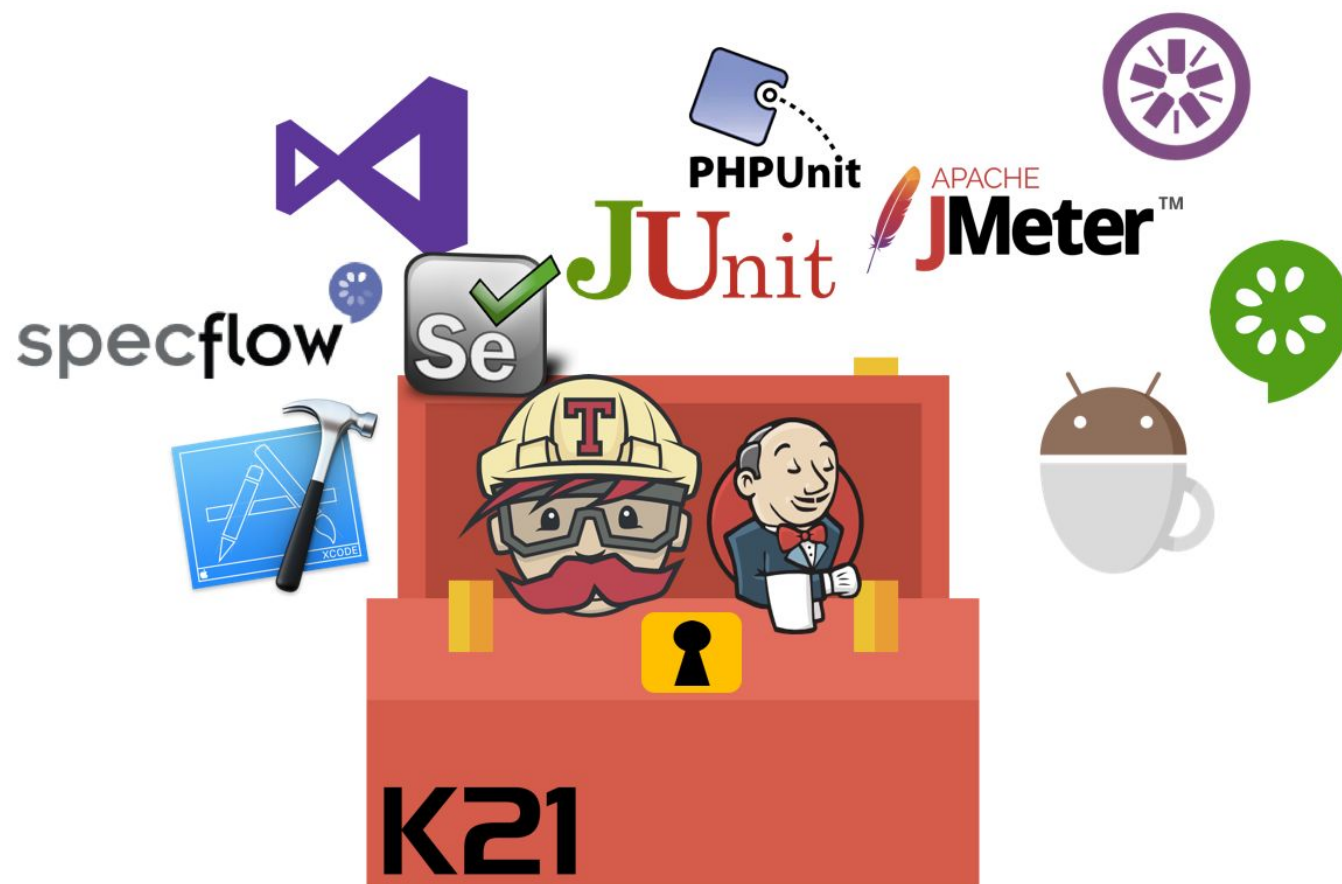


# Resolvendo a situação ...

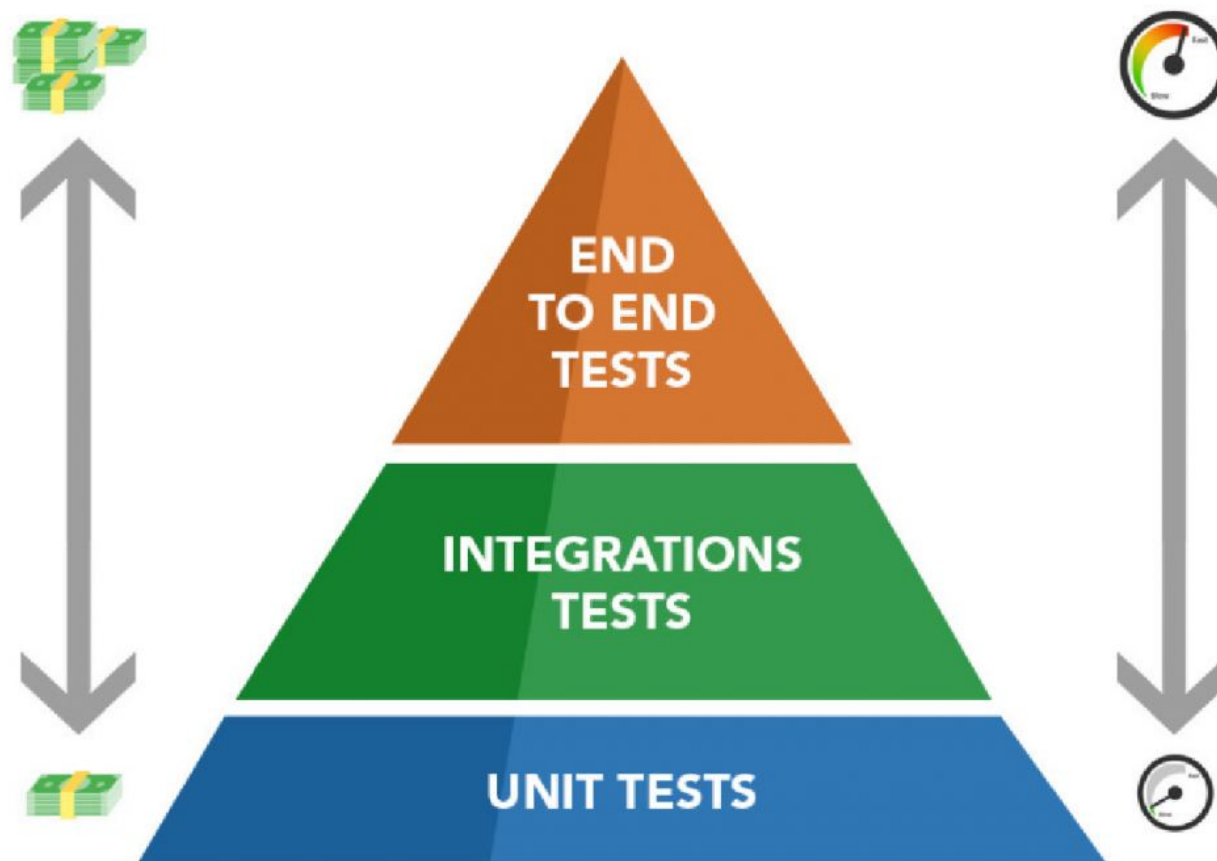




# Ferramentas ...



# Tipos ...

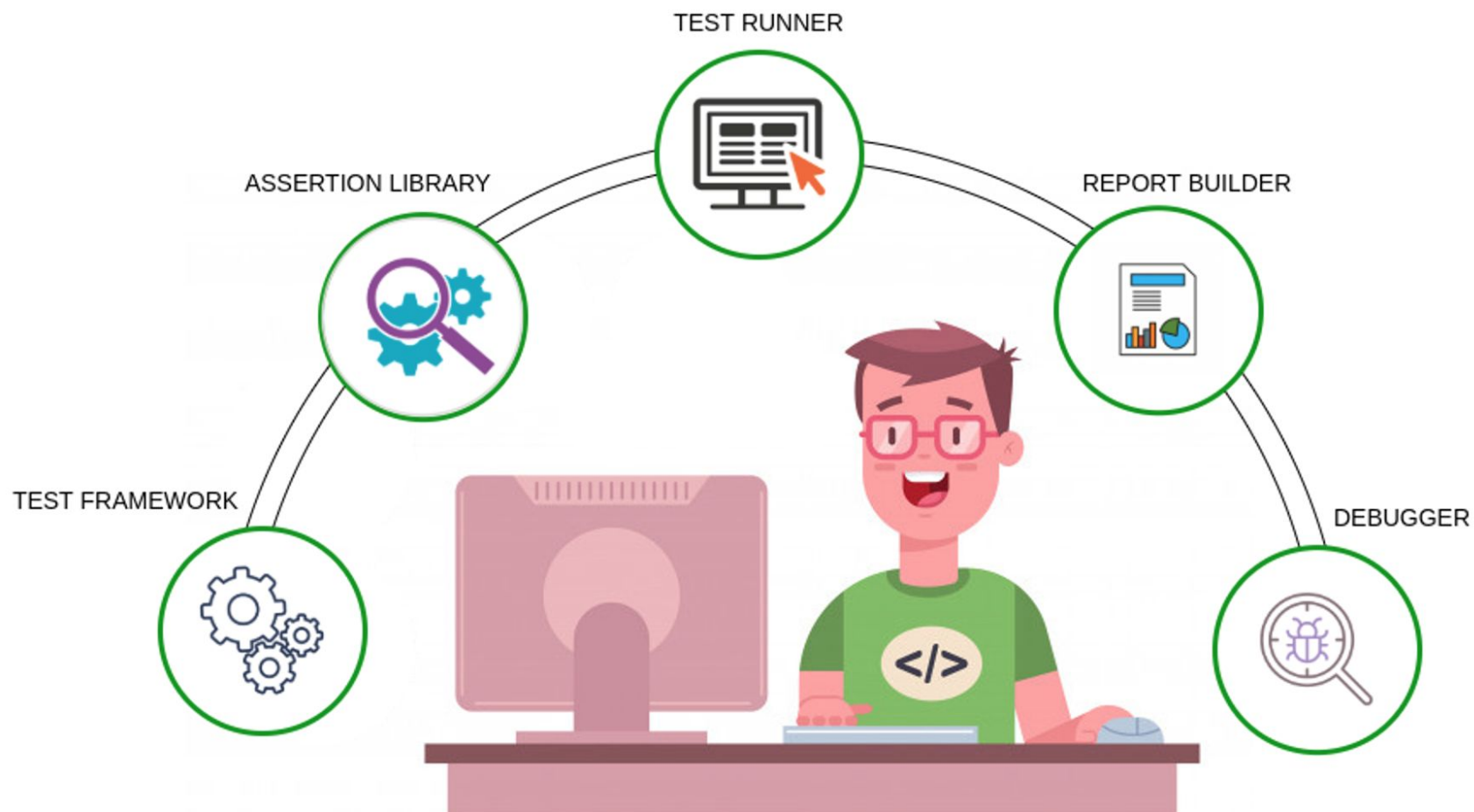


# Tipos ...

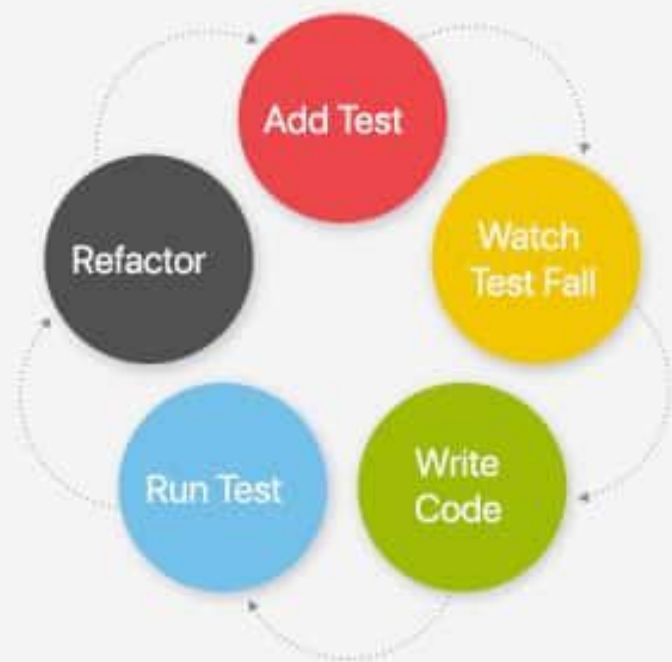




# Testes ...



# Metodologias ...



TDD



BDD



ATDD



# Hands On - Frontend

```
~/dev/projetos/poc-tdd <main> $ ng new angular-app
```

```
CREATE angular-app/src/app/app.component.html (23332 bytes)
```

```
CREATE angular-app/src/app/app.component.spec.ts (971 bytes)
```

```
CREATE angular-app/src/app/app.component.ts (215 bytes)
```

```
✓ Packages installed successfully.
```

```
Directory is already under version control. Skipping initialization of git.
```

```
~/dev/projetos/poc-tdd <main> $ cd angular-app
```

```
~/dev/projetos/poc-tdd/angular-app <main> $ ng serve
```

```
✓ Browser application bundle generation complete.
```



# Hands On ...



angular-app app is running!

## Resources

Here are some links to help you get started:

angular >

<> CLI Documentation >



Ar





# Estrutura inicial

## ✓ POC-TDD

### ✓ angular-app

> .angular

> .vscode

> node\_modules

### ✓ src

#### ✓ app

# app.component.css

<> app.component.html

TS app.component.spec.ts

```
it('should have as title 'angular-app'', () => {  
  const fixture = TestBed.createComponent(AppComponent);  
  const app = fixture.componentInstance;  
  expect(app.title).toEqual('angular-app');  
});
```

```
~/dev/projetos/poc-tdd/angular-app <main> $ npm test
```

3 specs, 0 failures, randomized with seed 42324

AppComponent

- should have as title 'angular-app'
- should create the app
- should render title

# Primeiro teste

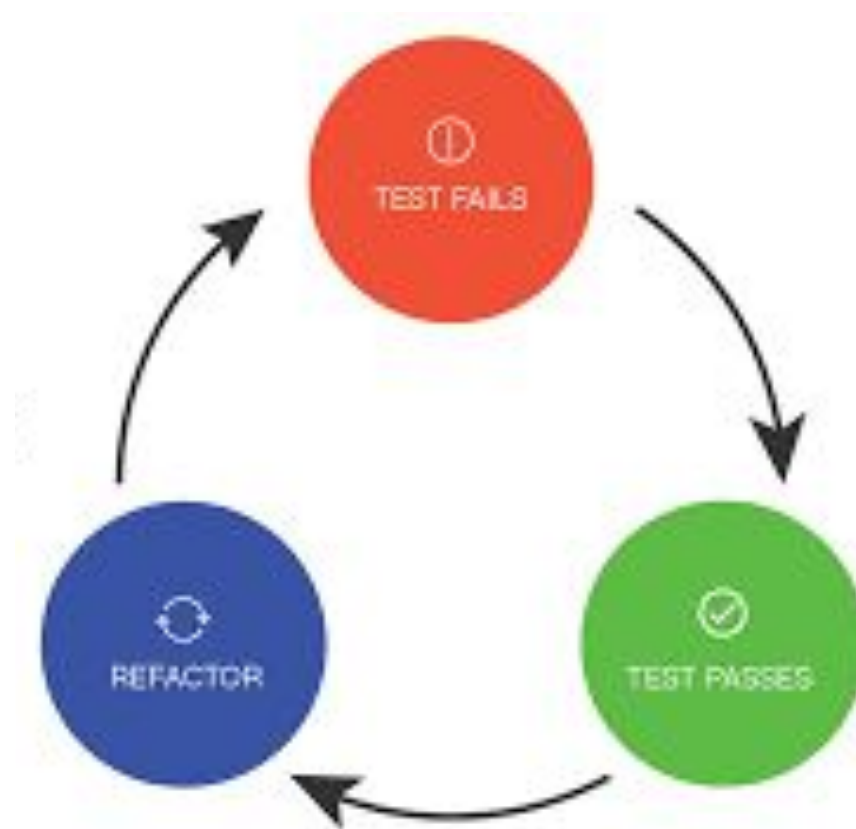
```
it('Meu primeiro teste - Usando TDD', () => {
  expect(2).toEqual(1);
});
```

## AppComponent

- × Meu primeiro teste - Usando TDD
- should have as title 'angular-app'
- should render title
- should create the app



# Ciclo do TDD





# Teste de interface

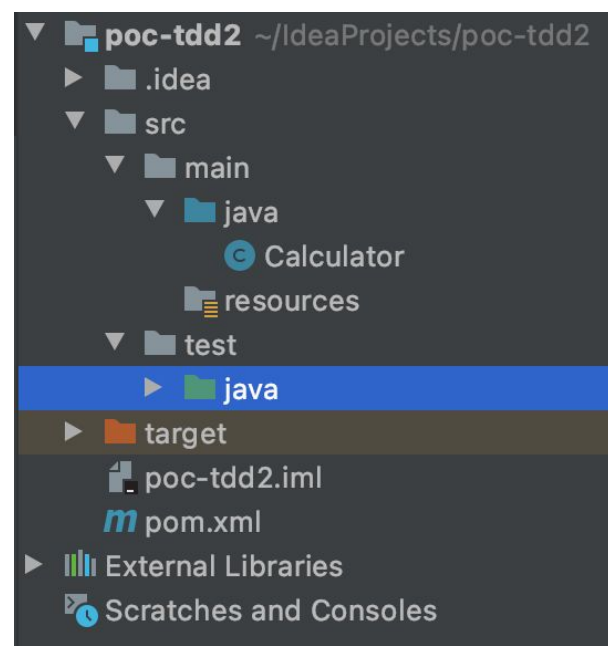
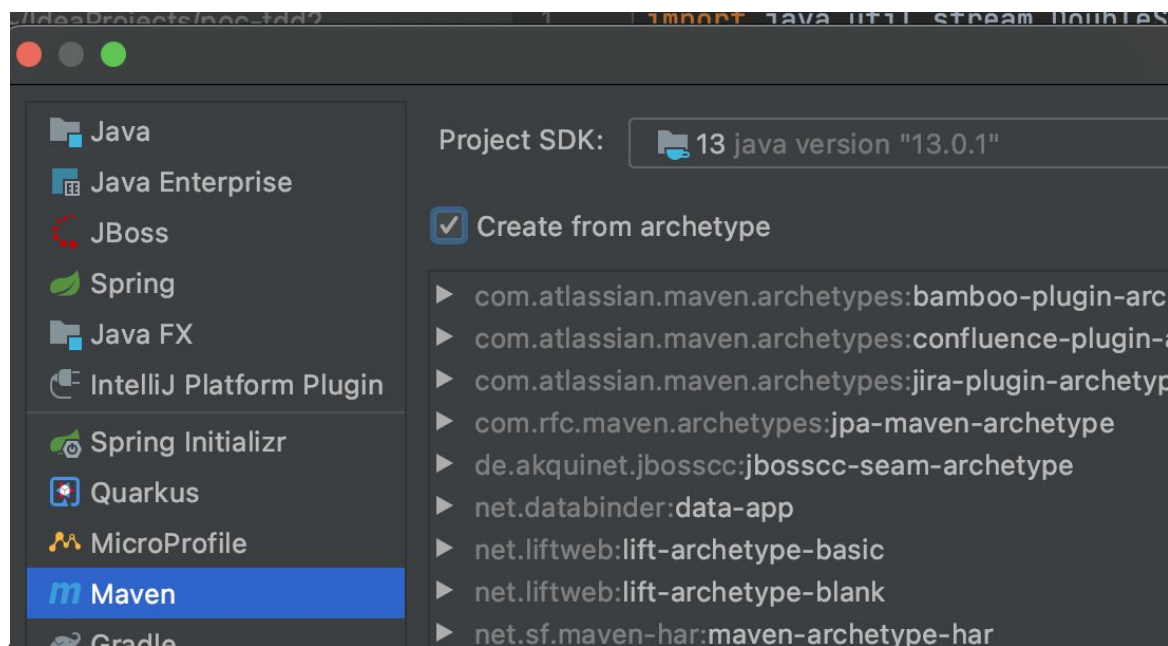
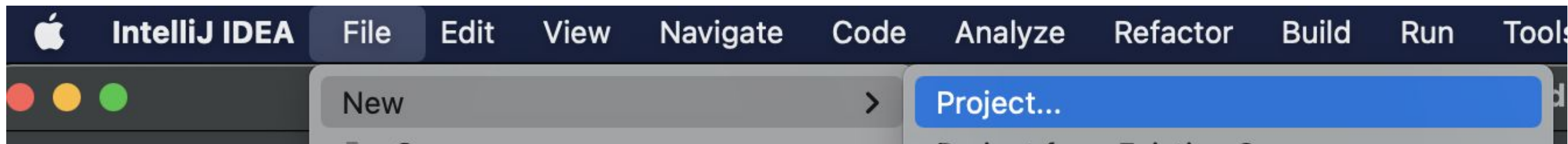
```
it('Home - Deveria ter 5 quadros grandes', () => {  
  const fixture = TestBed.createComponent(AppComponent);  
  fixture.detectChanges();  
  
  const elementos = fixture.debugElement.queryAll(By.css('.card-container a.card'));  
  
  expect(elementos.length).toEqual(5);  
});
```

- Home - Deveria ter 5 quadros grandes





# Hands On - Backend



# Estrutura dos testes

```

1  import java.util.stream.DoubleStream;
2
3  public class Calculator {
4
5      static double add(double... operands) {
6          return DoubleStream.of(operands)
7              .sum();
8      }
9
10     static double multiply(double... operands) {
11         return DoubleStream.of(operands)
12             .reduce(identity: 1, (a, b) -> a * b);
13     }
14 }

```

Run: CalculatorTest x

Test Results 58 ms

- CalculatorTest 58 ms
  - Add two numbers 43 ms
  - Multiply two numbers 15 ms

Tests passed: 2

6: TODO 4: Run 0: Messages



# Implementação nova

# Título ...







# Título ...



# Título ...