

Projeto PDV

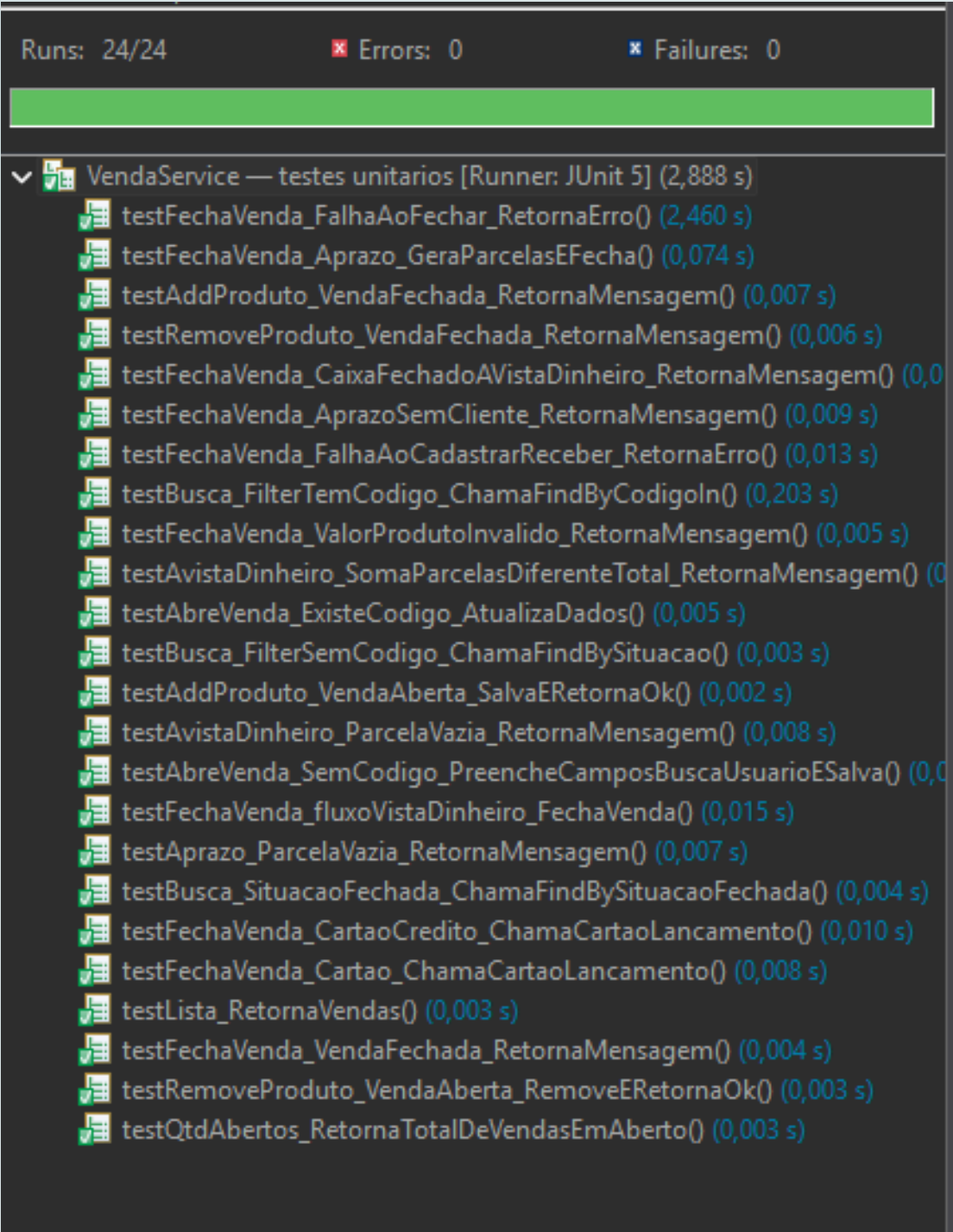
QUALIDADE E TESTE - TCC00365

GRUPO:

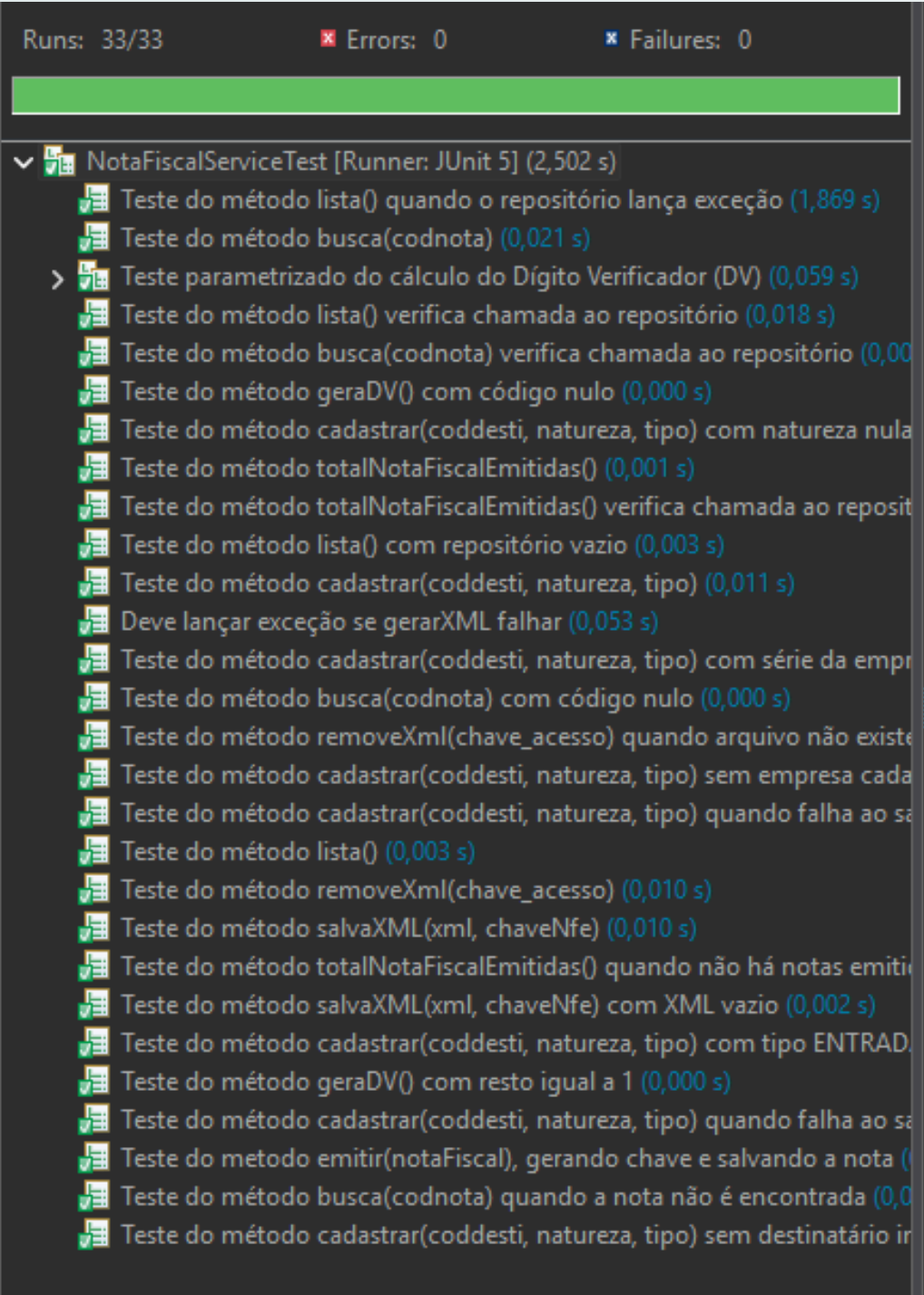
- GUILHERME VIEIRA
- ISADORA DUARTE
- IZABEL SOARES
- PATRICIA CARVALHO

Melhoria dos Testes Unitários

VendaService

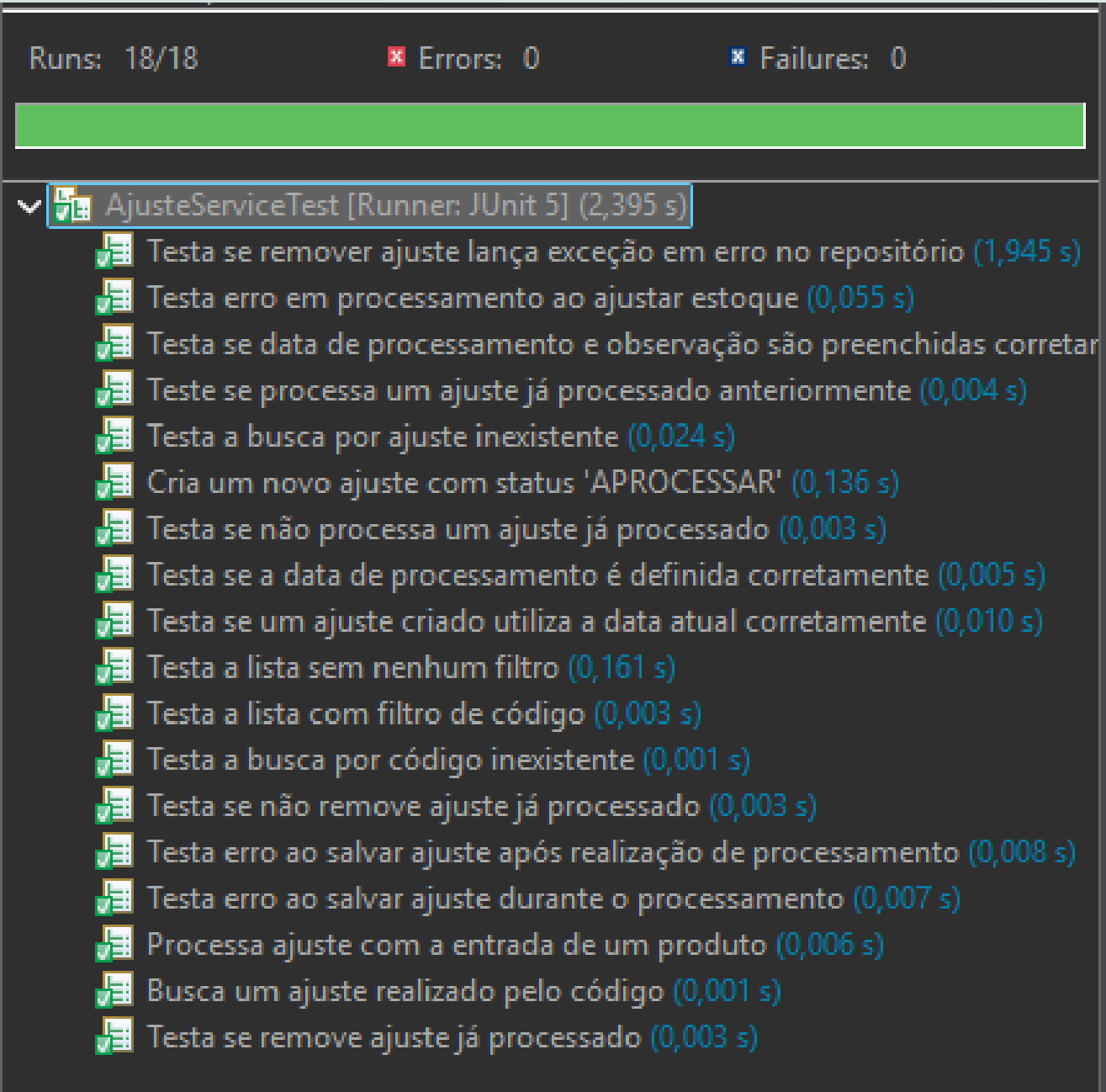


NotaFiscalService

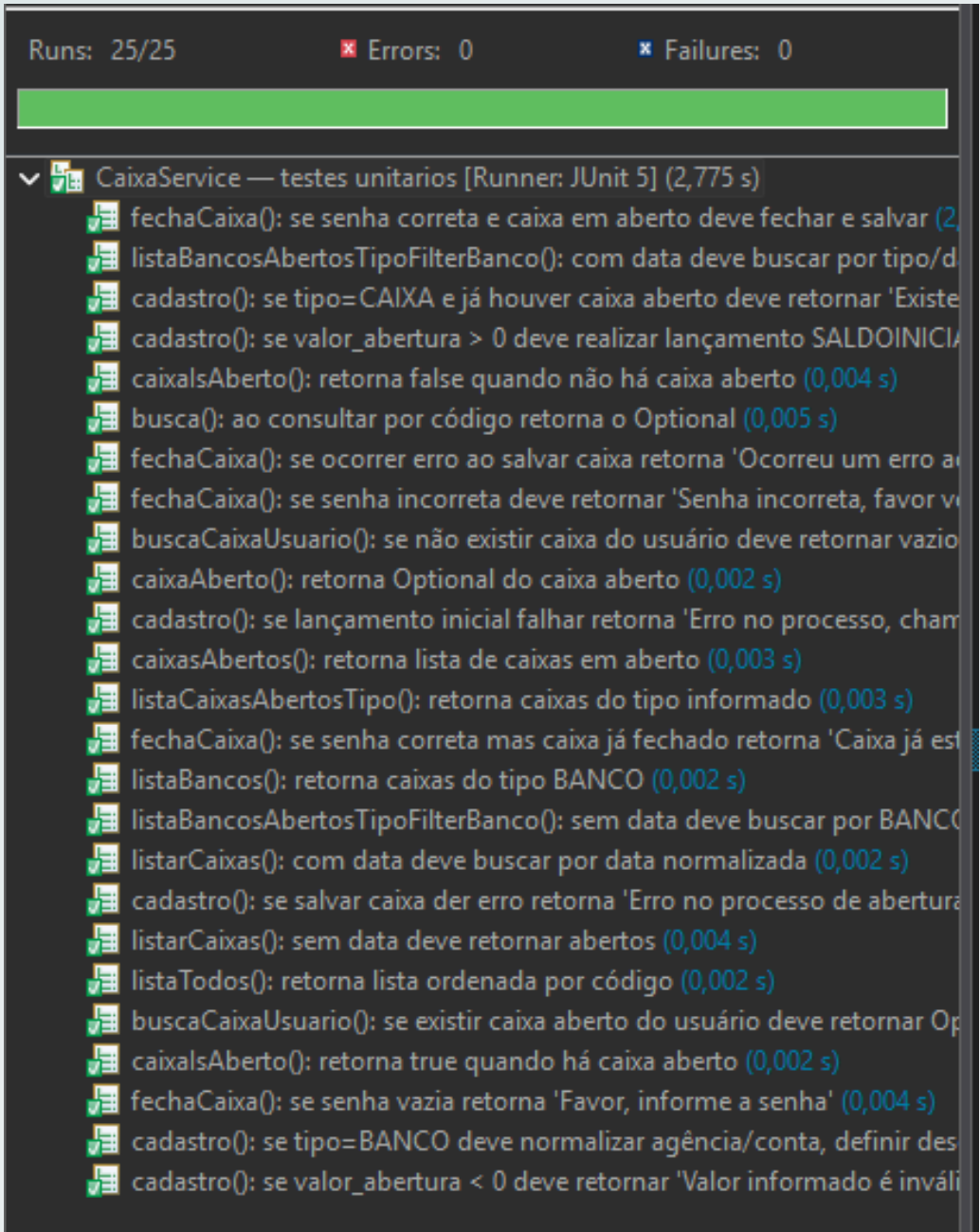


Melhoria dos Testes Unitários

AjusteService



CaixaService



Cobertura Critério Todas-Arestas

VendaService

Coverage					
Session: VendaServiceTest (1) (18 de nov. de 2025 01:52:59)					
Counter		Coverage	Covered	Missed	Total
Instructions	<div><div></div></div>	93,9 %	540	35	575
Branches	<div><div></div></div>	97,4 %	37	1	38
Lines	<div><div></div></div>	90,8 %	109	11	120
Methods	<div><div></div></div>	100,0 %	11	0	11
Types	<div><div></div></div>	100,0 %	1	0	1
Complexity	<div><div></div></div>	96,7 %	29	1	30

NotaFiscalService

Coverage					
Session: NotaFiscalServiceTest (1) (29 de nov. de 2025 16:45:49)					
Counter		Coverage	Covered	Missed	Total
Instructions	<div><div></div></div>	94,1 %	318	20	338
Branches	<div><div></div></div>	100,0 %	10	0	10
Lines	<div><div></div></div>	93,3 %	70	5	75
Methods	<div><div></div></div>	100,0 %	12	0	12
Types	<div><div></div></div>	100,0 %	1	0	1
Complexity	<div><div></div></div>	100,0 %	17	0	17

AjusteService

Coverage

← ▾ → ▾ ⋮

Session: AjusteServiceTest (30 de nov. de 2025 19:46:27)

Counter	Coverage	Covered	Missed	Total
Instructions	<div><div></div></div> 100,0 %	182	0	182
Branches	<div><div></div></div> 100,0 %	10	0	10
Lines	<div><div></div></div> 100,0 %	35	0	35
Methods	<div><div></div></div> 100,0 %	6	0	6
Types	<div><div></div></div> 100,0 %	1	0	1
Complexity	<div><div></div></div> 100,0 %	11	0	11

CaixaService

Coverage					
Session: CaixaServiceTest (1) (30 de nov. de 2025 19:45:13)					
Counter		Coverage	Covered	Missed	Total
Instructions	<div><div></div></div>	97,7 %	388	9	397
Branches	<div><div></div></div>	81,8 %	36	8	44
Lines	<div><div></div></div>	100,0 %	78	0	78
Methods	<div><div></div></div>	100,0 %	13	0	13
Types	<div><div></div></div>	100,0 %	1	0	1
Complexity	<div><div></div></div>	77,1 %	27	8	35

Cobertura de Mutação

VendaService

NotaFiscalService

Pit Test Coverage Report

Package Summary

net.originmobi.pdv.service

Number of Classes	Line Coverage	Mutation Coverage	Test Strength
1	91% <div><div>109/120</div></div>	88% <div><div>59/67</div></div>	89% <div><div>59/66</div></div>

Breakdown by Class

Name	Line Coverage	Mutation Coverage	Test Strength
VendaService.java	91% <div><div>109/120</div></div>	88% <div><div>59/67</div></div>	89% <div><div>59/66</div></div>

Pit Test Coverage Report

Package Summary

net.originmobi.pdv.service.notafiscal

Number of Classes	Line Coverage	Mutation Coverage	Test Strength
1	95% <div><div>71/75</div></div>	100% <div><div>26/26</div></div>	100% <div><div>26/26</div></div>

Breakdown by Class

Name	Line Coverage	Mutation Coverage	Test Strength
NotaFiscalService.java	95% <div><div>71/75</div></div>	100% <div><div>26/26</div></div>	100% <div><div>26/26</div></div>

AjusteService

CaixaService

Pit Test Coverage Report

Package Summary

net.originmobi.pdv.service

Number of Classes	Line Coverage	Mutation Coverage	Test Strength
1	100% <div><div>35/35</div></div>	89% <div><div>17/19</div></div>	89% <div><div>17/19</div></div>

Breakdown by Class

Name	Line Coverage	Mutation Coverage	Test Strength
AjusteService.java	100% <div><div>35/35</div></div>	89% <div><div>17/19</div></div>	89% <div><div>17/19</div></div>

Pit Test Coverage Report

Package Summary

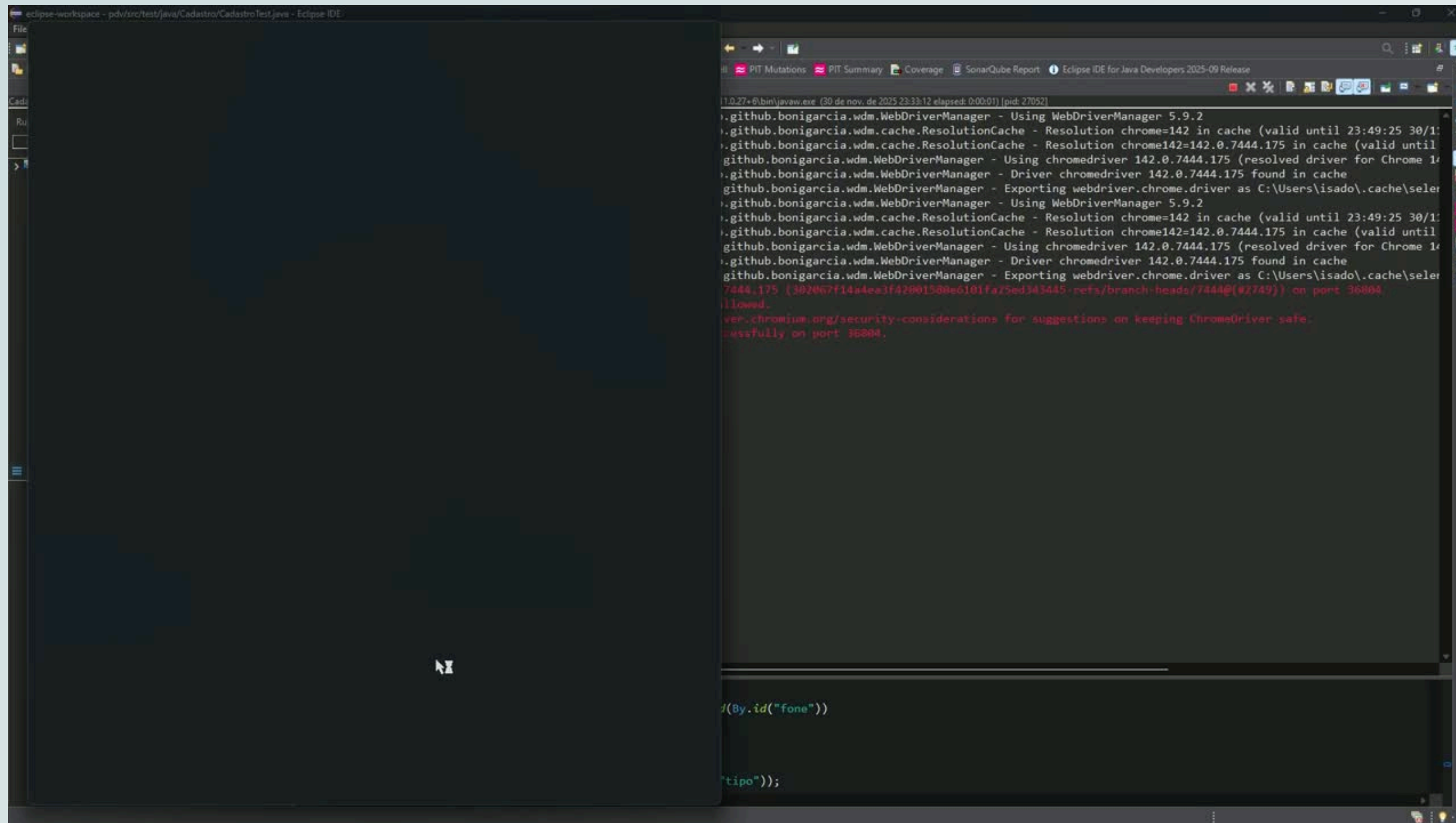
net.originmobi.pdv.service

Number of Classes	Line Coverage	Mutation Coverage	Test Strength
1	100% <div><div>78/78</div></div>	87% <div><div>47/54</div></div>	87% <div><div>47/54</div></div>

Breakdown by Class

Name	Line Coverage	Mutation Coverage	Test Strength
CaixaService.java	100% <div><div>78/78</div></div>	87% <div><div>47/54</div></div>	87% <div><div>47/54</div></div>

Testes de Sistema



```
[10.27*6\bin\javaw.exe (30 de nov. de 2025 23:33:12 elapsed: 0:00:01) [pid: 27052]]
github.bonigarcia.wdm.WebDriverManager - Using WebDriverManager 5.9.2
github.bonigarcia.wdm.cache.ResolutionCache - Resolution chrome=142 in cache (valid until 23:49:25 30/11/2025)
github.bonigarcia.wdm.cache.ResolutionCache - Resolution chrome142=142.0.7444.175 in cache (valid until 23:49:25 30/11/2025)
github.bonigarcia.wdm.WebDriverManager - Using chromedriver 142.0.7444.175 (resolved driver for Chrome 142)
github.bonigarcia.wdm.WebDriverManager - Driver chromedriver 142.0.7444.175 found in cache
github.bonigarcia.wdm.WebDriverManager - Exporting webdriver.chrome.driver as C:\Users\isado\.cache\selenium\chromedriver\win64\142.0.7444.175\chromedriver.exe
github.bonigarcia.wdm.WebDriverManager - Using WebDriverManager 5.9.2
github.bonigarcia.wdm.cache.ResolutionCache - Resolution chrome=142 in cache (valid until 23:49:25 30/11/2025)
github.bonigarcia.wdm.cache.ResolutionCache - Resolution chrome142=142.0.7444.175 in cache (valid until 23:49:25 30/11/2025)
github.bonigarcia.wdm.WebDriverManager - Using chromedriver 142.0.7444.175 (resolved driver for Chrome 142)
github.bonigarcia.wdm.WebDriverManager - Driver chromedriver 142.0.7444.175 found in cache
github.bonigarcia.wdm.WebDriverManager - Exporting webdriver.chrome.driver as C:\Users\isado\.cache\selenium\chromedriver\win64\142.0.7444.175\chromedriver.exe
llowed.
ver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
cessfully on port 36804.

(By.id("fone"))

"tipo"));
```

AjusteEstoqueTest

CadastroTest

AbrirCaixaTest

AbrirPedidoTest

LoginTest

Vídeo exemplo da classe CadastroTest

ANTES DAS MODIFICAÇÕES ----->

23 items			
Resource	Date	Description	
NotaFiscalService.java	1 month ago	⬆	Call "Optional#isPresent()" or "!Optional#isEmpty()" before accessing the value.
NotaFiscalService.java	1 month ago	⬆	Call "Optional#isPresent()" or "!Optional#isEmpty()" before accessing the value.
NotaFiscalService.java	1 month ago	⬇	Do something with the "boolean" value returned by "delete".
NotaFiscalService.java	1 month ago	⬇	Remove the "dataAtual" field and declare it as a local variable in the relevant methods.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬇	Remove this hard-coded path-delimiter.
NotaFiscalService.java	1 month ago	⬇	Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'.
NotaFiscalService.java	1 month ago	⬇	Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
NotaFiscalService.java	1 month ago	⬆	Replace this use of System.out by a logger.
NotaFiscalService.java	1 month ago	⬆	Replace this use of System.out by a logger.
NotaFiscalService.java	1 month ago	⬆	Replace this use of System.out by a logger.
NotaFiscalService.java	1 month ago	⬆	Replace this use of System.out by a logger.
NotaFiscalService.java	1 month ago	⬆	Replace this use of System.out by a logger.
NotaFiscalService.java	1 month ago	⬆	Replace this use of System.out by a logger.
NotaFiscalService.java	1 month ago	⬆	Use "java.nio.file.Files#delete" here for better messages on error conditions.

APÓS AS MODIFICAÇÕES ----->

8 items			
Resource	Date	Description	
NotaFiscalService.java	1 month ago	⬇	Remove the "dataAtual" field and declare it as a local variable in the relevant methods.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
NotaFiscalService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.

ANTES DAS MODIFICAÇÕES ----->

37 items			
Resource	Date	Description	
VendaService.java	1 month ago	⬆	Call "caixa.isPresent()" or "!caixa.isEmpty()" before accessing the value.
VendaService.java	1 month ago	⬆	Call "titulo.isPresent()" or "!titulo.isEmpty()" before accessing the value.
VendaService.java	1 month ago	⬆	Method has 10 parameters, which is greater than 7 authorized.
VendaService.java	1 month ago	⬆	Parameters to aprazo have the same names but not the same order as the method arguments. [+2 loc...
VendaService.java	1 month ago	⬆	Parameters to avistaDinheiro have the same names but not the same order as the method arguments....
VendaService.java	1 month ago	⬆	Refactor this method to reduce its Cognitive Complexity from 22 to the 15 allowed. [+13 locations]
VendaService.java	1 month ago	⬆	Remove these unused method parameters "vlprodutos", "qtdVezes". [+1 location]
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this field injection and use constructor injection instead.
VendaService.java	1 month ago	⬆	Remove this unused method parameter "formaPagar".
VendaService.java	1 month ago	⬇	Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'.
VendaService.java	1 month ago	⬇	Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'.
VendaService.java	1 month ago	⬇	Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace generic exceptions with specific library exceptions or a custom exception.
VendaService.java	1 month ago	⬆	Replace this use of System.out by a logger.
VendaService.java	1 month ago	⬆	Replace this use of System.out by a logger.
VendaService.java	1 month ago	⬆	Replace this use of System.out by a logger.
VendaService.java	1 month ago	⬇	Use a primitive boolean expression here.

APÓS AS MODIFICAÇÕES ----->

1 items			
Resource	Date	Description	
VendaService.java	11 minutes ago	⬆	Refactor this method to reduce its Cognitive Complexity from 18 to the 15 allowed. [+10 locations]

AjusteService

Relatórios Sonar

ANTES DAS MODIFICAÇÕES



Resource	Date	Description
AjusteService	1 month ago	Call "Optional#isPresent()" or "!Optional#isEmpty()" before accessing the value.
AjusteService	1 month ago	Call "ajuste.isPresent()" or "!ajuste.isEmpty()" before accessing the value.
AjusteService	1 month ago	Remove this field injection and use constructor injection instead.
AjusteService	1 month ago	Remove this field injection and use constructor injection instead.
AjusteService	1 month ago	Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'.
AjusteService	1 month ago	Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'.
AjusteService	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
AjusteService	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
AjusteService	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
AjusteService	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
AjusteService	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
AjusteService	1 month ago	Replace this use of System.out by a logger.

APÓS AS MODIFICAÇÕES



Console
 Problems
 Debug Shell
 Coverage
 Eclipse IDE for Java Developers 2025-09 Release
 SonarQube Report ×

0 items

Resource [^]	Date	Description

File /PDV pt 2/src/main/java/net/originmobi/pdv/service/AjusteService.java (at 30/11/2025 21:27). [Learn](#)

ANTES DAS MODIFICAÇÕES ----->

20 items

Resource	Date	Description
CaixaService.j	1 month ago	Call "Optional#isPresent()" or "!Optional#isEmpty()" before accessing the value.
CaixaService.j	1 month ago	Call "caixaAtual.isPresent()" or "!caixaAtual.isEmpty()" before accessing the value.
CaixaService.j	1 month ago	Extract this nested ternary operation into an independent statement.
CaixaService.j	1 month ago	Immediately return this expression instead of assigning it to the temporary variable "caixaOptional".
CaixaService.j	1 month ago	Merge this if statement with the enclosing one. [+1 location]
CaixaService.j	1 month ago	Merge this if statement with the enclosing one. [+1 location]
CaixaService.j	1 month ago	Refactor this method to reduce its Cognitive Complexity from 24 to the 15 allowed. [+17 locations]
CaixaService.j	1 month ago	Remove the "usuario" field and declare it as a local variable in the relevant methods.
CaixaService.j	1 month ago	Remove this field injection and use constructor injection instead.
CaixaService.j	1 month ago	Remove this field injection and use constructor injection instead.
CaixaService.j	1 month ago	Remove this field injection and use constructor injection instead.
CaixaService.j	1 month ago	Rename "usuario" which hides the field declared at line 30.
CaixaService.j	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
CaixaService.j	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
CaixaService.j	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
CaixaService.j	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
CaixaService.j	1 month ago	Replace generic exceptions with specific library exceptions or a custom exception.
CaixaService.j	1 month ago	Replace this use of System.out by a logger.
CaixaService.j	1 month ago	Replace this use of System.out by a logger.

APÓS AS MODIFICAÇÕES ----->

0 items

Resource	Date	Description

File /PDV pt 2/src/main/java/net/originmobi/pdv/service/CaixaService.java (at 30/11/2025 22:12). [Learn](#)

ISO 25010

CARACTERÍSTICA	JUSTIFICATIVA	NOTA
Adequação funcional	O PDV é crítico para faturamento, cobrindo quase totalmente atividades como correção dos cálculos de preço, desconto e impostos. Por isso, a adequação precisa ter peso alto.	ALTA
Eficiência de desempenho	No PDV, lentidão impacta diretamente o tempo de fila, logo deve privilegiar respostas muito rápidas para operações de venda e fechamento de caixa sob carga real.	ALTA
Compatibilidade	Falhas de compatibilidade com equipamentos de loja ou meios de pagamento geram paralisação, então a escala deve valorizar a capacidade de trocar informações com outros produtos.	MÉDIA
Usabilidade	O varejo tem uma rotatividade de funcionários muito alta. O sistema deve ser intuitivo o suficiente para que seja necessário pouco tempo para que um funcionário novo consiga operar o sistema sozinho.	ALTA


ISO 25010

CARACTERÍSTICA	JUSTIFICATIVA	NOTA
Confiabilidade	interrupções geram filas e perda direta de vendas, por isso a escala deve ser exigente. Precisa ter um tempo de sistema no ar alto durante o horário comercial.	ALTA
Segurança	O sistema lida com dados sensíveis de clientes, como cartão de crédito e CPF. Falhas aqui resultam em fraudes financeiras e perda total de reputação.	ALTA
Manutenibilidade	O código deve ser modular o suficiente para permitir atualizações sem quebrar o restante do sistema, porém mudanças não ocorrem tão frequentemente, por ser um sistema de ponto de venda.	MÉDIA
Portabilidade	Normalmente um sistema de ponto de venda funciona em equipamentos de hardware padronizados, não sendo tão necessário focar na portabilidade entre diferentes sistemas ou máquinas.	BAIXA

Testes de Integração

Teste feitos para PokéAPI

Pokemon-QT-2 - Run results

 Ran today at 06:49:16 PM - [View all runs](#)

Source	Environment	Iterations	Duration	All tests	Avg. Resp. Time
Runner	none	1	1s 91ms	22	215 ms

All Tests Passed (22) Failed (0) Skipped (0)

Iteration 1

GET Type - water
<https://pokeapi.co/api/v2/type/water>

- PASS** Tipo retornado é 'water'
- PASS** Estrutura básica do tipo está presente
- PASS** Water tem fraquezas corretas
- PASS** Water é super efetivo contra fire/ground/rock
- PASS** Pokémon famosos de água estão listados
- PASS** Water possui golpes associados

GET Ability - overgrow
<https://pokeapi.co/api/v2/ability/overgrow>

- PASS** Status code = 200
- PASS** Resposta em JSON
- PASS** Ability tem o nome 'overgrow'
- PASS** Ability está associada a pelo menos um Pokémon
- PASS** Ability é da série principal

GET Nature - bold
<https://pokeapi.co/api/v2/nature/bold>

- PASS** Status code é 200
- PASS** Resposta vem em JSON
- PASS** Nature tem o nome 'bold'
- PASS** Nature 'bold' aumenta defesa e reduz ataque
- PASS** Nature 'bold' gosta de 'sour' e odeia 'spicy'

GET Pokémon - bulbasaur
<https://pokeapi.co/api/v2/pokemon/bulbasaur>

- PASS** Status code é 200
- PASS** Resposta vem em JSON
- PASS** Pokémon tem nome 'bulbasaur'
- PASS** Bulbasaur é do tipo 'grass' e 'poison'
- PASS** Bulbasaur possui pelo menos um movimento
- PASS** ID do Bulbasaur é 1



Obrigado!
