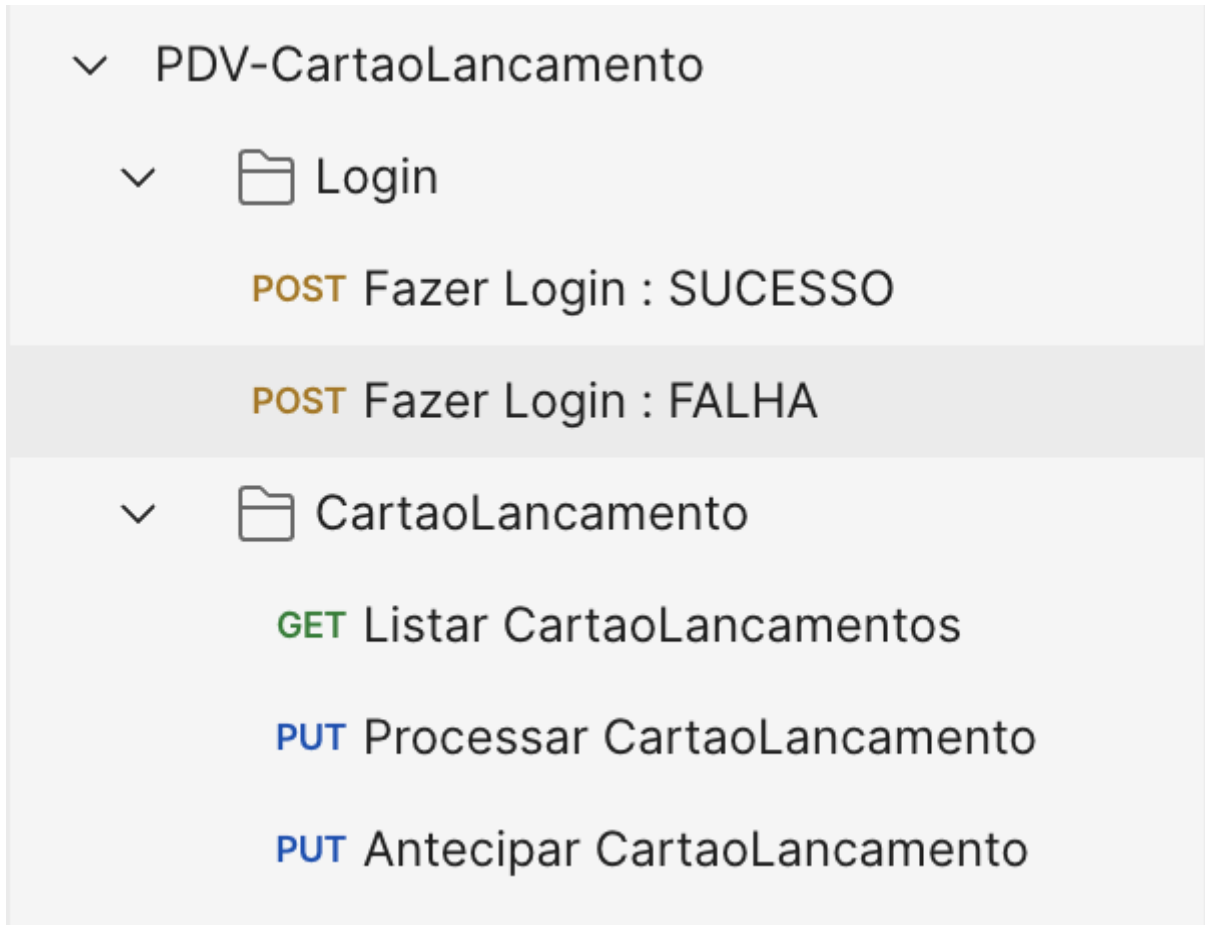


Entrega 2 - Gabriel Marinho

1. Testes Unitários e de Integração

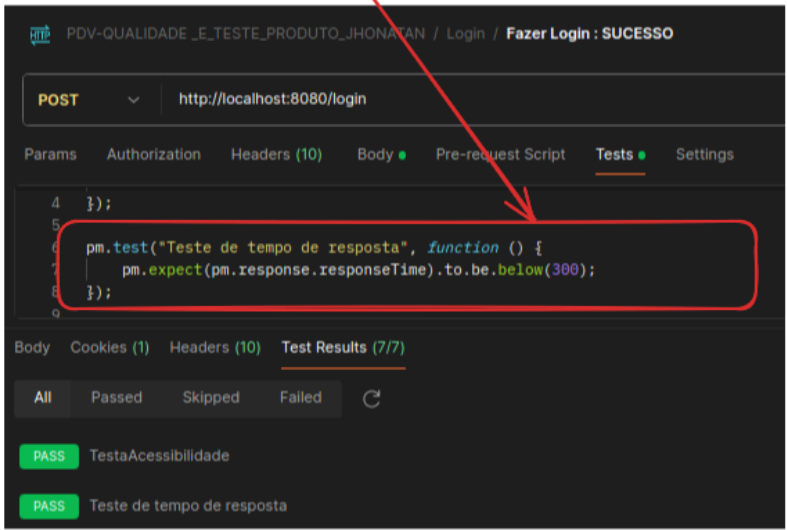
- Melhorar e aumentar os casos de testes unitários, isolando suas dependências (FEITO)
- Implementar casos de teste de integração (FEITO)



2. Testes de Sistema e Requisitos Não Funcionais

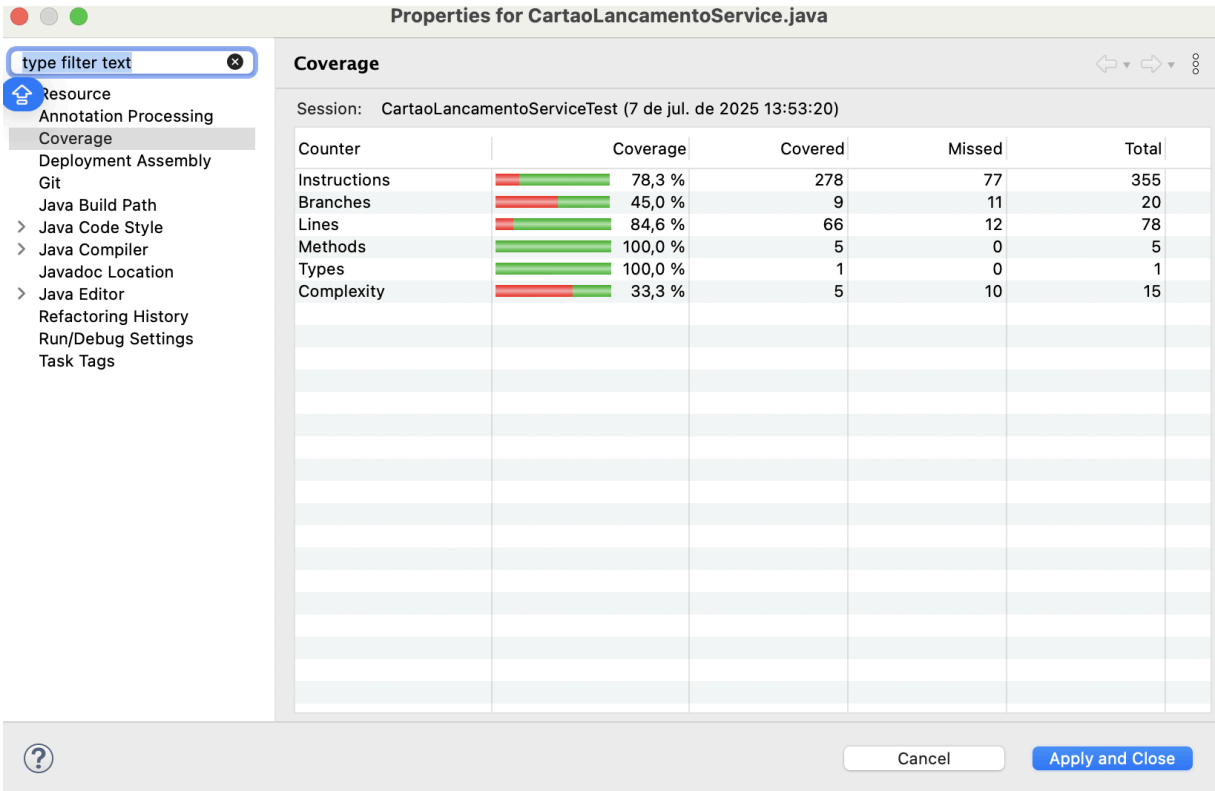
- Implementar testes de sistema considerando requisitos funcionais (FEITO)
 - Selenium:
 - Login (FEITO)
 - Buscar Produto (FEITO)
 - Cadastrar produto (FEITO)
- Pelo menos um requisito não funcional (atributos de qualidade - Exemplo: desempenho, segurança) (FEITO)
 - Realizado teste de desempenho no login

Teste de desempenho
Testando tempo de resposta da requisição de login









3. Testes Estruturais (Cobertura de Código)(FEITO)

- Estrutural (ao menos 80% de cobertura no critério todas-arestas)
 - **Classe de CartaoLancamentoService:**
 - Coverage classe de teste - ENTREGA 1



■ Coverage classe de teste - ENTREGA 2

| Coverage | | | | |
|---|---|----------|---------|--------|
| Session: CartaoLancamentoServiceTest (7 de jul. de 2025 16:07:57) | | | | |
| Counter | | Coverage | Covered | Missed |
| Instructions |  | 100,0 % | 355 | 0 |
| Branches |  | 95,0 % | 19 | 1 |
| Lines |  | 100,0 % | 78 | 0 |
| Methods |  | 100,0 % | 5 | 0 |
| Types |  | 100,0 % | 1 | 0 |
| Complexity |  | 93,3 % | 14 | 1 |

4. Testes Baseados em Defeitos (Mutação)(FEITO)

- Baseada em Defeitos (80% de escore de mutação nas mesmas classes do teste estrutural)
 - Classe de CartaoLancamentoService:
 - PIT Mutation Test classe de teste - ENTREGA 1

| | | |
|---|---|--|
| ✖ | 🔥 | SURVIVED (14) |
| ✖ | 📁 | pdv (14) |
| ✖ | 📁 | net.originmobi.pdv.model.cartao (3) |
| ✖ | 📁 | net.originmobi.pdv.service.cartao (8) |
| ✖ | 📁 | net.originmobi.pdv.service.cartao.CartaoLancamentoService (8) |
| | 🔥 | 58: negated conditional |
| | 🔥 | 69: Replaced double division with multiplication |
| | 🔥 | 69: Replaced double multiplication with division |
| | 🔥 | 70: Replaced double subtraction with addition |
| | 🔥 | 73: Replaced double division with multiplication |
| | 🔥 | 73: Replaced double multiplication with division |
| | 🔥 | 74: Replaced double subtraction with addition |
| | 🔥 | 99: replaced return value with Collections.emptyList for net/originmobi/pdv/service/cartao/CartaoLancamentoService::listar |
| ✖ | 📁 | net.originmobi.pdv.singleton (1) |
| ✖ | 📁 | net.originmobi.pdv.utilitarios (2) |
| ✖ | 🔥 | KILLED (18) |
| ✖ | 📁 | pdv (18) |
| ✖ | 📁 | net.originmobi.pdv.filter (3) |
| ✖ | 📁 | net.originmobi.pdv.service.cartao (12) |
| ✖ | 📁 | net.originmobi.pdv.service.cartao.CartaoLancamentoService (12) |
| | 🔥 | 95: negated conditional |
| | 🔥 | 96: negated conditional |
| | 🔥 | 97: negated conditional |
| | 🔥 | 97: negated conditional |
| | 🔥 | 105: negated conditional |
| | 🔥 | 108: negated conditional |
| | 🔥 | 129: removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao |
| | 🔥 | 134: replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::processar |
| | 🔥 | 138: negated conditional |
| | 🔥 | 141: negated conditional |
| | 🔥 | 163: removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao |
| | 🔥 | 169: replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::antecipar |

Pit Test Coverage Report

Package Summary

net.originmobi.pdv.service.cartao

| Number of Classes | Line Coverage | Mutation Coverage | Test Strength |
|-------------------|---------------------------------|---------------------------------|---------------------------------|
| 2 | 75% <div><div>66/88</div></div> | 48% <div><div>12/25</div></div> | 60% <div><div>12/20</div></div> |

Breakdown by Class

| Name | Line Coverage | Mutation Coverage | Test Strength |
|--|---------------------------------|---------------------------------|---------------------------------|
| CartaoLancamentoService.java | 85% <div><div>66/78</div></div> | 55% <div><div>12/22</div></div> | 60% <div><div>12/20</div></div> |

Mutations

| | |
|-----|--|
| 58 | 1. negated conditional → SURVIVED |
| 63 | 1. negated conditional → NO_COVERAGE |
| 69 | 1. Replaced double multiplication with division → SURVIVED |
| | 2. Replaced double division with multiplication → SURVIVED |
| 70 | 1. Replaced double subtraction with addition → SURVIVED |
| 73 | 1. Replaced double multiplication with division → SURVIVED |
| | 2. Replaced double division with multiplication → SURVIVED |
| 74 | 1. Replaced double subtraction with addition → SURVIVED |
| 89 | 1. removed call to java/io/PrintStream::println → NO_COVERAGE |
| 95 | 1. negated conditional → KILLED |
| 96 | 1. negated conditional → KILLED |
| 97 | 1. negated conditional → KILLED |
| | 2. negated conditional → KILLED |
| 99 | 1. replaced return value with Collections.emptyList for net/originmobi/pdv/service/cartao/CartaoLancamentoService::listar → SURVIVED |
| 105 | 1. negated conditional → KILLED |
| 108 | 1. negated conditional → KILLED |
| 129 | 1. removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao → KILLED |
| 134 | 1. replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::processar → SURVIVED |
| 138 | 1. negated conditional → KILLED |
| 141 | 1. negated conditional → KILLED |
| 163 | 1. removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao → KILLED |
| 169 | 1. replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::antecipar → SURVIVED |

■ PIT Mutation Test classe de teste - ENTREGA 2

▼ KILLED (35)

▼ pdv (35)

> net.originmobi.pdv.filter (3)

> net.originmobi.pdv.model.cartao (8)

▼ net.originmobi.pdv.service.cartao (22)

▼ net.originmobi.pdv.service.cartao.CartaoLancamentoService (22)

- 58: negated conditional
- 63: negated conditional
- 69: Replaced double division with multiplication
- 69: Replaced double multiplication with division
- 70: Replaced double subtraction with addition
- 73: Replaced double division with multiplication
- 73: Replaced double multiplication with division
- 74: Replaced double subtraction with addition
- 89: removed call to java/io/PrintStream::println
- 95: negated conditional
- 96: negated conditional
- 97: negated conditional
- 97: negated conditional
- 99: replaced return value with Collections.emptyList for net/originmobi/pdv/service/cartao/CartaoLancamentoService::listar
- 105: negated conditional
- 108: negated conditional
- 129: removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao
- 134: replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::processar
- 138: negated conditional
- 141: negated conditional
- 163: removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao
- 169: replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::antecipar

> net.originmobi.pdv.singleton (1)

Pit Test Coverage Report

Package Summary

net.originmobi.pdv.service.cartao

| Number of Classes | Line Coverage | Mutation Coverage | Test Strength |
|-------------------|---------------------------------|---------------------------------|----------------------------------|
| 2 | 89% <div><div>78/88</div></div> | 88% <div><div>22/25</div></div> | 100% <div><div>22/22</div></div> |

Breakdown by Class

| Name | Line Coverage | Mutation Coverage | Test Strength |
|--|----------------------------------|----------------------------------|----------------------------------|
| CartaoLancamentoService.java | 100% <div><div>78/78</div></div> | 100% <div><div>22/22</div></div> | 100% <div><div>22/22</div></div> |

Mutations

| | |
|-----|--|
| 58 | 1. negated conditional → KILLED |
| 63 | 1. negated conditional → KILLED |
| 69 | 1. Replaced double multiplication with division → KILLED 2. Replaced double division with multiplication → KILLED |
| 70 | 1. Replaced double subtraction with addition → KILLED |
| 73 | 1. Replaced double multiplication with division → KILLED 2. Replaced double division with multiplication → KILLED |
| 74 | 1. Replaced double subtraction with addition → KILLED |
| 89 | 1. removed call to java/io/PrintStream::println → KILLED |
| 95 | 1. negated conditional → KILLED |
| 96 | 1. negated conditional → KILLED |
| 97 | 1. negated conditional → KILLED 2. negated conditional → KILLED |
| 99 | 1. replaced return value with Collections.emptyList for net/originmobi/pdv/service/cartao/CartaoLancamentoService::getCartaoLancamento |
| 105 | 1. negated conditional → KILLED |
| 108 | 1. negated conditional → KILLED |
| 129 | 1. removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao → KILLED |
| 134 | 1. replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::processar |
| 138 | 1. negated conditional → KILLED |
| 141 | 1. negated conditional → KILLED |
| 163 | 1. removed call to net/originmobi/pdv/model/cartao/CartaoLancamento::setSituacao → KILLED |
| 169 | 1. replaced return value with "" for net/originmobi/pdv/service/cartao/CartaoLancamentoService::antecipar |

- Relatório de inspeção do código-fonte (usando SonarQube).
 - Análise utilizando SonarQube da classe ProdutoService - ENTREGA 1

| Resource | Date | Description |
|------------------------------|-------------|--|
| CartaoLancamentoService.java | 1 month ago | ✓ "getData_recebimento" returns a string, there's no need to call "toString()". |
| CartaoLancamentoService.java | 1 month ago | ✓ Call "titulo.isPresent()" before accessing the value. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Define and throw a dedicated exception instead of using a generic one. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Define and throw a dedicated exception instead of using a generic one. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Define and throw a dedicated exception instead of using a generic one. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Define and throw a dedicated exception instead of using a generic one. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Define and throw a dedicated exception instead of using a generic one. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Define and throw a dedicated exception instead of using a generic one. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Define and throw a dedicated exception instead of using a generic one. |
| CartaoLancamentoService.java | 1 month ago | ✓ Remove the "dataAtual" field and declare it as a local variable in the relevant methods. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this field injection and use constructor injection instead. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this field injection and use constructor injection instead. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this field injection and use constructor injection instead. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this useless assignment to local variable "taxa_ante". |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this useless assignment to local variable "vLiq_ant". |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this useless assignment to local variable "vLiq_parcela". |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this useless assignment to local variable "vL_taxa". |
| CartaoLancamentoService.java | 1 month ago | ⬆ Remove this useless assignment to local variable "vL_taxa_ante". |
| CartaoLancamentoService.java | 1 month ago | ✓ Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'. |
| CartaoLancamentoService.java | 1 month ago | ✓ Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'. |
| CartaoLancamentoService.java | 1 month ago | ✓ Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'. |
| CartaoLancamentoService.java | 1 month ago | ✓ Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'. |
| CartaoLancamentoService.java | 1 month ago | ✓ Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'. |
| CartaoLancamentoService.java | 1 month ago | ✓ Rename this local variable to match the regular expression '^[a-z][a-zA-Z0-9]*\$'. |
| CartaoLancamentoService.java | 1 month ago | ⬆ Replace this use of System.out by a logger. |

File /pdv/src/main/java/net/originmob/pdv/service/cartao/CartaoLancamentoService.java (at 09/07/2025 02:28). [Learn more](#)

- [illegible]

1. Criadas exceções dedicadas para substituir RuntimeException genéricos
2. Removida injeção de campo (@Autowired) e implementada injeção por construtor
3. Renomeadas variáveis para seguir padrão camelCase (vl_parcela → vlParcela)
4. Removidas atribuições inúteis de variáveis locais (inicializações com 0.0)
5. Adicionada verificação titulo.isPresent() antes de acessar titulo.get()
6. Removido campo dataAtual e declarado como variável local
7. Substituído System.out.println por logger SLF4J apropriado
8. Removidos imports não utilizados (CartaoLancamentoException, @Autowired)
9. Atualizados testes para usar as novas exceções dedicadas
10. Melhorada segurança no acesso a Optional