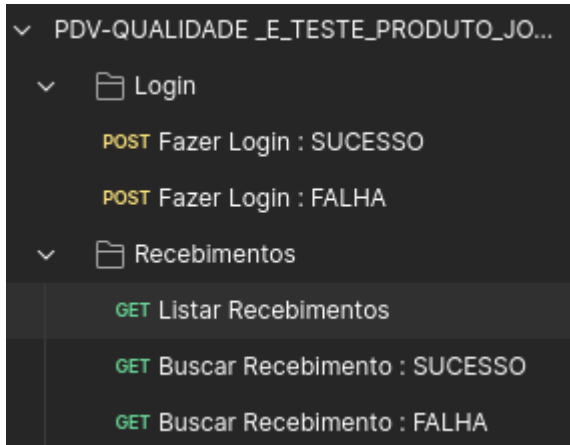


Entrega 2 - JOÃO PEDRO

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 Recebimento (FEITO)
 - Realizar Recebimento (FEITO)
 - Realizar Recebimento sem parcela (FEITO)
- Pelo menos um requisito não funcional (atributos de qualidade - Exemplo: desempenho, segurança) (FEITO)
 - Realizado teste de desempenho no na abertura da página de recebimentos

```
pm.test("Response time - Recebimentos", function () {  
  pm.expect(pm.response.responseTime).to.be.below(300);  
});
```







Nesse caso, o tempo de resposta da página de recebimentos precisa estar abaixo dos 300 milissegundos

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

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

Coverage					
Session: RecebimentoServiceTest (8 de jul. de 2025 23:55:16)					
Counter		Coverage	Covered	Missed	Total
Instructions		56,6 %	260	199	459
Branches		64,7 %	22	12	34
Lines		54,7 %	47	39	86
Methods		100,0 %	4	0	4
Types		100,0 %	1	0	1
Complexity		52,4 %	11	10	21

■ Coverage classe de teste - ENTREGA 2

Counter		Coverage	Covered	Missed	Total
Instructions		77,1 %	408	121	529
Branches		91,2 %	31	3	34
Lines		69,0 %	80	36	116
Methods		85,0 %	17	3	20
Types		100,0 %	1	0	1
Complexity		83,8 %	31	6	37

4. Testes Baseados em Defeitos (Muta  o)(FEITO)

- Baseada em Defeitos (80% de escore de muta  o nas mesmas classes do teste estrutural)
 - **Classe de RecebimentoService:**
 - PIT Mutation Test classe de teste - ENTREGA 1

```
▼ SURVIVED (20)
  ▼ pdv (20)
    ▼ net.originmobi.pdv.model (7)
      ▶ net.originmobi.pdv.model.Parcela (4)
      ▶ net.originmobi.pdv.model.Pessoa (1)
      ▶ net.originmobi.pdv.model.Receber (1)
      ▶ net.originmobi.pdv.model.Recebimento (1)
    ▼ net.originmobi.pdv.service (13)
      ▶ net.originmobi.pdv.service.RecebimentoService (13)
▼ KILLED (4)
  ▼ pdv (4)
    ▼ net.originmobi.pdv.model (1)
      ▼ net.originmobi.pdv.model.Recebimento (1)
        ✖ 116: replaced return value with null for net/originmobi/pdv/model/Recebimento::getData_processamento
    ▼ net.originmobi.pdv.service (3)
      ▼ net.originmobi.pdv.service.RecebimentoService (3)
        ✖ 206: negated conditional
        ✖ 210: removed call to net/originmobi/pdv/repository/RecebimentoRepository::deleteById
        ✖ 216: replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::remover
```

Pit Test Coverage Report

Package Summary

net.originmobi.pdv.service

Number of Classes	Line Coverage	Mutation Coverage	Test Strength
38	4% <div><div></div><div>34/911</div></div>	1% <div><div></div><div>3/499</div></div>	19% <div><div></div><div>3/16</div></div>

Breakdown by Class

Name	Line Coverage	Mutation Coverage	Test Strength
RecebimentoService.java	40% <div><div></div><div>34/86</div></div>	8% <div><div></div><div>3/40</div></div>	19% <div><div></div><div>3/16</div></div>

Mutations

```
66 1. changed conditional boundary → SURVIVED
66 2. negated conditional → SURVIVED
69 1. negated conditional → SURVIVED
72 1. negated conditional → SURVIVED
78 1. Replaced double addition with subtraction → SURVIVED
88 1. negated conditional → SURVIVED
100 1. replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::abrirRecebimento → NO_COVERAGE
108 1. negated conditional → SURVIVED
108 2. negated conditional → SURVIVED
111 1. negated conditional → SURVIVED
115 1. removed call to net/originmobi/pdv/model/Recebimento::setTitulo → SURVIVED
121 1. changed conditional boundary → SURVIVED
121 2. negated conditional → SURVIVED
126 1. negated conditional → SURVIVED
129 1. changed conditional boundary → NO_COVERAGE
129 2. negated conditional → NO_COVERAGE
136 1. changed conditional boundary → NO_COVERAGE
136 2. negated conditional → NO_COVERAGE
138 1. changed conditional boundary → NO_COVERAGE
138 2. negated conditional → NO_COVERAGE
139 1. Replaced double subtraction with addition → NO_COVERAGE
140 1. changed conditional boundary → NO_COVERAGE
140 2. negated conditional → NO_COVERAGE
142 1. Replaced double subtraction with addition → NO_COVERAGE
143 1. changed conditional boundary → NO_COVERAGE
143 2. Replaced double multiplication with division → NO_COVERAGE
143 3. negated conditional → NO_COVERAGE
166 1. negated conditional → NO_COVERAGE
166 2. negated conditional → NO_COVERAGE
167 1. removed call to net/originmobi/pdv/service/cartao/CartaoLancamentoService::lancamento → NO_COVERAGE
175 1. removed call to net/originmobi/pdv/model/CaixaLancamento::setRecebimento → NO_COVERAGE
189 1. removed call to net/originmobi/pdv/model/Recebimento::setValor_recebido → NO_COVERAGE
190 1. removed call to net/originmobi/pdv/model/Recebimento::setValor_acrescimo → NO_COVERAGE
191 1. removed call to net/originmobi/pdv/model/Recebimento::setValor_desconto → NO_COVERAGE
192 1. removed call to net/originmobi/pdv/model/Recebimento::setData_processamento → NO_COVERAGE
200 1. replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::receber → NO_COVERAGE
206 1. negated conditional → KILLED
210 1. removed call to net/originmobi/pdv/repository/RecebimentoRepository::deleteById → KILLED
212 1. removed call to java/io/PrintStream::println → NO_COVERAGE
216 1. replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::remover → KILLED
```

■ PIT Mutation Test classe de teste - ENTREGA 2

```
▶ * SURVIVED (8)
▼ * KILLED (62)
  ▼ pdv (62)
    ▶ net.originmobi.pdv.model (14)
    ▼ net.originmobi.pdv.service (46)
      ▼ net.originmobi.pdv.service.RecebimentoService (46)
        * 54: changed conditional boundary
        * 54: negated conditional
        * 57: negated conditional
        * 61: negated conditional
        * 67: Replaced double addition with subtraction
        * 75: negated conditional
        * 80: removed call to net/originmobi/pdv/model/Recebimento::setCodigo
        * 88: replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::abrirRecebimento
        * 94: removed call to net/originmobi/pdv/service/RecebimentoService::validarParametrosRecebimento
        * 101: removed call to net/originmobi/pdv/service/RecebimentoService::validarRecebimento
        * 107: removed call to net/originmobi/pdv/service/RecebimentoService::processarParcelas
        * 110: removed call to net/originmobi/pdv/service/RecebimentoService::processarLancamentoFinanceiro
        * 113: removed call to net/originmobi/pdv/service/RecebimentoService::finalizarRecebimento
        * 115: replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::receber
        * 119: negated conditional
        * 119: negated conditional
        * 123: changed conditional boundary
        * 123: negated conditional
        * 129: replaced return value with null for net/originmobi/pdv/service/RecebimentoService::obterRecebimento
        * 130: replaced return value with null for net/originmobi/pdv/service/RecebimentoService::lambda$0
        * 134: replaced return value with null for net/originmobi/pdv/service/RecebimentoService::obterTitulo
        * 135: replaced return value with null for net/originmobi/pdv/service/RecebimentoService::lambda$1
        * 139: negated conditional
        * 145: changed conditional boundary
        * 145: negated conditional
        * 152: replaced Double return value with 0 for net/originmobi/pdv/service/RecebimentoService::formatarValorRecebimento
        * 158: negated conditional
        * 165: negated conditional
        * 174: Replaced double subtraction with addition
```

Pit Test Coverage Report

Package Summary

net.originmobi.pdv.service

Number of Classes	Line Coverage	Mutation Coverage	Test Strength
38	11% <div><div></div></div> 100/895	8% <div><div></div></div> 38/484	76% <div><div></div></div> 38/50

Breakdown by Class

Name	Line Coverage	Mutation Coverage	Test Strength
RecebimentoService.java	98% <div><div></div></div> 114/116	88% <div><div></div></div> 46/52	88% <div><div></div></div> 46/52

Mutations

54	1. changed conditional boundary → KILLED
	2. negated conditional → KILLED
57	1. negated conditional → KILLED
61	1. negated conditional → KILLED
67	1. Replaced double addition with subtraction → KILLED
75	1. negated conditional → KILLED
80	1. removed call to net/originmobi/pdv/model/Recebimento::setCodigo → KILLED
88	1. replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::abrirRecebimento → KILLED
94	1. removed call to net/originmobi/pdv/service/RecebimentoService::validarParametrosRecebimento → KILLED
101	1. removed call to net/originmobi/pdv/service/RecebimentoService::validarRecebimento → KILLED
104	1. removed call to net/originmobi/pdv/model/Recebimento::setTitulo → SURVIVED
107	1. removed call to net/originmobi/pdv/service/RecebimentoService::processarParcelas → KILLED
110	1. removed call to net/originmobi/pdv/service/RecebimentoService::processarLancamentoFinanceiro → KILLED
113	1. removed call to net/originmobi/pdv/service/RecebimentoService::finalizarRecebimento → KILLED
115	1. replaced return value with "" for net/originmobi/pdv/service/RecebimentoService::receber → KILLED
119	1. negated conditional → KILLED
	2. negated conditional → KILLED
123	1. changed conditional boundary → KILLED
	2. negated conditional → KILLED
129	1. replaced return value with null for net/originmobi/pdv/service/RecebimentoService::obterRecebimento → KILLED
130	1. replaced return value with null for net/originmobi/pdv/service/RecebimentoService::lambda\$0 → KILLED
134	1. replaced return value with null for net/originmobi/pdv/service/RecebimentoService::obterTitulo → KILLED
135	1. replaced return value with null for net/originmobi/pdv/service/RecebimentoService::lambda\$1 → KILLED
139	1. negated conditional → KILLED
145	1. changed conditional boundary → KILLED
	2. negated conditional → KILLED
152	1. replaced Double return value with 0 for net/originmobi/pdv/service/RecebimentoService::formatarValorRecebimento → KILLED
158	1. negated conditional → KILLED
165	1. changed conditional boundary → SURVIVED
	2. negated conditional → KILLED
174	1. Replaced double subtraction with addition → KILLED
177	1. Replaced double subtraction with addition → KILLED
185	1. replaced Double return value with 0 for net/originmobi/pdv/service/RecebimentoService::processarParcela → SURVIVED
191	1. negated conditional → KILLED
192	1. removed call to net/originmobi/pdv/service/RecebimentoService::processarLancamentoCartao → KILLED
194	1. removed call to net/originmobi/pdv/service/RecebimentoService::processarLancamentoCaixa → KILLED
	1. replaced boolean return with false for net/originmobi/pdv/service/RecebimentoService::isLancamentoCartao → KILLED
199	2. replaced boolean return with true for net/originmobi/pdv/service/RecebimentoService::isLancamentoCartao → KILLED
	3. negated conditional → KILLED
200	1. negated conditional → KILLED

5. Relatório de Inspeção do Código-Fonte (SonarQube)(FEITO)

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

Problems
 Javadoc
 Declaration
 Console
 SonarQube On-The-Fly x
 SonarQube Issue Locations
 Coverage

34 items

Date		Description	Resource
1 month ago		Call "Optional#isPresent()" before accessing the value.	RecebimentoService.java
1 month ago		Call "Optional#isPresent()" before accessing the value.	RecebimentoService.java
1 month ago		Call "caixa.isPresent()" before accessing the value.	RecebimentoService.java
1 month ago		Call "recebimento.isPresent()" before accessing the value.	RecebimentoService.java
1 month ago		Call "titulo.isPresent()" before accessing the value.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
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1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
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1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one.	RecebimentoService.java
1 month ago		Define and throw a dedicated exception instead of using a generic one	

- Análise utilizando SonarQube da classe RecebimentoService - ENTREGA 2

```
RecebimentoService.java X RecebimentoServiceTest... CartaoLancamentoServic... UsuarioService.java Aplicacao.java
129     return recebimentos.findById(codreceber)
130         .orElseThrow(() -> new RecebimentoNotFoundException("Recebimento não encontrado"));
131     }
132
133     private Titulo obterTitulo(Long codtitulo) {
134         return titulos.busca(codtitulo)
135             .orElseThrow(() -> new RecebimentoNotFoundException("Titulo não encontrado"));
136     }
137
138     private void validarRecebimento(Recebimento recebimento, Double vlrecebido) {
139         if (recebimento.getData_processamento() != null) {
140             throw new RecebimentoOperationException("Recebimento já está fechado");
141         }
142
143         Double vlrecebimento = formatarValorRecebimento(recebimento.getValor_total());
144
145         if (vlrecebido > vlrecebimento) {
146             throw new RecebimentoBusinessException("Valor de recebimento é superior aos titulos");
147         }
148     }
149
150     private Double formatarValorRecebimento(Double valorTotal) {
151         DecimalFormat formata = new DecimalFormat("0.00");
152         return Double.valueOf(formata.format(valorTotal).replace(",", "."));
153     }
154
155     private void processarParcelas(Long codreceber, Double vlrecebido) {
156         List<Parcela> listParcelas = receParcelas.parcelasDoReceber(codreceber);
157
158         if (listParcelas.isEmpty()) {
159             throw new RecebimentoBusinessException("Recebimento não possui parcelas");
160         }
161     }
162
163 Problems Javadoc Declaration Console SonarQube On-The-Fly x SonarQube Issue Locations PIT Mutations PIT Summary
0 items
Date Description Resource
```

6. Melhorias Implementadas(FEITO)

- Criação de exceções personalizadas
- Refatoração da classe selecionada
- Limpeza nos `@Autowired` desnecessários
- Adição de dependência Lombok para código mais limpo
- Ajuste nos testes para se adequar às melhorias