



UNIVERSIDADE FEDERAL DO CEARÁ

MODELAGEM DE CLASSES:

SISTEMA DE GERENCIAMENTO DE BIBLIOTECA

Equipe:

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Francisco Werley da Silva - 553948

Professor: Paulyne Matthews Juca

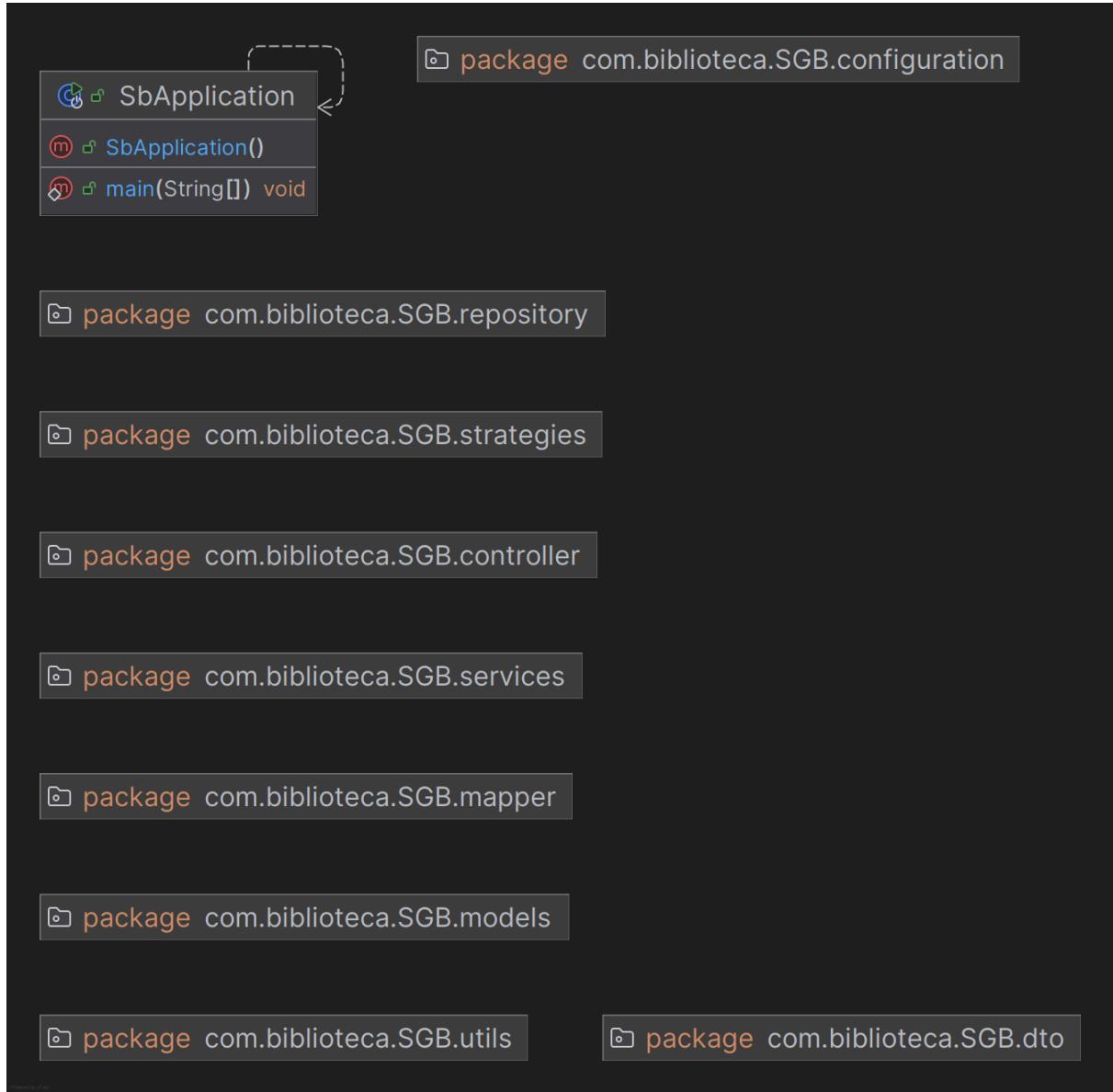
Disciplina: Projeto Detalhado de Software

Sumário:

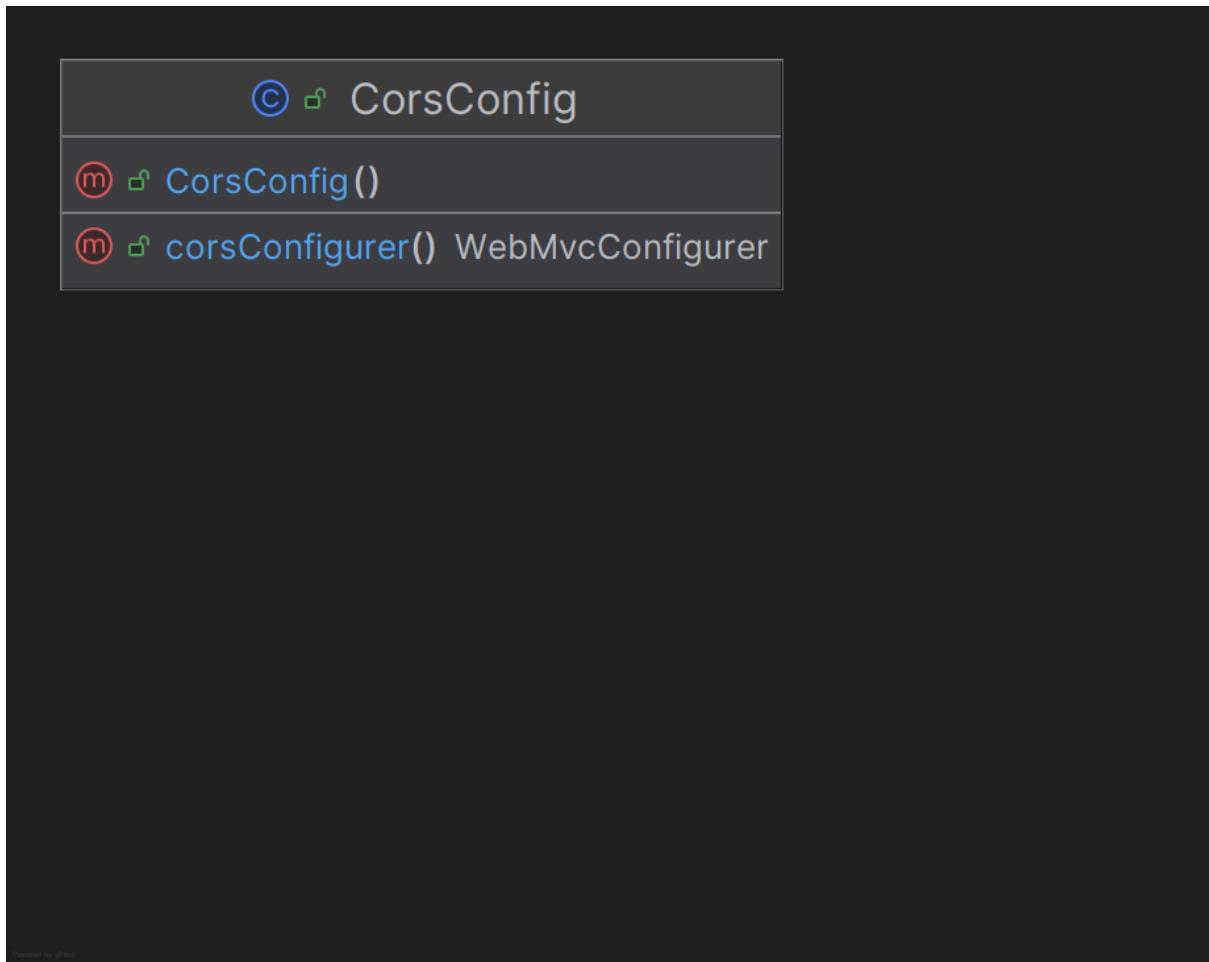
1. Diagramas de classe.....	3
1.1 packages.....	3
1.2 configuracion.....	4
1.3 controller.....	5
1.4 dto.....	6
1.5 mapper.....	7
1.6 model.....	8
1.7 repository.....	9
1.7.1 impl.....	10
1.7.2 interfaces.....	11
1.8 services.....	12
1.8.1 interfaces.....	13
1.9 strategies.....	14
1.9.1 statusEdicao.....	15
1.9.2 statusEmprestimo.....	15
1.10 Utils.....	16

1. Diagramas de classe

1.1 packages



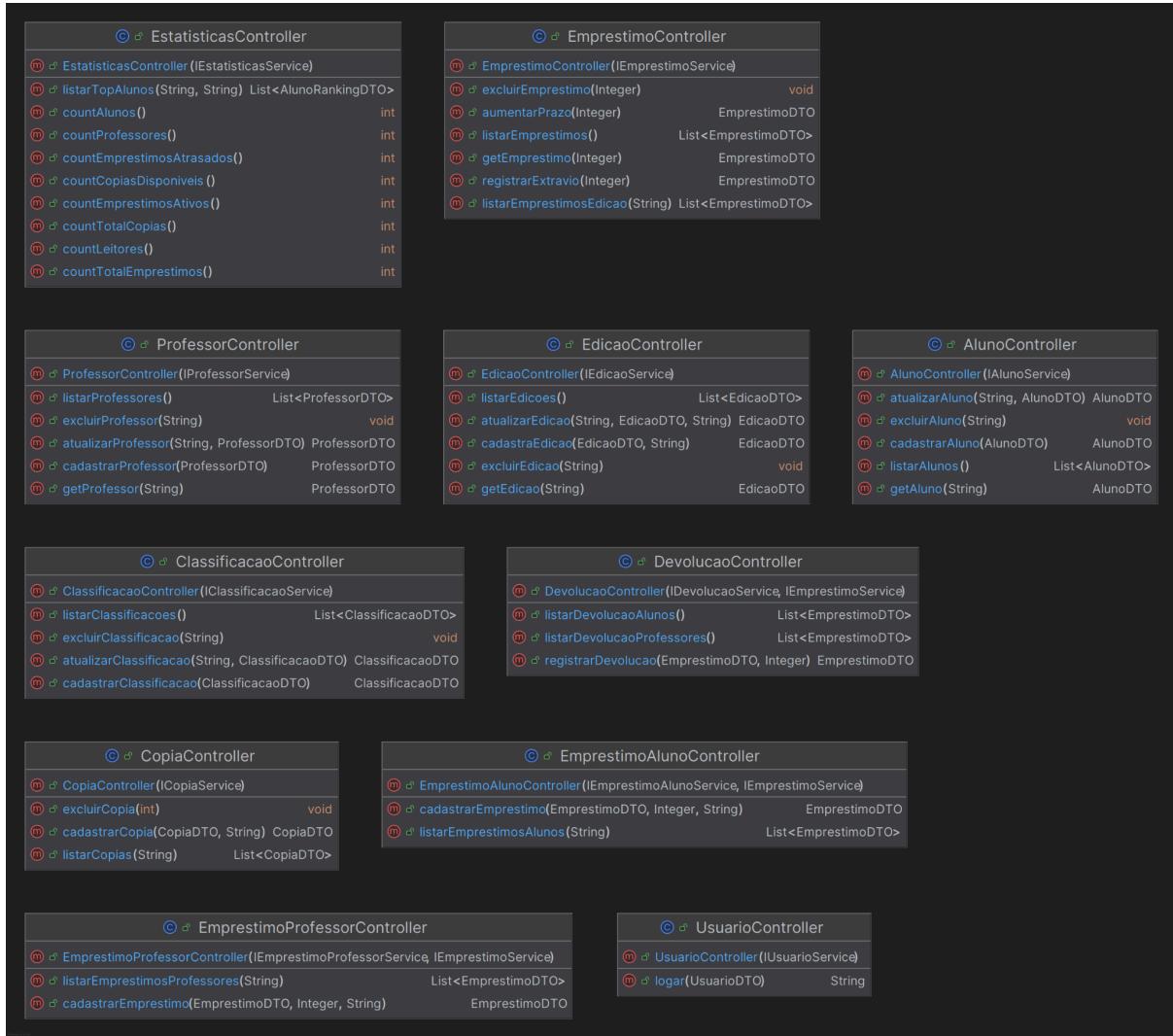
1.2 configuracion



The screenshot shows a code editor window with a dark theme. A single file, 'CorsConfig.cs', is open. The code defines a class 'CorsConfig' with two methods: 'CorsConfig()' and 'corsConfigurer()' which returns a 'WebMvcConfigurer' object.

```
© CorsConfig
m CorsConfig()
m corsConfigurer() WebMvcConfigurer
```

1.3 controller



1.4 dto

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1.5 mapper

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Ⓜ ↗	EmprestimoMapper()
ⓐ ↗	toModel(EmprestimoDTO, int) Emprestimo
ⓑ ↗	toDTO(Emprestimo, String) EmprestimoDTO?

© ↗	ClassificacaoMapper
Ⓜ ↗	ClassificacaoMapper()
ⓐ ↗	toModel(ClassificacaoDTO) Classificacao
ⓑ ↗	toDTO(Classificacao) ClassificacaoDTO

© ↗	EdicaoMapper
Ⓜ ↗	EdicaoMapper()
ⓐ ↗	toModel(EdicaoDTO) Edicao
ⓑ ↗	toDTO(Edicao, String, int) EdicaoDTO

© ↗	ProfessorMapper
Ⓜ ↗	ProfessorMapper()
ⓐ ↗	toDTO(Professor) ProfessorDTO
ⓑ ↗	toModel(ProfessorDTO) Professor

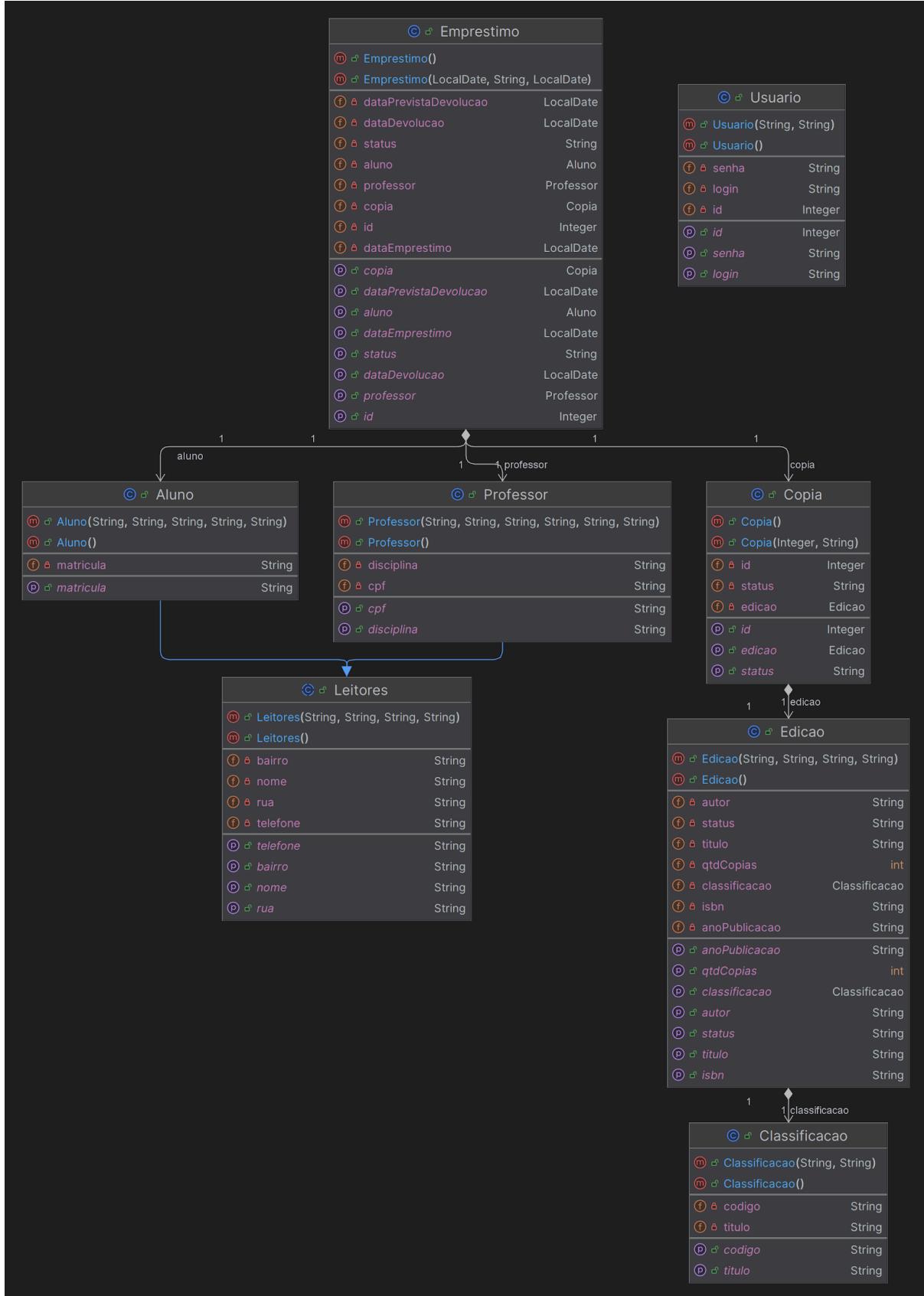
© ↗	CopiaMapper
Ⓜ ↗	CopiaMapper()
ⓐ ↗	toDTO(Copia) CopiaDTO
ⓑ ↗	toModel(CopiaDTO) Copia

© ↗	AlunoMapper
Ⓜ ↗	AlunoMapper()
ⓐ ↗	toDTO(Aluno) AlunoDTO
ⓑ ↗	toModel(AlunoDTO) Aluno

© ↗	AlunoRankingMapper
Ⓜ ↗	AlunoRankingMapper()
ⓐ ↗	toDTO(Object[]) AlunoRankingDTO

© ↗	UsuarioMapper
Ⓜ ↗	UsuarioMapper()
ⓐ ↗	toModel(UsuarioDTO) Usuario

1.6 model



1.7 repository

① ↗ EmprestimoRepository		① ↗ CopiaRepository
⑪ ⚡ <code>findById(Integer)</code>	Optional<Emprestimo>	⑪ ⚡ <code>findById(Integer)</code>
⑪ ⚡ <code>delete(Emprestimo)</code>	void	⑪ ⚡ <code>save(Copia)</code>
⑪ ⚡ <code>deleteById(Integer)</code>	void	⑪ ⚡ <code>countTotalCopias()</code>
⑪ ⚡ <code>existsByAlunoMatricula(String)</code>	boolean	⑪ ⚡ <code>countCopiasEmprestadas()</code>
⑪ ⚡ <code>getEmprestimosByProfessor(Professor)</code>	List<Emprestimo>	⑪ ⚡ <code>findAllByEdicao(Edicao)</code>
⑪ ⚡ <code>findAll()</code>	List<Emprestimo>	⑪ ⚡ <code>countCopiasDisponiveis()</code>
⑪ ⚡ <code>findByProfessorCpfIsNotNullAndDataDevolucaoIsNotNull()</code>	List<Emprestimo>	⑪ ⚡ <code>deleteById(Integer)</code>
⑪ ⚡ <code>findByCopiaEdicaoIsbn(String)</code>	List<Emprestimo>	⑪ ⚡ <code>existsByEdicaoIsbn(String)</code>
⑪ ⚡ <code>existsByProfessorCpf(String)</code>	boolean	⑪ ⚡ <code>existsById(Integer)</code>
⑪ ⚡ <code>existsById(Integer)</code>	boolean	
⑪ ⚡ <code>countEmprestimosAtrasados()</code>	int	
⑪ ⚡ <code>findTopAlunosByPeriod(LocalDate, LocalDate)</code>	List<Object[]>	
⑪ ⚡ <code>findByAlunoMatriculaIsNotNullAndDataDevolucaoIsNotNull()</code>	List<Emprestimo>	
⑪ ⚡ <code>getEmprestimosByAluno(Aluno)</code>	List<Emprestimo>	
⑪ ⚡ <code>existsByCopiald(int)</code>	boolean	
⑪ ⚡ <code>save(Emprestimo)</code>	Emprestimo	
⑪ ⚡ <code>countEmprestimosAtivos()</code>	int	
① ↗ EdicaoRepository		① ↗ ProfessorRepository
⑪ ⚡ <code>findAll()</code>	List<Edicao>	⑪ ⚡ <code>existsById(String)</code>
⑪ ⚡ <code>existsByClassificacaoCodigo(String)</code>	boolean	⑪ ⚡ <code>save(Professor)</code>
⑪ ⚡ <code>existsById(String)</code>	boolean	⑪ ⚡ <code>findAll()</code>
⑪ ⚡ <code>deleteById(String)</code>	void	⑪ ⚡ <code>findById(String)</code>
⑪ ⚡ <code>findById(String)</code>	Optional<Edicao>	⑪ ⚡ <code>deleteById(String)</code>
⑪ ⚡ <code>save(Edicao)</code>	Edicao	⑪ ⚡ <code>countProfessores()</code>
① ↗ AlunoRepository		① ↗ ClassificacaoRepository
⑪ ⚡ <code>save(Aluno)</code>	Aluno	⑪ ⚡ <code>save(Classificacao)</code>
⑪ ⚡ <code>findById(String)</code>	Optional<Aluno>	⑪ ⚡ <code>findById(String)</code>
⑪ ⚡ <code>deleteById(String)</code>	void	⑪ ⚡ <code>findAll()</code>
⑪ ⚡ <code>findAll()</code>	List<Aluno>	⑪ ⚡ <code>deleteById(String)</code>
⑪ ⚡ <code>existsById(String)</code>	boolean	
⑪ ⚡ <code>countAlunos()</code>	int	
① ↗ UsuarioRepository		
⑪ ⚡ <code>save(Usuario)</code>	Usuario	
⑪ ⚡ <code>findByLogin(String)</code>	Usuario	

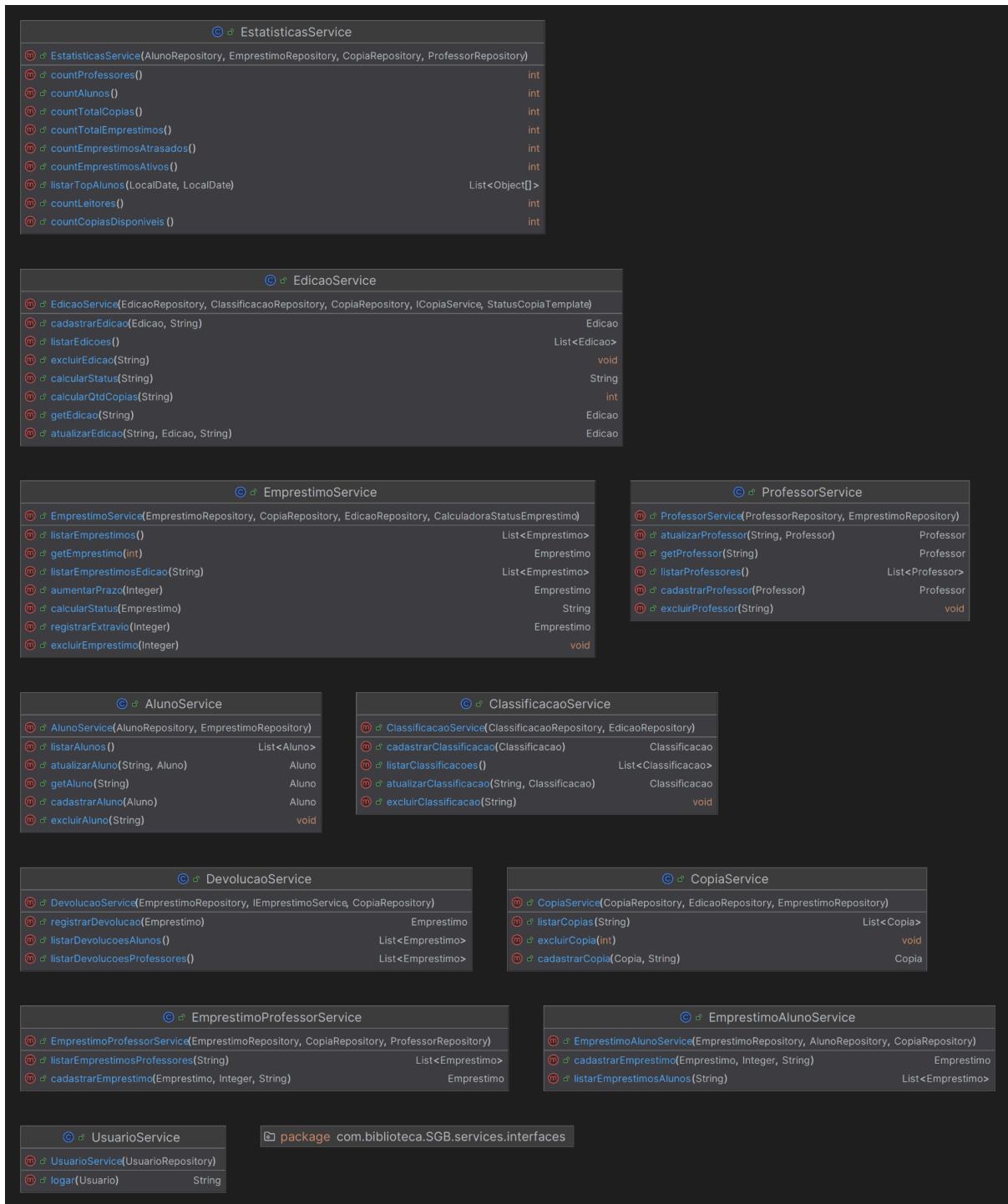
1.7.1 impl

© ⚡ EmprestimoRepositoryJpa <p>(m) ⚡ EmprestimoRepositoryJpa()</p> <p>(m) ⚡ findByProfessorCpfIsNotNullAndDataDevolucaoIsNotNull() List<Emprestimo></p> <p>(m) ⚡ findTopAlunosByPeriod(LocalDate, LocalDate) List<Object[]></p> <p>(m) ⚡ existsById(Integer) boolean</p> <p>(m) ⚡ existsByProfessorCpf(String) boolean</p> <p>(m) ⚡ getEmprestimosByProfessor(Professor) List<Emprestimo></p> <p>(m) ⚡ getEmprestimosByAluno(Aluno) List<Emprestimo></p> <p>(m) ⚡ existsByAlunoMatricula(String) boolean</p> <p>(m) ⚡ findByAlunoMatriculaIsNotNullAndDataDevolucaoIsNotNull() List<Emprestimo></p> <p>(m) ⚡ deleteById(Integer) void</p> <p>(m) ⚡ existsByCopiadId(int) boolean</p> <p>(m) ⚡ findByCopiaEdicaoIsbn(String) List<Emprestimo></p> <p>(m) ⚡ findById(Integer) Optional<Emprestimo></p> <p>(m) ⚡ delete(Emprestimo) void</p> <p>(m) ⚡ save(Emprestimo) Emprestimo</p> <p>(m) ⚡ countEmprestimosAtrasados() int</p> <p>(m) ⚡ countEmprestimosAtivos() int</p> <p>(m) ⚡ findAll() List<Emprestimo></p>	© ⚡ CopiaRepositoryJpa <p>(m) ⚡ CopiaRepositoryJpa()</p> <p>(m) ⚡ deleteById(Integer) void</p> <p>(m) ⚡ findAllByEdicao(Edicao) List<Copia></p> <p>(m) ⚡ existsByEdicaoIsbn(String) boolean</p> <p>(m) ⚡ existsById(Integer) boolean</p> <p>(m) ⚡ save(Copia) Copia</p> <p>(m) ⚡ findById(Integer) Optional<Copia></p> <p>(m) ⚡ countCopiasDisponiveis() int</p> <p>(m) ⚡ countTotalCopias() int</p> <p>(m) ⚡ countCopiasEmprestadas() int</p>
© ⚡ EdicaoRepositoryJpa <p>(m) ⚡ EdicaoRepositoryJpa()</p> <p>(m) ⚡ findById(String) Optional<Edicao></p> <p>(m) ⚡ save(Edicao) Edicao</p> <p>(m) ⚡ deleteById(String) void</p> <p>(m) ⚡ existsByClassificacaoCodigo(String) boolean</p> <p>(m) ⚡ findAll() List<Edicao></p> <p>(m) ⚡ existsById(String) boolean</p>	© ⚡ ProfessorRepositoryJpa <p>(m) ⚡ ProfessorRepositoryJpa()</p> <p>(m) ⚡ save(Professor) Professor</p> <p>(m) ⚡ findById(String) Optional<Professor></p> <p>(m) ⚡ findAll() List<Professor></p> <p>(m) ⚡ existsById(String) boolean</p> <p>(m) ⚡ deleteById(String) void</p> <p>(m) ⚡ countProfessores() int</p>
© ⚡ ClassificacaoRepositoryJpa <p>(m) ⚡ ClassificacaoRepositoryJpa()</p> <p>(m) ⚡ findAll() List<Classificacao></p> <p>(m) ⚡ save(Classificacao) Classificacao</p> <p>(m) ⚡ deleteById(String) void</p> <p>(m) ⚡ findById(String) Optional<Classificacao></p>	© ⚡ AlunoRepositoryJpa <p>(m) ⚡ AlunoRepositoryJpa()</p> <p>(m) ⚡ countAlunos() int</p> <p>(m) ⚡ findById(String) Optional<Aluno></p> <p>(m) ⚡ save(Aluno) Aluno</p> <p>(m) ⚡ existsById(String) boolean</p> <p>(m) ⚡ deleteById(String) void</p> <p>(m) ⚡ findAll() List<Aluno></p>
© ⚡ UsuarioRepositoryJpa <p>(m) ⚡ UsuarioRepositoryJpa()</p> <p>(m) ⚡ findByLogin(String) Usuario</p> <p>(m) ⚡ save(Usuario) Usuario</p>	

1.7.2 interfaces

EmprestimoRepository <ul style="list-style-type: none"> ⑪ ⚡ <code>findById(Integer)</code> <code>Optional<Emprestimo></code> ⑪ ⚡ <code>delete(Emprestimo)</code> <code>void</code> ⑪ ⚡ <code>deleteById(Integer)</code> <code>void</code> ⑪ ⚡ <code>existsByAlunoMatricula(String)</code> <code>boolean</code> ⑪ ⚡ <code>getEmprestimosByProfessor(Professor)</code> <code>List<Emprestimo></code> ⑪ ⚡ <code>findAll()</code> <code>List<Emprestimo></code> ⑪ ⚡ <code>findByProfessorCpfIsNotNullAndDataDevolucaoIsNotNull()</code> <code>List<Emprestimo></code> ⑪ ⚡ <code>findByCopiaEdicaoIsbn(String)</code> <code>List<Emprestimo></code> ⑪ ⚡ <code>existsByProfessorCpf(String)</code> <code>boolean</code> ⑪ ⚡ <code>existsById(Integer)</code> <code>boolean</code> ⑪ ⚡ <code>countEmprestimosAtrasados()</code> <code>int</code> ⑪ ⚡ <code>findTopAlunosByPeriod(LocalDate, LocalDate)</code> <code>List<Object[]></code> ⑪ ⚡ <code>findByAlunoMatriculaIsNotNullAndDataDevolucaoIsNotNull()</code> <code>List<Emprestimo></code> ⑪ ⚡ <code>getEmprestimosByAluno(Aluno)</code> <code>List<Emprestimo></code> ⑪ ⚡ <code>existsByCopiaId(int)</code> <code>boolean</code> ⑪ ⚡ <code>save(Emprestimo)</code> <code>Emprestimo</code> ⑪ ⚡ <code>countEmprestimosAtivos()</code> <code>int</code> 	CopiaRepository <ul style="list-style-type: none"> ⑪ ⚡ <code>findById(Integer)</code> <code>Optional<Copia></code> ⑪ ⚡ <code>save(Copia)</code> <code>Copia</code> ⑪ ⚡ <code>countTotalCopias()</code> <code>int</code> ⑪ ⚡ <code>countCopiasEmprestadas()</code> <code>int</code> ⑪ ⚡ <code>findAllByEdicao(Edicao)</code> <code>List<Copia></code> ⑪ ⚡ <code>countCopiasDisponiveis()</code> <code>int</code> ⑪ ⚡ <code>deleteById(Integer)</code> <code>void</code> ⑪ ⚡ <code>existsByEdicaoIsbn(String)</code> <code>boolean</code> ⑪ ⚡ <code>existsById(Integer)</code> <code>boolean</code>
EdicaoRepository <ul style="list-style-type: none"> ⑪ ⚡ <code>findAll()</code> <code>List<Edicao></code> ⑪ ⚡ <code>existsByClassificacaoCodigo(String)</code> <code>boolean</code> ⑪ ⚡ <code>existsById(String)</code> <code>boolean</code> ⑪ ⚡ <code>deleteById(String)</code> <code>void</code> ⑪ ⚡ <code>findById(String)</code> <code>Optional<Edicao></code> ⑪ ⚡ <code>save(Edicao)</code> <code>Edicao</code> 	ProfessorRepository <ul style="list-style-type: none"> ⑪ ⚡ <code>existsById(String)</code> <code>boolean</code> ⑪ ⚡ <code>save(Professor)</code> <code>Professor</code> ⑪ ⚡ <code>findAll()</code> <code>List<Professor></code> ⑪ ⚡ <code>findById(String)</code> <code>Optional<Professor></code> ⑪ ⚡ <code>deleteById(String)</code> <code>void</code> ⑪ ⚡ <code>countProfessores()</code> <code>int</code>
AlunoRepository <ul style="list-style-type: none"> ⑪ ⚡ <code>save(Aluno)</code> <code>Aluno</code> ⑪ ⚡ <code>findById(String)</code> <code>Optional<Aluno></code> ⑪ ⚡ <code>deleteById(String)</code> <code>void</code> ⑪ ⚡ <code>findAll()</code> <code>List<Aluno></code> ⑪ ⚡ <code>existsById(String)</code> <code>boolean</code> ⑪ ⚡ <code>countAlunos()</code> <code>int</code> 	ClassificacaoRepository <ul style="list-style-type: none"> ⑪ ⚡ <code>save(Classificacao)</code> <code>Classificacao</code> ⑪ ⚡ <code>findById(String)</code> <code>Optional<Classificacao></code> ⑪ ⚡ <code>findAll()</code> <code>List<Classificacao></code> ⑪ ⚡ <code>deleteById(String)</code> <code>void</code>
	UsuarioRepository <ul style="list-style-type: none"> ⑪ ⚡ <code>save(Usuario)</code> <code>Usuario</code> ⑪ ⚡ <code>findByLogin(String)</code> <code>Usuario</code>

1.8 services



1.8.1 interfaces

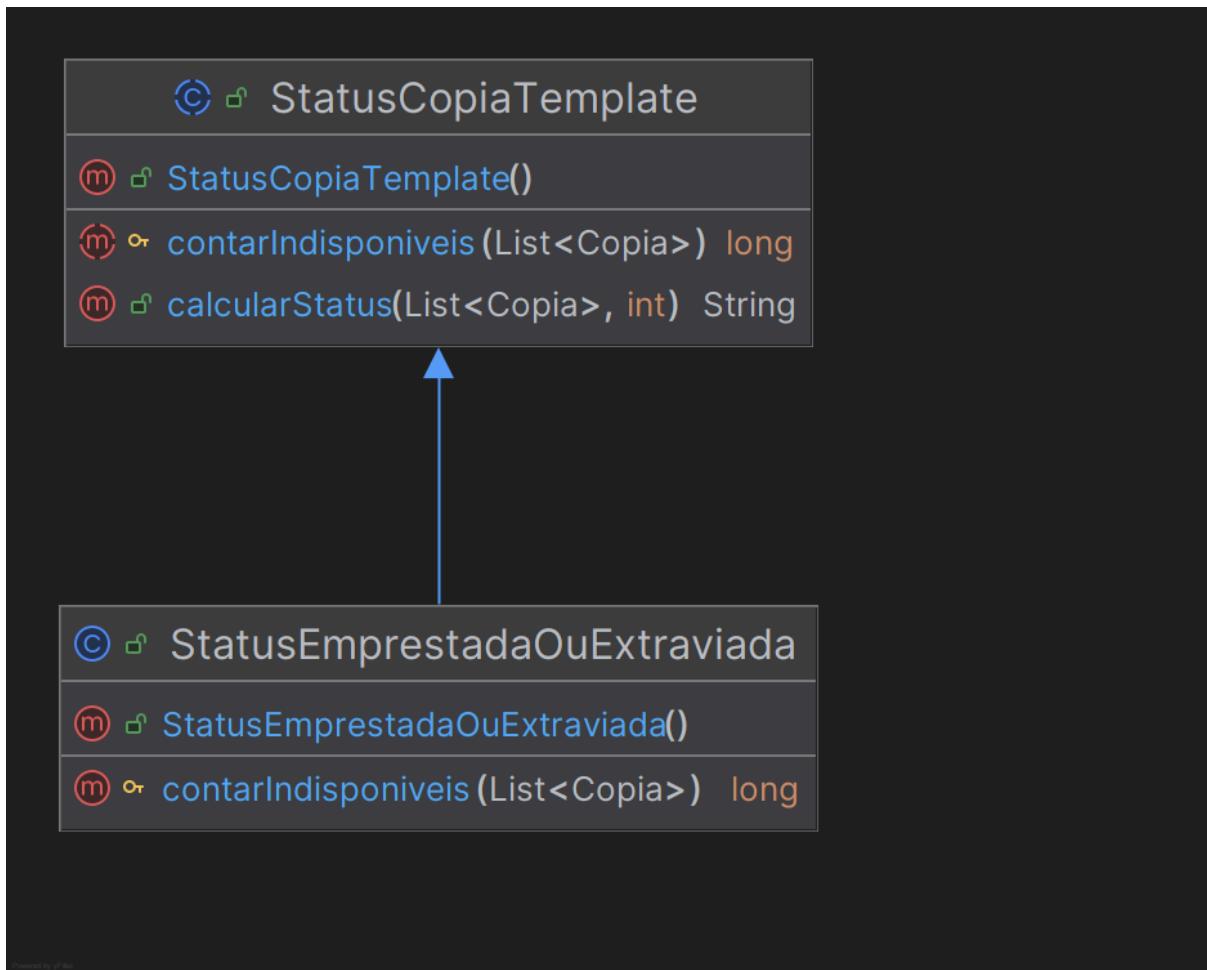
IEstatisticasService	IEmprestimoService
⌚ ⌚ <code>listarTopAlunos(LocalDate, LocalDate) List<Object[]></code>	
⌚ ⌚ <code>countTotalCopias() int</code>	
⌚ ⌚ <code>countLeitores() int</code>	
⌚ ⌚ <code>countEmprestimosAtrasados() int</code>	
⌚ ⌚ <code>countEmprestimosAtivos() int</code>	
⌚ ⌚ <code>countCopiasDisponiveis() int</code>	
⌚ ⌚ <code>countProfessores() int</code>	
⌚ ⌚ <code>countTotalEmprestimos() int</code>	
⌚ ⌚ <code>countAlunos() int</code>	
	⌚ ⌚ <code>aumentarPrazo(Integer) Emprestimo</code>
	⌚ ⌚ <code>listarEmprestimos() List<Emprestimo></code>
	⌚ ⌚ <code>getEmprestimo(int) Emprestimo</code>
	⌚ ⌚ <code>calcularStatus(Emprestimo) String</code>
	⌚ ⌚ <code>excluirEmprestimo(Integer) void</code>
	⌚ ⌚ <code>registrarExtravio(Integer) Emprestimo</code>
	⌚ ⌚ <code>listarEmprestimosEdicao(String) List<Emprestimo></code>
IEDicaoService	IProfessorService
⌚ ⌚ <code>calcularStatus(String) String</code>	
⌚ ⌚ <code>cadastrarEdicao(Edicao, String) Edicao</code>	
⌚ ⌚ <code>calcularQtdCopias(String) int</code>	
⌚ ⌚ <code>excluirEdicao(String) void</code>	
⌚ ⌚ <code>atualizarEdicao(String, Edicao, String) Edicao</code>	
⌚ ⌚ <code>listarEdicoes() List<Edicao></code>	
⌚ ⌚ <code>getEdicao(String) Edicao</code>	
	⌚ ⌚ <code>excluirProfessor(String) void</code>
	⌚ ⌚ <code>getProfessor(String) Professor</code>
	⌚ ⌚ <code>cadastrarProfessor(Professor) Professor</code>
	⌚ ⌚ <code>atualizarProfessor(String, Professor) Professor</code>
	⌚ ⌚ <code>listarProfessores() List<Professor></code>
IAlunoService	
⌚ ⌚ <code>getAluno(String) Aluno</code>	
⌚ ⌚ <code>listarAlunos() List<Aluno></code>	
⌚ ⌚ <code>cadastrarAluno(Aluno) Aluno</code>	
⌚ ⌚ <code>excluirAluno(String) void</code>	
⌚ ⌚ <code>atualizarAluno(String, Aluno) Aluno</code>	
IClassificacaoService	IDevolucaoService
⌚ ⌚ <code>atualizarClassificacao(String, Classificacao) Classificacao</code>	
⌚ ⌚ <code>excluirClassificacao(String) void</code>	
⌚ ⌚ <code>cadastrarClassificacao(Classificacao) Classificacao</code>	
⌚ ⌚ <code>listarClassificacoes() List<Classificacao></code>	
⌚ ⌚ <code>listarDevolucoesAlunos() List<Emprestimo></code>	
⌚ ⌚ <code>listarDevolucoesProfessores() List<Emprestimo></code>	
⌚ ⌚ <code>registrarDevolucao(Emprestimo) Emprestimo</code>	
ICopiaService	IEmprestimoProfessorService
⌚ ⌚ <code>excluirCopia(int) void</code>	
⌚ ⌚ <code>listarCopias(String) List<Copia></code>	
⌚ ⌚ <code>cadastrarCopia(Copia, String) Copia</code>	
⌚ ⌚ <code>listarEmprestimosProfessores(String) List<Emprestimo></code>	
⌚ ⌚ <code>cadastrarEmprestimo(Emprestimo, Integer, String) Emprestimo</code>	
IEmprestimoAlunoService	IUsuarioService
⌚ ⌚ <code>cadastrarEmprestimo(Emprestimo, Integer, String) Emprestimo</code>	
⌚ ⌚ <code>listarEmprestimosAlunos(String) List<Emprestimo></code>	
⌚ ⌚ <code>logar(Usuario) String</code>	

1.9 strategies

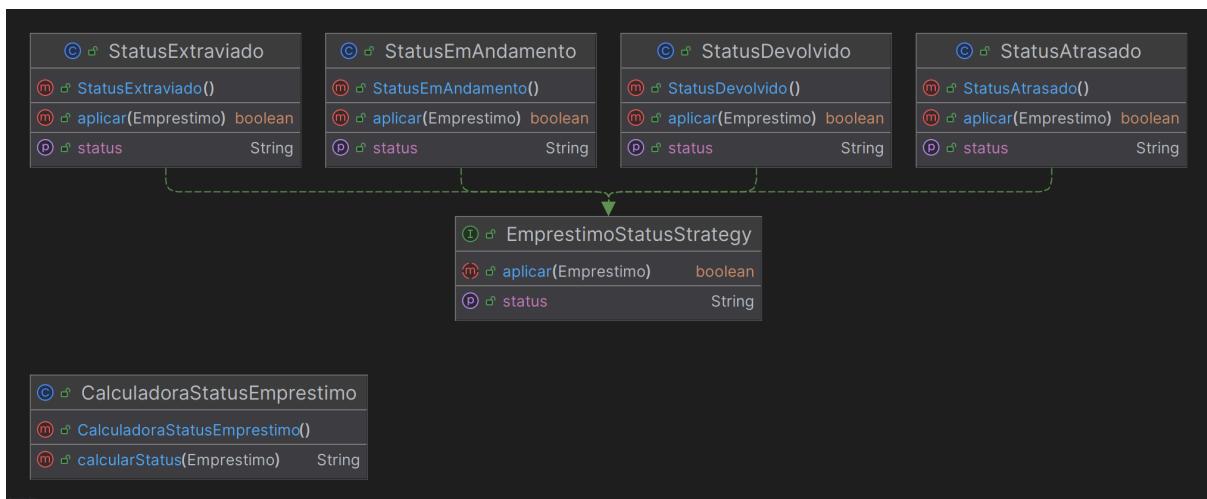
```
└── package com.biblioteca.SGB.strategies.statusEdicao
```

```
└── package com.biblioteca.SGB.strategies.statusEmprestimo
```

1.9.1 statusEdicao



1.9.2 statusEmprestimo



1.10 Utils

```
© DateUtils
(m) DateUtils()
◊ formatarData(String) LocalDate?
◊ formatarData(LocalDate) String
```