

Desenvolvimento Distribuído de Software

Daricélio Soares

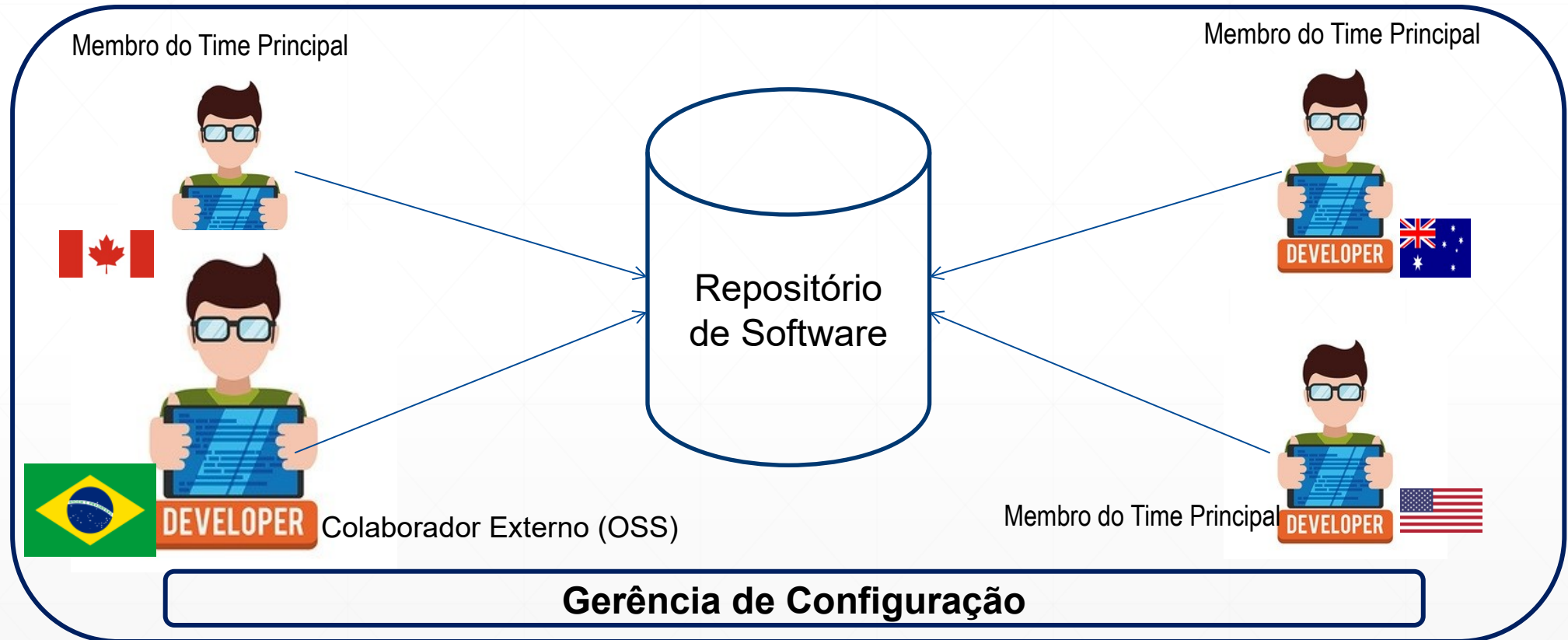
Desenvolvimento Distribuído de Software - DDS

- Times geograficamente dispersos
- Qualidade e Produtividade de SW

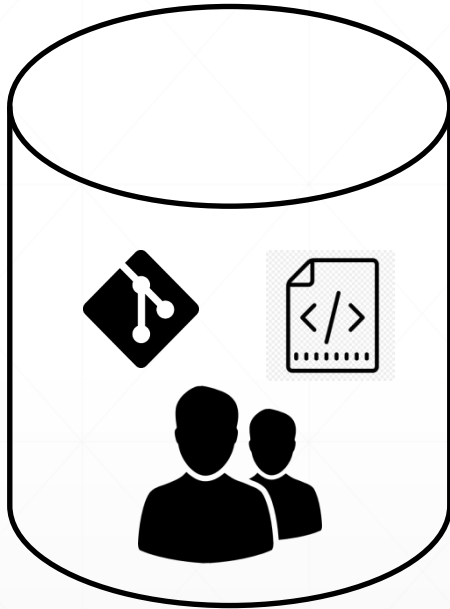


https://www.comakeit.com/blog/wp-content/uploads/2018/02/Agile-distributed-development-is-a-great-fit-for-software-driven-businesses_blog.jpg

Cenário Típico do DDS



Diversidade e Volume de Dados



Repositórios de Softwares
Públicos e Privados



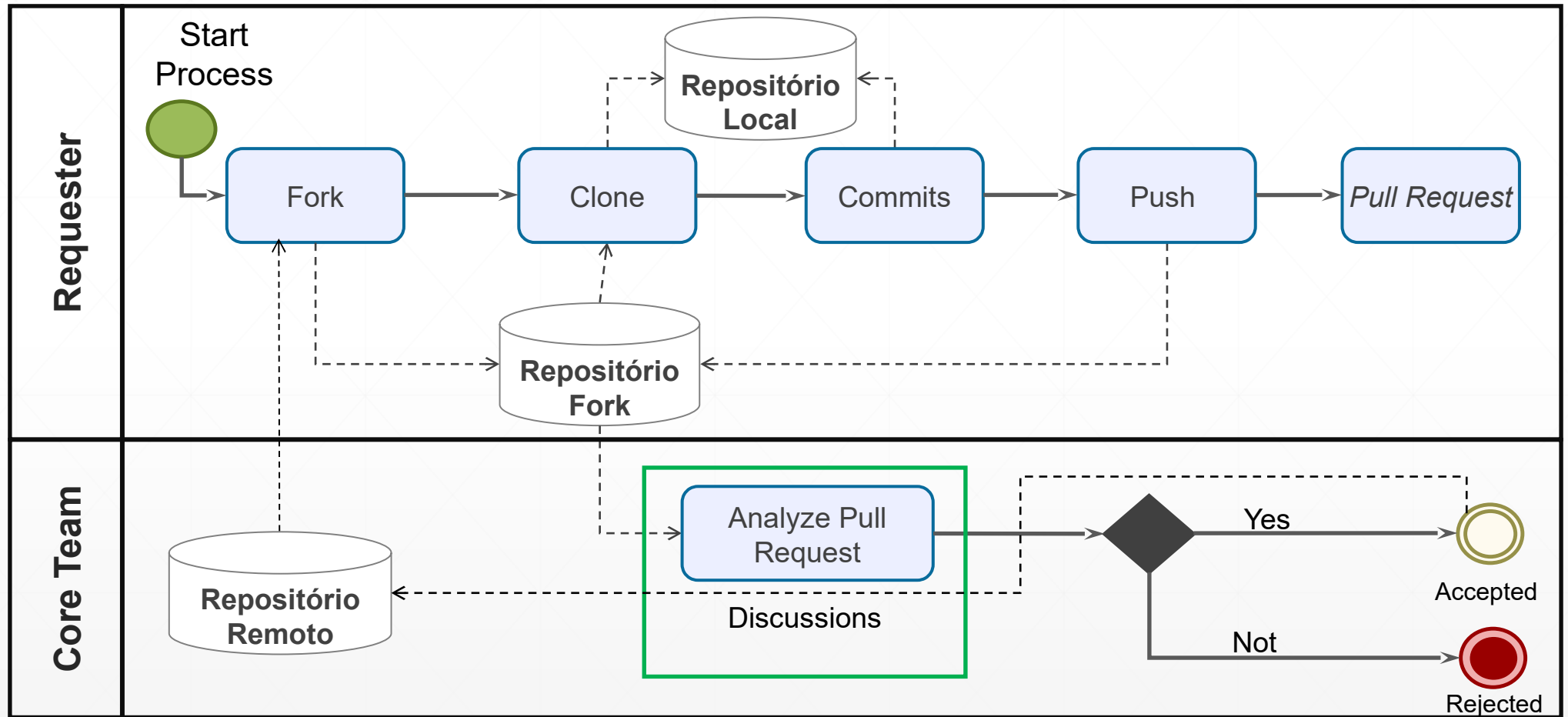
+330 milhões de repositórios
+100 milhões de devs
+4 milhões de organizações

Principais desafios em DDS

- Comunicação
- Diferenças Culturais
- Fuso Horário
- Atribuição de Tarefas
- **Trabalho Colaborativo**



Pull Request



Cenários Emergentes em DDS com foco na colaboração

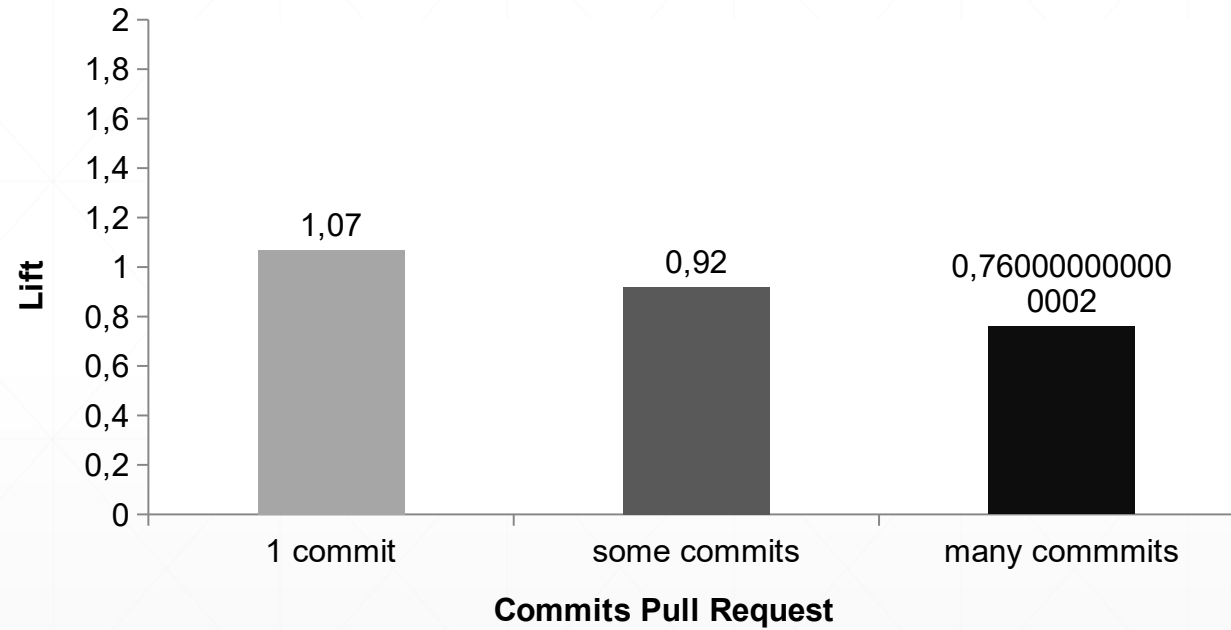
- Aceitação
- Tempo de Vida
- Atribuição de Revisor
- Avaliação Temporal
- PR Duplicados

Métodos?

Estatística

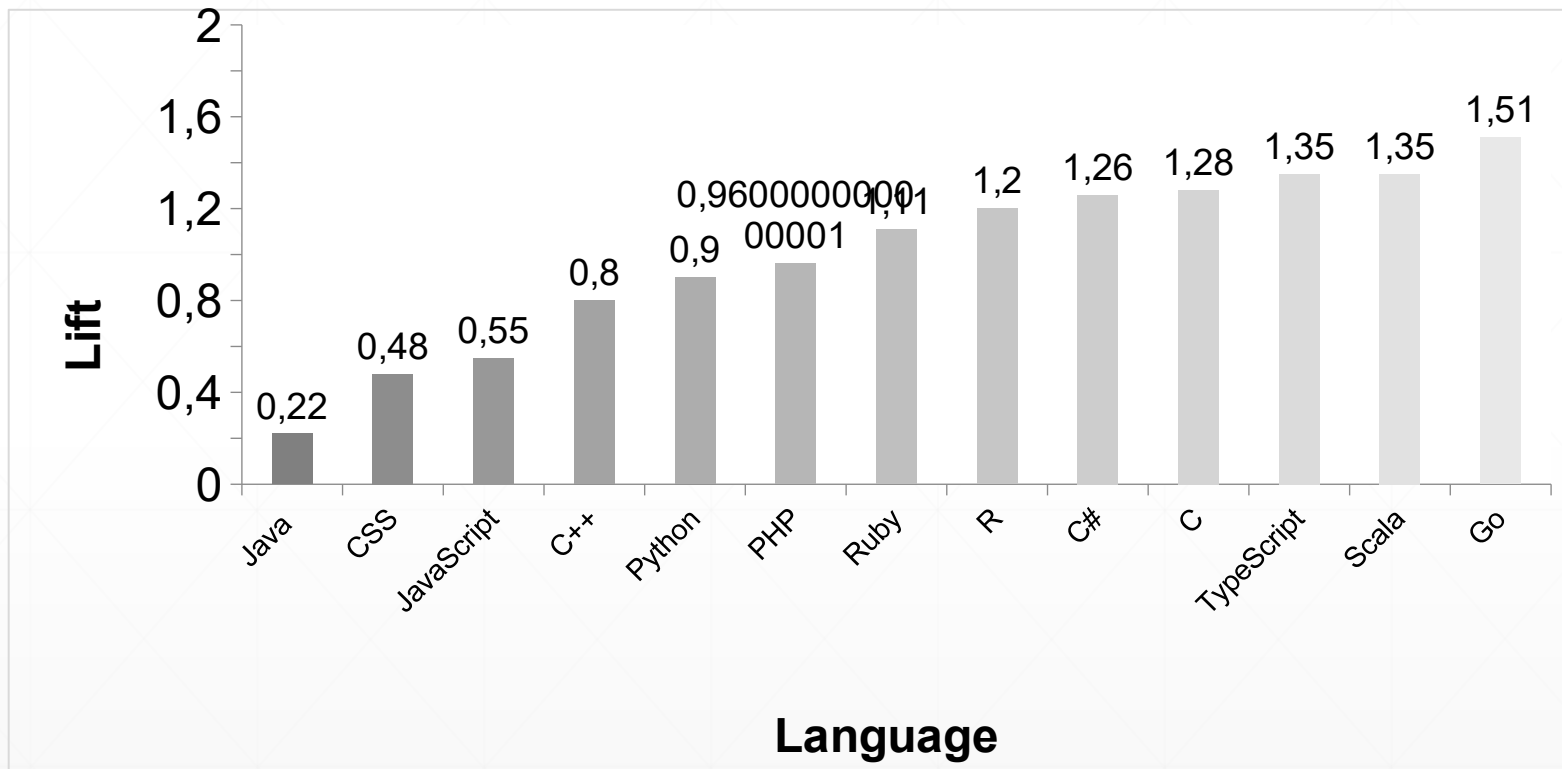
Mineração de Dados

Aceitação



Lifts of the rules of type: `commits_pull` → `status_pull` = "accepted"

Aceitação

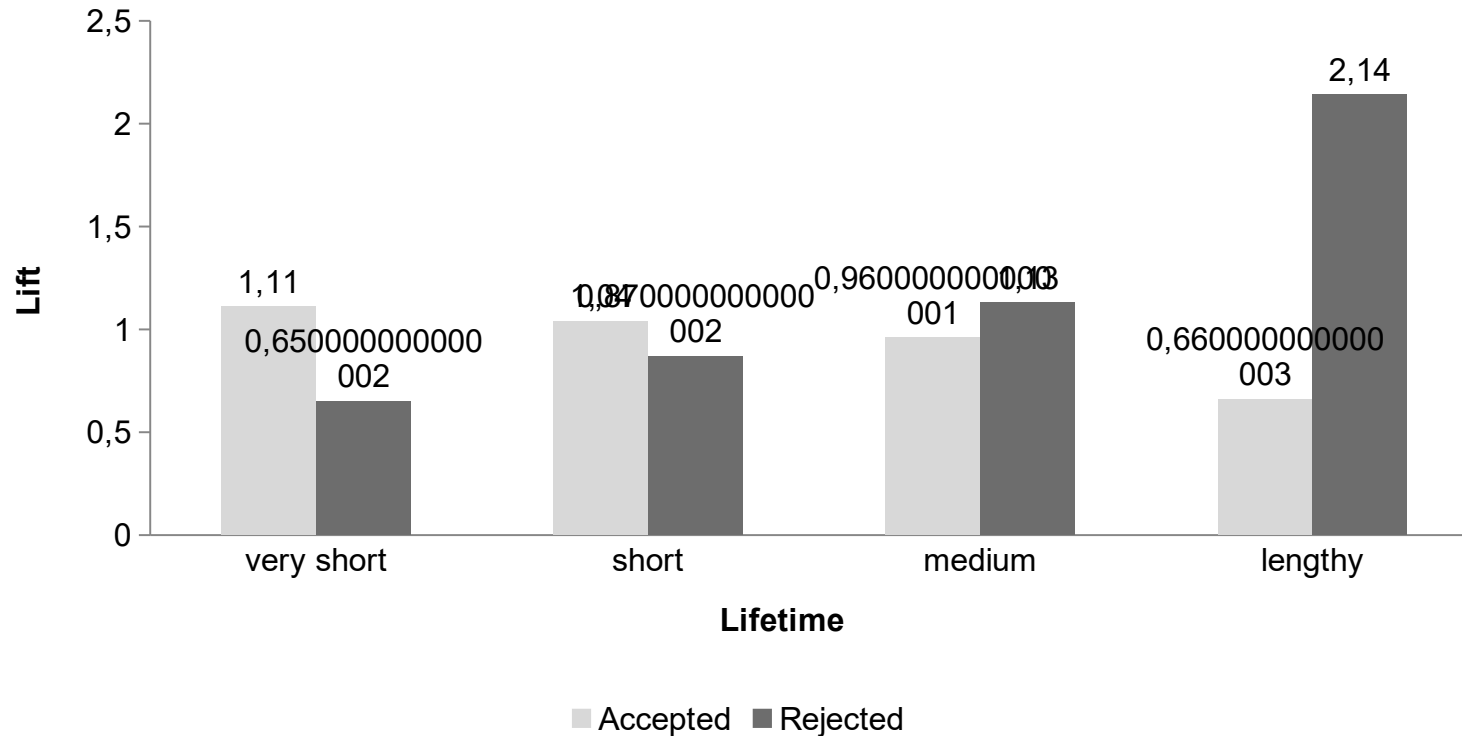


Lifts of the rules of type: `language` \rightarrow `status_pull` = "accepted"

Aceitação

- Acceptance factors of pull requests in open-source projects
 - <https://dl.acm.org/doi/abs/10.1145/2695664.2695856>
 - SAC'15 - Salamanca/Spain
- Rejection factors of pull requests filed by core team developers in software projects with high acceptance rates
 - <https://ieeexplore.ieee.org/abstract/document/7424445/>
 - ICMLA'15 - Miami/USA

Tempo de Vida



Lifts of the rules of type: lifetime → status_pull

Tempo de Vida

- What factors influence the lifetime of pull requests?
 - <https://doi.org/10.1002/spe.2946>
- Predicting the lifetime of pull requests in open-source projects
 - <https://doi.org/10.1002/smr.2337>

Atribuição de Revisor

#	Project	Consequent	<i>Sup</i> (%)	<i>Conf</i> $X \rightarrow Y$ (%)	<i>Conf</i> $Y \rightarrow X$ (%)	<i>Lift</i>
1	Docker	"shykes"	0.6	14.4	12.2	2.91
2	Docker	"creack"	0.6	13.7	9.2	2.20
3	Docker	"unclejack"	0.2	5.8	7.4	1.78
4	Kodi	"davilla"	0.4	5.1	10.2	1.43
5	Rails	"tenderlove"	0.1	7.4	2.5	1.36
6	Kodi	"jmarshallnz"	2.0	27.1	9.5	1.32
7	Rails	"rafaelfranca"	0.6	34.3	2.2	1.17
8	Kodi	"Martijnkaijser"	2.0	28.6	8.3	1.16
9	Rail	"josevalim"	0.2	13.0	2.1	1.12

Association rules of type *commits_pull* = "many commits" \rightarrow *reviewer_pull*
in Docker, Rails, and Kodi projects

Atribuição de Revisor

- Developers assignment for analyzing pull requests
 - <https://dl.acm.org/doi/abs/10.1145/2695664.2695884>
 - SAC'15 - Salamanca/Spain
- What factors influence the reviewer assignment to pull requests?
 - <https://www.sciencedirect.com/science/article/pii/S0950584917303804>
- Automatic assignment of integrators to pull requests: The importance of selecting appropriate attributes
 - <https://www.sciencedirect.com/science/article/pii/S0164121218301122>

Tamanho/Complexidade

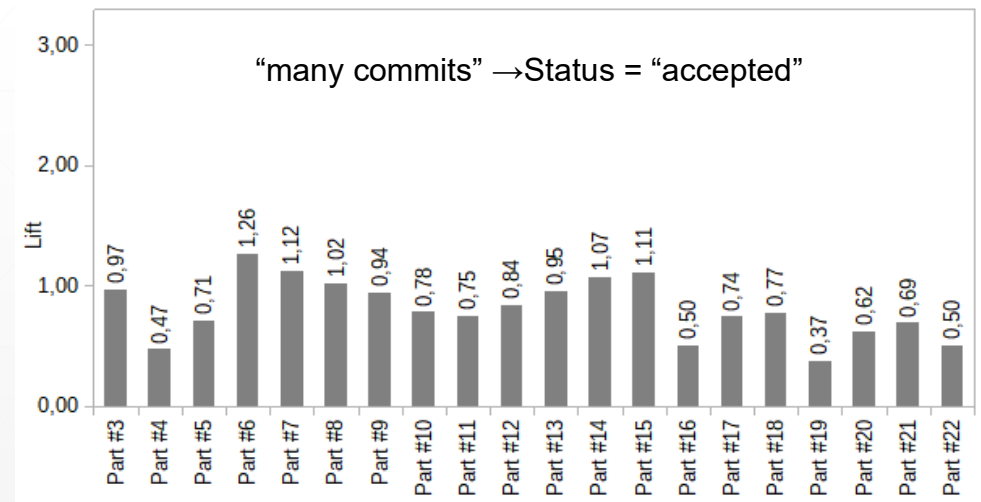
- Measuring Unique Changes: How do Distinct Changes Affect the Size and Lifetime of Pull Requests?
 - <https://dl.acm.org/doi/abs/10.1145/3425269.3425280>



Avaliação Temporal

Temporal analysis on pull request patterns: an approach with sliding window

15th Brazilian Symposium on Software Components, Architectures, and Reuse, 90-99



Pull Requests Duplicados

■

Project	Duplicate Pull-requests
cocos2d/cocos2d-x	16384, 16620
cocos2d/cocos2d-x	17670, 17756
cocos2d/cocos2d-x	5769, 5782
cocos2d/cocos2d-x	8204, 8640
cocos2d/cocos2d-x	1421, 1428
cocos2d/cocos2d-x	6670, 6734
cocos2d/cocos2d-x	6159, 6182
cocos2d/cocos2d-x	15376, 15377
cocos2d/cocos2d-x	13843, 13982
cocos2d/cocos2d-x	6553, 6588

	projectname	id	status	commits	changed_files	changed_lines	added_lines	deleted_lines
2	cocos2d/cocos2d-x	16384	Closed	2	3	10	1	9
3	cocos2d/cocos2d-x	16620	Merged	3	9	43	25	18
4	cocos2d/cocos2d-x	17670	Closed	1	1	10	10	0
5	cocos2d/cocos2d-x	17756	Merged	1	1	4	4	0
6	cocos2d/cocos2d-x	5769	Merged	5	23	37	32	5
7	cocos2d/cocos2d-x	5782	Closed	7	36	1,194	897	297
8	cocos2d/cocos2d-x	8204	Merged	4	2	54	54	0
9	cocos2d/cocos2d-x	8640	Closed	2	2	28	28	0
10	cocos2d/cocos2d-x	1421	Closed	1	1	1	1	0
11	cocos2d/cocos2d-x	1428	Merged	1	1	15	7	8
12	cocos2d/cocos2d-x	6670	Closed	1	1	1	1	0
13	cocos2d/cocos2d-x	6734	Merged	11	1	1	1	0

Oportunidades

Código Fonte e Métricas de Software

Newcomers

Distribuição de Conhecimento e Curva de Aprendizagem

Ferramentas Automáticas

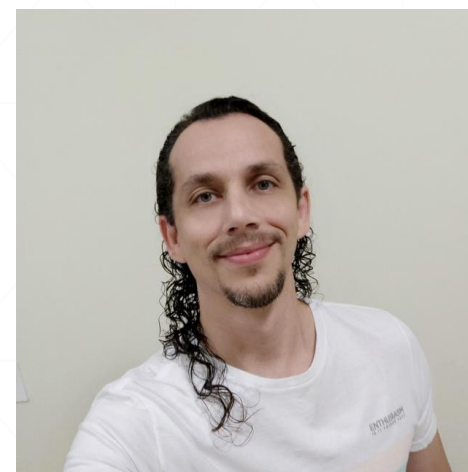
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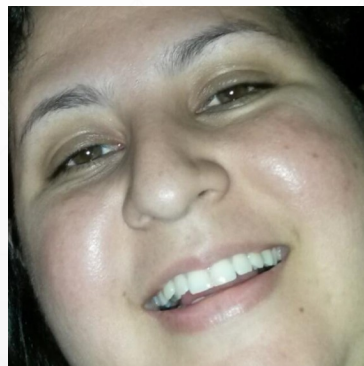
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Distributed Software Development and Data Mining: Perspectives and Challenges

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