

Adherence of class comments to style guidelines

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Bachelor Thesis 1st presentation
Supervised by Pooja Rani
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Motivation

- Comments help developers understand code.
- Contain different types of information. (Class, Methods, ...)

```
/** Event fired when a spacer element is hidden or shown in Escalator.  
 *  
 * @author Vaadin Ltd  
 * @since 7.7.13  
 */
```

Class: **SpacerVisibilityChangedEvent.java**

Style guidelines to write class comments

- First sentence is a summary.
- Use phrases instead of complete sentences.
- Use 3rd person instead of 2nd person.

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Compare

Style guidelines to write class comments

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Motivation

- Previous work analysed class comments
- Developers follow style guidelines in Pharo
- We want to investigate in Java and Python

EMSE manuscript No.
(will be inserted by the editor)

What do class comments tell us? An investigation of comment evolution and practices in Pharo

Pooja Rani · Sebastiano Panichella · Manuel
Leuenberger · Mohammad Ghafari · Oscar
Nierstrasz

Received: date / Accepted: date

Abstract Previous studies have characterized code comments in different programming languages, and have shown how a high quality of code comments is crucial to support program comprehension activities and to improve the effectiveness of maintenance tasks. However, very few studies have focused on the analysis of the information embedded in code comments. None of them compared the developer's practices to write the comments to the standard guidelines and analyzed these characteristics in the Pharo Smalltalk environment.

The class commenting practices have their origins in Smalltalk-80, going back 40 years. Smalltalk traditionally separates class comments from source code, and offers a brief template for entering a comment for newly-created classes. These templates have evolved over the years, particularly in the Pharo environment. This paper reports the first empirical study investigating commenting practices in Pharo Smalltalk. As a first step, we analyze class comment evolution over seven Pharo versions. Then, we quantitatively and qualitatively analyze class comments of the most recent version of Pharo, to investigate the information types of Pharo comments. Finally, we study the adherence of developer commenting practices to the class template over Pharo versions.

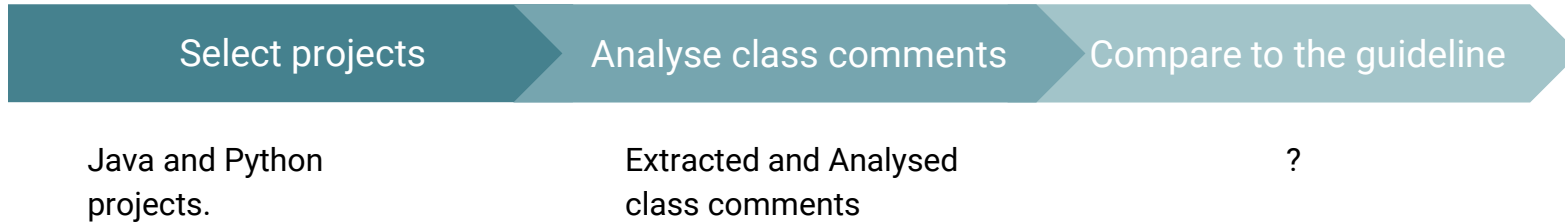
The results of this study show that there is a rapid increase in class comments in the initial three Pharo versions, while in subsequent versions developers added comments to both new and old classes, thus maintaining a similar ratio. In addition, the analysis of the semantics of the comments from the latest Pharo version suggests that 23 information types are typically embedded in class comments by developers and that only seven of them are present in the latest *Pharo class comment template*. However, the information types proposed by the standard template tend to be present more often than other types of information. Additionally, we find that a substantial proportion of comments follow the writing style of the template in writing these information types, but they are written and formatted in a non-uniform way. This suggests the need to standardize the commenting guidelines for formatting the text.

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arXiv:2005.11583v1 [cs.SE] 23 May 2020







What has been done?



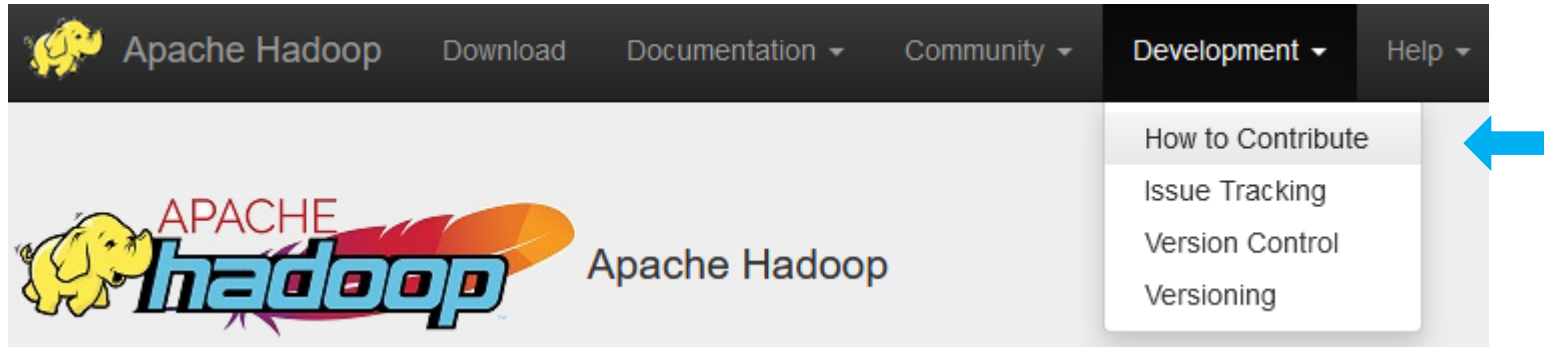
Research questions

- 1. What do coding style guidelines suggest about class comments?**

RQ1: What do coding style guidelines suggest about class comments?

Java	Python
	
	
	

RQ1: What do coding style guidelines suggest about class comments?



- Code must be formatted according to [Sun's conventions](#), with one exception:
 - Indent two spaces per level, not four.

Research questions

1. What do coding style guidelines suggest about class comments?
2. **Do developers follow these guidelines or not?**

Challenge

How to compare the guidelines to actual comments?



Use of regular expressions
and manual analysis.

RQ2: Do developers follow these guidelines or not?

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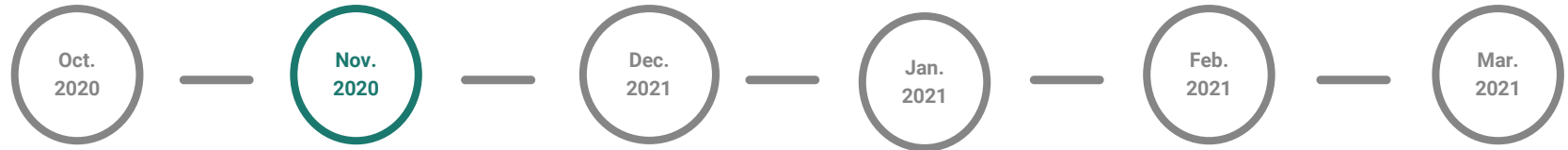
Research questions

1. What do coding style guidelines suggest about class comments?
2. Do developers follow these guidelines or not?
3. **How well do the style checkers support these style guidelines?**

RQ3: How well do the style checkers support these style guidelines?

- Java: Checkstyle, PMD
- Python: pycodestyle
- Compare linter rules to extracted style guideline

Timeline



Research

- Get familiar with topic.

RQ1

- Extract class comments related guidelines.

RQ2

- Compare the extracted guidelines to the comments

RQ3

- Find linters to support guidelines.

Wrap up

- Writing.

Review

Summary

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What has been done?

Select projects → Analyse class comments → Compare to the guideline

Java and Python projects → Extracted and analysed class comments → ?

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RQ1: What do coding style guidelines suggest about class comments?

Java	Python
 APACHE	 django
 eclipse	 pandas
 vaadin >	 PyTorch

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RQ2: Do developers follow these guidelines or not?

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