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`
<table>
<thead>
<tr>
<th>Style guidelines to write class comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>- First sentence is a summary.</td>
</tr>
<tr>
<td>- Use phrases instead of complete sentences.</td>
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<tr>
<td>- Use 3rd person instead of 2nd person.</td>
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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.
Motivation

- Previous work analysed class comments
- Developers follow style guidelines in Pharo
- We want to investigate in Java and Python
What has been done?

Select projects  Analyse class comments  Compare to the guideline

Java and Python projects.

Extracted and Analysed class comments

?
Research questions

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

<table>
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<th>Java</th>
<th>Python</th>
</tr>
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<tr>
<td>Apache</td>
<td>django</td>
</tr>
<tr>
<td>eclipse</td>
<td>pandas</td>
</tr>
<tr>
<td>vaadin</td>
<td>PyTorch</td>
</tr>
</tbody>
</table>
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?

Class: `SpacerVisibilityChangedEvent.java`

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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

- **Oct. 2020**: Research
  - Get familiar with topic.

- **Nov. 2020**: RQ1
  - Extract class comments related guidelines.

- **Dec. 2021**: RQ2
  - Compare the extracted guidelines to the comments

- **Jan. 2021**: RQ3
  - Find linters to support guidelines.

- **Feb. 2021**: Wrap up
  - Writing.

- **Mar. 2021**: Review
**Summary**

**Motivation**
- Previous work analyzed class comments.
- Conducting further studies in Python.
- The team is investigating class comments in Python.

**What has been done?**
- Analyzed Java, Python, and C++ files.
- Identified coding style guidelines.
- Investigated compliance with these guidelines.

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

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

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**RQ2: Do developers follow these guidelines or not?**

- [x] Shortening is a summary.
- [ ] Use phrases instead of complete sentences.
- [ ] Use full phrases instead of short words.

**RQ3: How well do the style checkers support these style guidelines?**
- Java, Checkstyle, PNP
- Python, pycodestyle
- Compare error rules to extract style guidelines