Generating automatically class comments in Pharo

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Why do we want to generate comments?

- Possibility to spend less time on writing comments
- Create a uniform format to prevent inconsistent comments
Goal

Create a commenting tool written in Pharo
Related work in Java

Automatic Generation of Natural Language Summaries for Java Classes

Moreno et al.

Technique to generate human readable summaries of Java classes

Focused mostly on the responsibilities of the classes
Heuristic-based process of Moreno et Al.
**Related work in Pharo**

- Analyzed Class comments
- Found various information types embedded in class comments
- Many comments were written and formatted in a non-uniform way
# Information types in Pharo comments

**Information types**

1. Intent
2. Responsibility
3. Collaborator
4. Public API
5. Example
6. Implementation Points
7. Instance Variables
8. Class references
9. Warnings
Approach

Method stereotypes
1. Accessors
2. Mutators
3. Creational methods
4. Collaborational methods
5. Degenerate methods
Approach

Pharo-Class

Class stereotypes
1. Entity
2. Minimal entity
3. Data provider
4. Commander
5. Boundary
6. Factory
7. Controller
8. Pure controller
9. Large class
10. Lazy class
11. Degenerate
12. Data class
13. Pool

Method stereotypes
1. Accessors
2. Mutators
3. Creational methods
4. Collaborational methods
5. Degenerate methods
Distributions of method stereotypes

Distribution of method stereotypes for 400 random classes

- Accessor
- Mutators
- Creational
- Collaborational
- Degenerate
Distributions of class stereotypes
Approach

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Method information
1. Relevant Methods/API
2. Usage externally
3. Usage Internally

Class information
1. Dependent classes
2. Classes used by the class
3. Class stereotype
4. Defining Keywords

Finished classcomment
A generated class comment

- Classname
- Classstereotype
- Collaborators:
  - Used classes
  - Classes using the class
- Behaviour
- Keywords
Challenges

● Extracting the needed Information
  ○ scrML/XML vs. AST

● Heuristical approach
  ○ Java vs. Pharo

● Matching CRC Format
Future work

- Including more information in the classcomment
- Write a plugin-integration to Pharo itself
- Evaluation of commenting tool
- Finish writing thesis
Personal summary

- Automatically generating comments is a helpful tool
- Beware of commenting laziness
- Generating comments should be supportive not productive