# *Code Inspection Report*

*Anti-Spam Configuration Software
Development Project*

BSc/MSc in [LEI | LIGE | METI]
Academic Year 2017/2018 - 1º Semester
Software Engineering I

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# Introduction

O software a ser desenvolvido no projeto de Engenharia de Software I calcula o vetor de pesos para o filtro anti-spam,ou seja, vai calcular um valor ótimo para cada regra do ficheiro rules.cf. Esta configuração vai ser usada para caixas de mail de uso profissional.

## Code inspection – Name of the component being inspected

A classe IO serve para ler os ficheiros que são necessários para o funcionamento do software.

| | |
|---|---|
| *Meeting date:* | *19/12/2017* |
| *Meeting duration:* | *45 minutes* |
| | |
| *Moderator:* | *Lígia Cardoso* |
| *Producer:* | *António Estrela* |
| *Inspector:* | *Cláudio Gonçalves* |
| *Recorder:* | |
| *Component name (Package/Class/Method):* | *antiSpamFilter/IO* |
| *Component was compiled:* | *Yes* |
| *Component was executed:* | *Yes* |
| *Component was tested without errors:* | *Yes* |
| *Testing coverage achieved:* | *88,2%* |

## Code inspection checklist

### 1. Variable, Attribute, and Constant Declaration Defects (VC)
☐ Are descriptive variable and constant names used in accord with naming conventions?
☐ Are there variables or attributes with confusingly similar names?
☐ Is every variable and attribute correctly typed?
☐ Is every variable and attribute properly initialized?
☐ Could any non-local variables be made local?
☐ Are all for-loop control variables declared in the loop header?
☐ Are there literal constants that should be named constants?
☐ Are there variables or attributes that should be constants?
☐ Are there attributes that should be local variables?
☐ Do all attributes have appropriate access modifiers (private, protected, public)?
☐ Are there static attributes that should be non-static or vice-versa?

### 2. Method Definition Defects (FD)
☐ Are descriptive method names used in accord with naming conventions?
☐ Is every method parameter value checked before being used?
☐ For every method: Does it return the correct value at every method return point?
☐ Do all methods have appropriate access modifiers (private, protected, public)?
☐ Are there static methods that should be non-static or vice-versa?

### 3. Class Definition Defects (CD)
☐ Does each class have appropriate constructors and destructors?

☐ Do any subclasses have common members that should be in the superclass?
☐ Can the class inheritance hierarchy be simplified?

## 4. Data Reference Defects (DR)
☐ For every array reference: Is each subscript value within the defined bounds ?
☐ For every object or array reference: Is the value certain to be non-null?

## 5. Computation/Numeric Defects (CN)
☐ Are there any computations with mixed data types?
☐ Is overflow or underflow possible during a computation?
☐ For each expressions with more than one operator: Are the assumptions about order of evaluation and precedence correct?
☐ Are parentheses used to avoid ambiguity?

## 6. Comparison/Relational Defects (CR)
☐ For every boolean test: Is the correct condition checked?
☐ Are the comparison operators correct?
☐ Has each boolean expression been simplified by driving negations inward?
☐ Is each boolean expression correct?
☐ Are there improper and unnoticed side-effects of a comparison?
☐ Has an "&" inadvertently been interchanged with a "&&" or a "|" for a "||"?

## 7. Control Flow Defects (CF)
☐ For each loop: Is the best choice of looping constructs used?
☐ Will all loops terminate?
☐ When there are multiple exits from a loop, is each exit necessary and handled properly?
☐ Does each switch statement have a default case?
☐ Are missing switch case break statements correct and marked with a comment?
☐ Do named break statements send control to the right place?
☐ Is the nesting of loops and branches too deep, and is it correct?
☐ Can any nested if statements be converted into a switch statement?
☐ Are null bodied control structures correct and marked with braces or comments?
☐ Are all exceptions handled appropriately?
☐ Does every method terminate?

## 8. Input-Output Defects (IO)
☐ Have all files been opened before use?
☐ Are the attributes of the input object consistent with the use of the file?
☐ Have all files been closed after use?
☐ Are there spelling or grammatical errors in any text printed or displayed?
☐ Are all I/O exceptions handled in a reasonable way?

## 9. Module Interface Defects (MI)
☐ Are the number, order, types, and values of parameters in every method call in agreement with the called method's declaration?
☐ Do the values in units agree (e.g., inches versus yards)?
☐ If an object or array is passed, does it get changed, and changed correctly by the called method?

## 10. Comment Defects (CM)
☐ Does every method, class, and file have an appropriate header comment?
☐ Does every attribute, variable, and constant declaration have a comment?
☐ Is the underlying behavior of each method and class expressed in plain language?
☐ Is the header comment for each method and class consistent with the behavior of the method or class?
☐ Do the comments and code agree?
☐ Do the comments help in understanding the code?
☐ Are there enough comments in the code?
☐ Are there too many comments in the code?

## 11. Layout and Packaging Defects (LP)
☐ Is a standard indentation and layout format used consistently?
☐ For each method: Is it no more than about 60 lines long?
☐ For each compile module: Is no more than about 600 lines long?

## 12. Modularity Defects (MO)
☐ Is there a low level of coupling between modules (methods and classes)?
☐ Is there a high level of cohesion within each module (methods or class)?
☐ Is there repetitive code that could be replaced by a call to a method that provides the behavior of the repetitive code?
☐ Are the Java class libraries used where and when appropriate?

## 13. Storage Usage Defects (SU)
☐ Are arrays large enough?
☐ Are object and array references set to null once the object or array is no longer needed?

## 14. Performance Defects (PE)
☐ Can better data structures or more efficient algorithms be used?
☐ Are logical tests arranged such that the often successful and inexpensive tests precede the more expensive and less frequently successful tests ?
☐ Can the cost of recomputing a value be reduced by computing it once and storing the results?
☐ Is every result that is computed and stored actually used?
☐ Can a computation be moved outside a loop?
☐ Are there tests within a loop that do not need to be done?
☐ Can a short loop be unrolled?
☐ Are there two loops operating on the same data that can be combined into one?
☐ Are frequently used variables declared register?
☐ Are short and commonly called methods declared inline?

## Found defects

Identify and describe found defects, opinions and suggestions.

| Found defect Id | Package, Class, Method, Line | Defect category | Description |
|---|---|---|---|
| 1 | antiSpamFilter,IO | Comment Defects (CM) | Falta de comentários, que indicam o que faz cada método |
| 2 | antiSpamFilter,IO, lePesosAutomaticos, Linha 161 | Control Flow Defects (CF) | Colocar return a null. |

## Corrective measures

As correções ao código serão efetuadas pelos membros do grupo.

## Conclusions of the inspection process

Se o segundo found defect não for implementado o código pode dar problemas.