Reproduction of "Predicting the Severity of a Reported Bug"

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ABSTRACT

Background. Bug fixing is a fundamental part of software maintenance. Bugs have different levels of severity according to their threat to the system and urgency to fixing.

Aim. The aim is to be able to have models which are able to identify the severity of bug reports.

Method. After identifying the system, bug reports will be extracted from bugzilla including the severity of the bug. This data is used to train two classifiers: SGDClassifier and Multinomial Naïve Bayes. The following measurements are used to identify the quality of the model: precision, recall and f-measures.

Conclusion. This study will show if it is possible to generate models, which can do the classification of bug reports automatically with certainty. This can help software engineers in practice to classify their bug reports and focus on the most urgent.

1 INTRODUCTION

Bug reports represent a fundamental part of software maintenance by documenting the malfunction of a software part. A large number of bug reports by users and developers are collected on a daily basis in bug tracking systems like Bugzilla. These reports are then manually prioritized according to their severity and classified into 6 groups, ranging from a request to enhancement to a critical level resulting in crashes, loss of data or severe memory leak. The level of severity indicates the impact of the bug on the successful execution of a software system. However, the manual assignment of severity level to a bug reports take time and resources. In combination with the increase of daily bug reports the classification introduces a set of challenges such as misclassification of severity or the increase of cost. The ability of automated classification of bug reports by a tool reduce errors in classification and manual work as well as enhance the software quality.

2 RELATED WORK AND BACKGROUND

Any studies, tools, technologies that you rely on for your study and enrich your study are described here. This is **not** where you describe your solution. This is only where you give an overview of the most-important studies (and technologies you may use) that have been published before. If you are proposing a new feature location technique that combines Latent Semantic Indexing with Program Slicing, you should give a brief description of these in the background section. If you are proposing a study on evaluating social networks of developers, this is where you describe previous studies that did similar things. The background is **not** for rehashing the problem; it is for the supporting technologies/methods of the solution/study.

3 METHODOLOGY

In this section, you define the research questions that structure your study/solution.

3.1 Research questions

Write here the research questions and motivate why you pick specifically these ones. Explain and motivate each research question separately.

3.2 Research method

Here you describe exactly how you plan to answer each research question or, in case you're proposing a new solution, you start explaining your brand new, enlightened solution. What, precisely, are the inputs and outputs of your solution/study? What parameters will you use? What design decisions are you making and what is the rationale behind each decision? what gold sets do you use? Will you have human evaluators? If so, how many and who were they? What metrics are you planning to use? Etc.

This is also a great place for a concrete example. Pick out one example and explain it thoroughly. Show exactly what are the input and output of your approach.

3.3 Limitations/Threats to Validity

End the methodology section with a subsection called "Threats to Validity" or "Limitations" (depending on the research method you use) to let everyone know what you perceive as the weaknesses of your study, what you try to do about those weaknesses, and how different studies can tackle them.

4 CONCLUSIONS

Summarize your idea and explain what is the expected impact of your research proposal.

5 ACKNOWLEDGMENTS

Thank who needs to be thanked.

ACKNOWLEDGMENTS

To Robert, for the bagels and explaining CMYK and color spaces.

REFERENCES

A AN APPENDIX

A.1 Part One

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A.2 Part Two

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B ONLINE RESOURCES

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