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An Environment for detection of Bugs through SVM

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ABSTRACT

Mining technique finds hidden patterns from the data stored in the repositories and turn it into useful information and knowledge. Most open source software development projects include an open bug repository in which users of the software can gain full access. Training data size for bug priority classification using SVM.In this paper, calculate the precision and recall of different features categories for each class. The bug report having status value NEW, UNCONFIRMED, ASSIGNED bugs are not included in our training .because the priority level of these classifications may not be authentic. A trigger's task is to manage the bug repository so that it contains only real bugs and important bugs are addressed quickly. We also use the precision and recall that can be used to measure the accuracy of the classifier. For a bug priority classification we need high precision and recall especially for higher priorities.

KEYWORDS

SVM (Support Vector Machine); CSTF (Combination of categorical; summary And long description); Bug; Triggers.

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INTRODUCTION

Software has become critical to advancement in almost all areas of human endeavor. The art of programming only is no longer sufficient to construct large programs [15]. There are serious problems in the cost, timeliness, maintenance and quality of many software products.

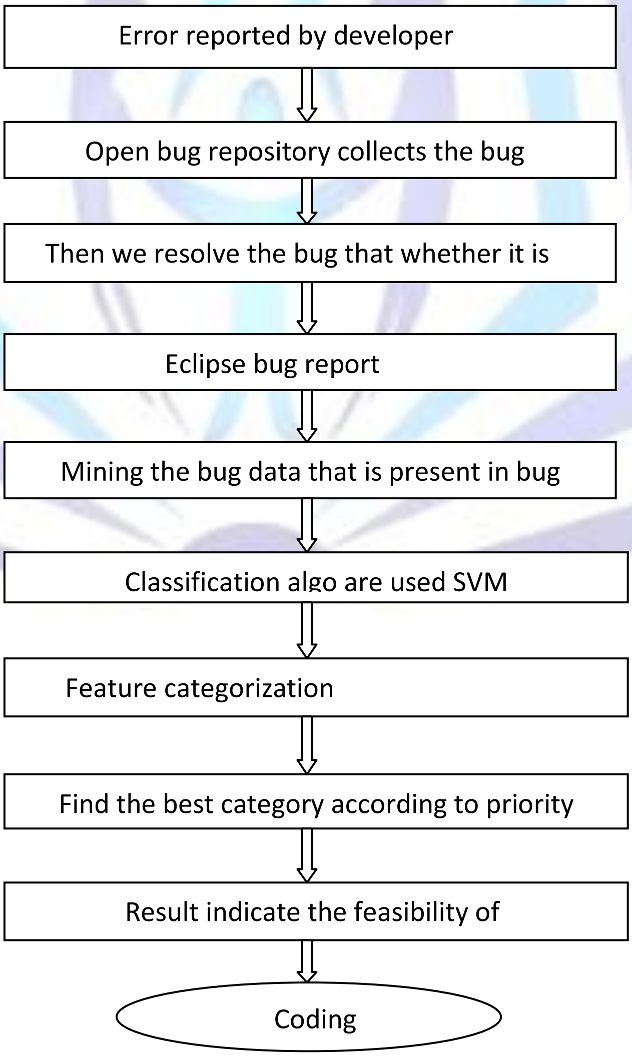
BUG: Software bug is the common term that are used to describe an error,mistakes,failure or fault in a computer program or system that produces an incorrect or unexpected result[4].

Types of Bugs:

1. Arithmetic bugs: Arithmetic overflow and underflow, Division by zero.
2. Logical Bugs: Infinite loops and infinite recursions,
3. Syntax bugs: Use of wrong operators.
4. Multithreaded programming bugs: Deadlocks [11]
5. Interfacing bugs: Incorrect hardware handling.
6. Performance bugs: High computational complexity of algorithms.

The results show that our approach can significantly improve the efficiency of bug assignment the bug resolver is often identified with fewer tossing events [10].

Bug triage: Bug triage is an important step in the process of bug fixing. The goal of bug triage is to assign a new coming bug to the correct potential developer [3]. The existing bug triage approaches are based on machine learning algorithms, which build classifier from the training sets of bug reports. In practice, these approaches are suffered from the large scale and low quality training sets [7]. The training set reduction with both future selection and support vector machine for bug triage. We combine feature selection with instance selection to improve the accuracy of bug triage. We evaluate the training set reduction on the bug data of eclipse [13]. For the training set, 70% words and 50% bug reports are removed after the training set reduction. The experiment result show that the new and small training sets can provide better accuracy than the original one.

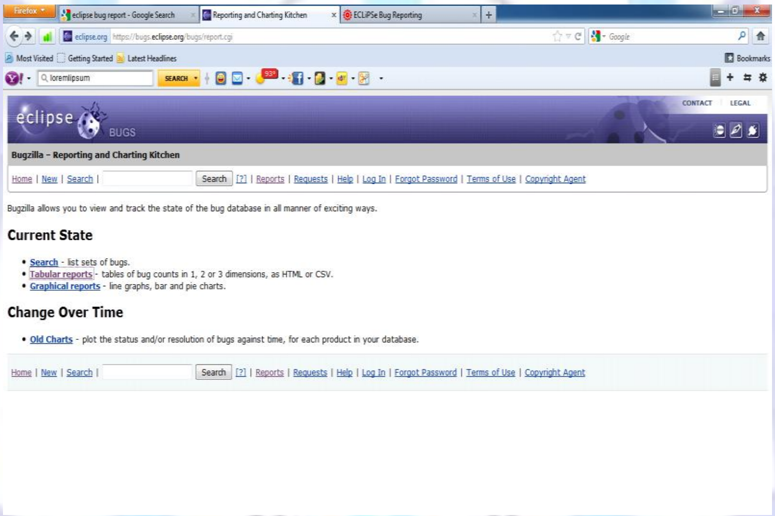

Error reported by developer
Open bug repository collects the bug
Then we resolve the bug that whether it is
Eclipse bug report
Mining the bug data that is present in bug
Classification algo are used SVM
Feature categorization
Find the best category according to priority
Result indicate the feasibility of
Coding

Static analysis phases can be used to improve the quality of dynamic bug detection tools created with SUDS and could be used to expand to find defect statically[11].The instrumentation engine is designed in a manner that allows users to create their own [9].A machine learning approach to develop a bug priority recommender which automatically assigns an appropriate priority level to newly arrived bugs, so that they are resolved in order of importance and an important bug is not left untreated for a long time[6]. Our result shows that the role of users goes beyond simply reporting bugs: their active and ongoing participation is important for making progress on the bugs they report. Based on the results, we suggest for ways in bug tracking systems can be improved [12]. We demonstrate our approach on the large open source project Mozilla that offers great opportunities to compare results and validate our approach.

METHODOLOGY: In this research I am present a classification based approach to train the bug classifier through SVM for managing open bug repositories. Trigger is the method that resolves the important bug first. Support vector machines build non linear classification models from training data for each class. SVM performs classification tasks by constructing hyper planes in a multidimensional Space that separates cases of different class labels. SVM has shown the promising results for classification. To evaluate the bug priority we use precision and recall measures. Support Vector Machine present a comparison to evaluate which category classifier performs Better. It can be check according to the priority. The highest accuracy is achieved with SVM when categorical and text features are combined for training. . For SVM the results of bug priority classifier are better when the categorical and text features are combined for training the classifiers. That is also known as CSTF feature.CSTF is a combination of categorical, summary and text features that contains the relevant information that is useful for determining the bug priority.

RESULTS:

1. Click on www.eclipse.org and then click on tabular report.in order to generate the reports.



Bugzilla – Reporting and Charting Kitchen

Home | New | Search | Search [?] | Reports | Requests | Help | Log In | Forgot Password | Terms of Use | Copyright Agent

Bugzilla allows you to view and track the state of the bug database in all manner of exciting ways.

Current State

- Search - list sets of bugs.
- Tabular reports - tables of bug counts in 1, 2 or 3 dimensions, as HTML or CSV.
- Graphical reports - line graphs, bar and pie charts.

Change Over Time

- Old Charts - plot the status and/or resolution of bugs against time, for each product in your database.

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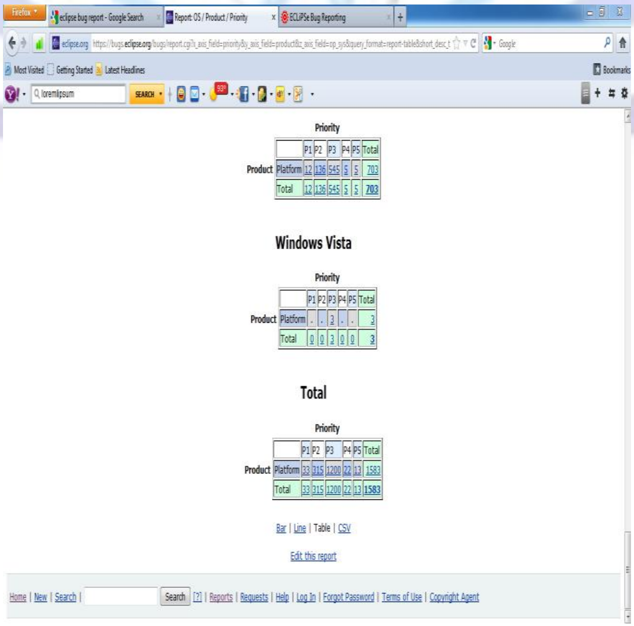
2. Then choose the status of bug.


Firefox
eclipse bug report - Google Search
Report: OS / Product / Priority
ECLiPSe Bug Reporting
eclipse.org https://bugs.eclipse.org/bugs/report.cgi?x_axis_field=priority&y_axis_field=product&z_axis_field=op_sys&query_format=report-table&short_desc_t
Google
Most Visited
Getting Started
Latest Headlines
Bookmarks
loremlipsum
SEARCH
93°

Priority

		P1	P2	P3	P4	P5	Total
Product	Platform	12	136	545	5	5	703
	Total	12	136	545	5	5	703

Windows Vista

Priority

		P1	P2	P3	P4	P5	Total
Product	Platform	.	.	3	.	.	3
	Total	0	0	3	0	0	3

Total

Priority

		P1	P2	P3	P4	P5	Total
Product	Platform	33	315	1200	22	13	1583
	Total	33	315	1200	22	13	1583

Bar | Line | Table | CSV

Edit this report

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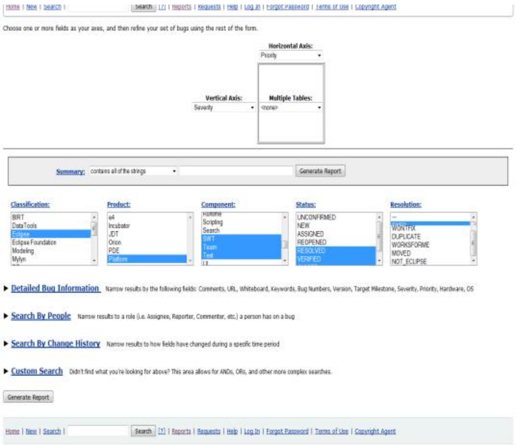
3. Then we get the data according to priority



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Choose one or more fields as your axes, and then refine your set of bugs using the rest of the form.

Horizontal Axis: Priority

Vertical Axis: Severity

Multiple Tables: <none>

Summary: contains all of the strings Generate Report

Classification:	Product:	Component:	Status:	Resolution:
BIRT	e4	Scripting	UNCONFIRMED	---
DataTools	Incubator	Search	NEW	WONTFIX
Eclipse	JDT	SWT	ASSIGNED	DUPLICATE
Eclipse Foundation	Orion	Team	REOPENED	WORKSFORME
Modeling	PDE	Text	RESOLVED	MOVED
Mylyn	Platform		VERIFIED	NOT_ECLIPSE

▶ Detailed Bug Information Narrow results by the following fields: Comments, URL, Whiteboard, Keywords, Bug Numbers, Version, Target Milestone, Severity, Priority, Hardware, OS

▶ Search By People Narrow results to a role (i.e. Assignee, Reporter, Commenter, etc.) a person has on a bug

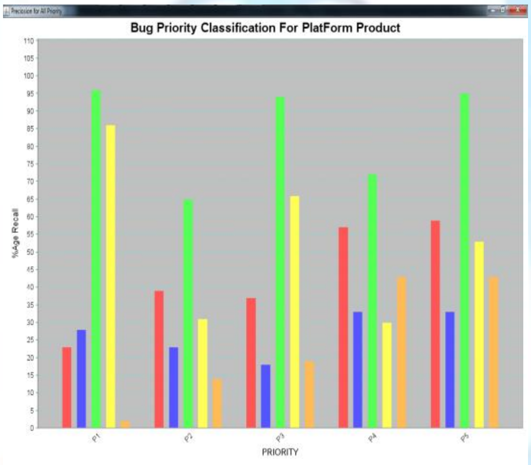
▶ Search By Change History Narrow results to how fields have changed during a specific time period

▶ Custom Search Didn't find what you're looking for above? This area allows for ANDs, ORs, and other more complex searches.

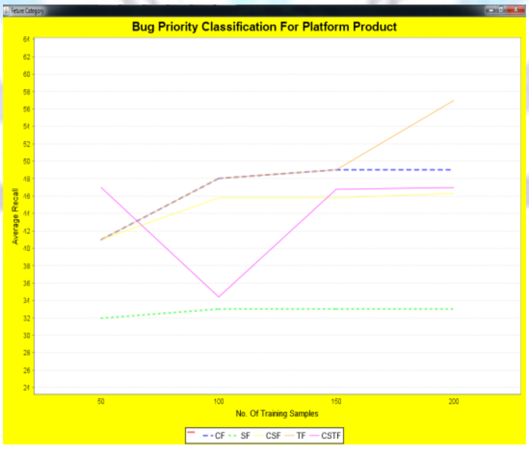
Generate Report

Home | New | Search | Search [?] | Reports | Requests | Help | Log In | Forgot Password | Terms of Use | Copyright Agent

4. Recall of each bug priority class with different training features for Platform product. Priority of P3 is highest. So CSTF is the best category according to its priority



5. This graph shows that CSTF is the best category.



CONCLUSION:

Managing the incoming deluge of new bug reports received in bug repository of a large open source project is a challenging task. Handling these reports manually by developers, consume time and resources which results in delaying the resolution of crucial (important) bugs which need to be identified and resolved earlier to prevent major losses in a software project. In this paper, we present a machine learning approach to develop a bug priority recommender which automatically assigns an appropriate priority level to newly arrived bugs, so that they are resolved in order of importance and an important bug is not left untreated for a long time. Our approach is based on the classification technique, for which we use Support Vector Machines. Experimental evaluation of our recommender using precision and recall measures reveals the feasibility of our approach for automatic bug priority assignment.

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Author' biography with Photo

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