Improving Bug Tracking Systems

Thomas Zimmermann
Microsoft Research

Rahul Premraj
Saarland University

Jonathan Sillito
University of Calgary

Silvia Breu
Cambridge University
Bugzilla Form

Step 2: Where is the bug?

I am reporting a bug with:

* Pick one:

Eclipse Build ID: *

TIP: You can see the Build ID by clicking Help > About Eclipse (on the Mac: Eclipse > About Eclipse).

Step 3: Has it already been reported?

Please check the list below before entering a new bug. Your bug may have already been submitted by someone else.

Open bug activity in the last two weeks.
Bugzilla Form

Step 2: Where is the bug?

I am reporting a bug with: [ ]

Eclipse Build ID: [ ]

TIP: You can see the Build ID by clicking Help > About Eclipse (on the Mac: Eclipse > About Eclipse).

Step 3: Has it already been reported?

Please check the list below before entering a new bug. Your bug may have already been submitted by someone else.

Open bug activity in the last two weeks.
Bugzilla Form

Step 4: Information

Summary: *
Steps to reproduce: *

1.
2.
3.

TIP: If you can't reproduce the steps or correctly explain them, your bug will likely be closed as an invalid bug.

More information:

TIP: Write any information you can provide that will help identify the problem.

* denotes required field.

You're almost done!

Continue to the final step.

Actions: Home | New | Search | Find | Reports | My Requests | My Votes | Preferences | Log out | r.premraj@gmail.com

Saved Searches: My Bugs

Add the named tag to bugs Commit
Mozilla Bug #61287

Bug reported

November 27
Mozilla Bug #61287

Bug reported: November 27

Comment #16: December 29

if someone could provide a stack trace, that would be a huge help.
Mozilla Bug #61287

November 27

Bug reported

December 29

Comment #16

if someone could provide a stack trace, that would be a huge help.

March 6

Comment #26

Fix verified.
Improving bug tracking systems

Generation Next

- Tool Centric
- Information Centric
- User Centric
- Process Centric
Future of Bug Reporting
Future of Bug Reporting

Alice
A User

My Eclipse has crashed.
Future of Bug Reporting

Alice
A User

My Eclipse has crashed.

What did you do?

Bob
A bug tracking system
Future of Bug Reporting

Alice
A User

My Eclipse has crashed.

What did you do?

I clicked on File → New and OK

Bob
A bug tracking system
Future of Bug Reporting

What did you do?

I clicked on File → New and OK

Did you choose a Java project?
Future of Bug Reporting

What did you do?

I clicked on File → New and OK

Did you choose a Java project?
Future of Bug Reporting

I clicked on File → New and OK

Did you choose a Java project?

No.
Future of Bug Reporting

I clicked on File → New and OK

Did you choose a Java project?

No.
Future of Bug Reporting

Did you choose a Java project?

No.

A few more messages later...
Future of Bug Reporting

Did you choose a Java project?

No.

A few more messages later...
Future of Bug Reporting

Thanks Alice. The bug is most likely in ProjectCreator.java. We will fix it soon.

A few more messages later...

No.
First steps...

Train a Decision Tree

Relevant Questions

Fix location
A First Experiment

20 most frequently fixed files in ECLIPSE JDK

2,875 related bug reports
Questions as Inputs

- How severe is the bug? (*bug_severity*)
- On which OS does it occur? (*op_sys*)
- Which is the affected component? (*component_id*)
- Which version of Eclipse is affected? (*version*)
- What is your name? (*reporter*)
Next Steps

• Build catalog of important questions (information) from a large sample of bug reports.

• Build a prediction model using the data.

• Evaluate model on a different set of bug reports.