

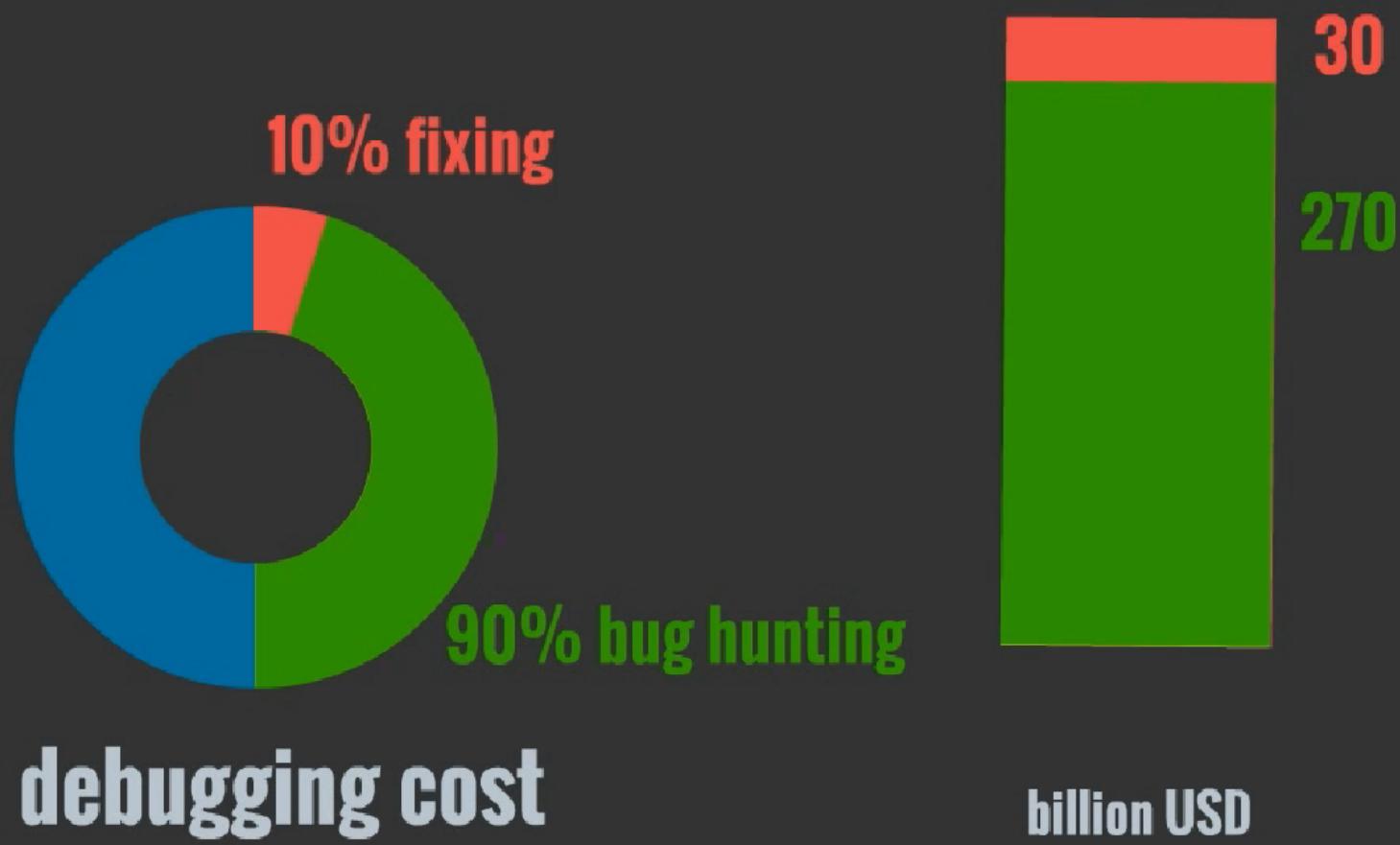
Jidebug – how Testers Can Help Developers

István Forgács PhD
4D Soft Kft.



Jidebug – how Testers Can Help Developers

**István Forgács PhD
4D Soft Kft.**



execution he immediately

**Tester's responsibility is to
detect and report bugs**

**are testers able to help
bug hunting?**

YES!

input minimization

tester finds a bug then

reduces the input

- test fails
- no smaller input makes the test fail

input reduction - an example

Macmillan	
Maddox	
Madison	
Magnuson	
Major	
Mallory	
Malone	
Manley	
Mann	
Manning	
Marble	
March	
Margrave	
Marin	Mayfield
Markham	McAfee
Marlow	McCarty
Marquis	Maynard
Marsh	
Marshall	
Martin	
Mason	
Massey	
Masters	
Mathews	
Maxwell	
May	
Mayer	
Mayfield	
McAfee	
McAndrew	
McBride	
McCain	
McCann	
McCarty	
Maynard	

**the responsible person to fix a
bug is the developer**

BUT

**who will worry about a non-
reproducible bug?**

tester

solution: make the bug reproducible

execution comparison does this

standard



Plug-in Development - Eclipse

File Edit Navigate Search Project Run Window Help

Package Explorer JUnit Plug-ins

Finished after 1,85 seconds

Runs: 4/4 Errors: 0 Failures: 1

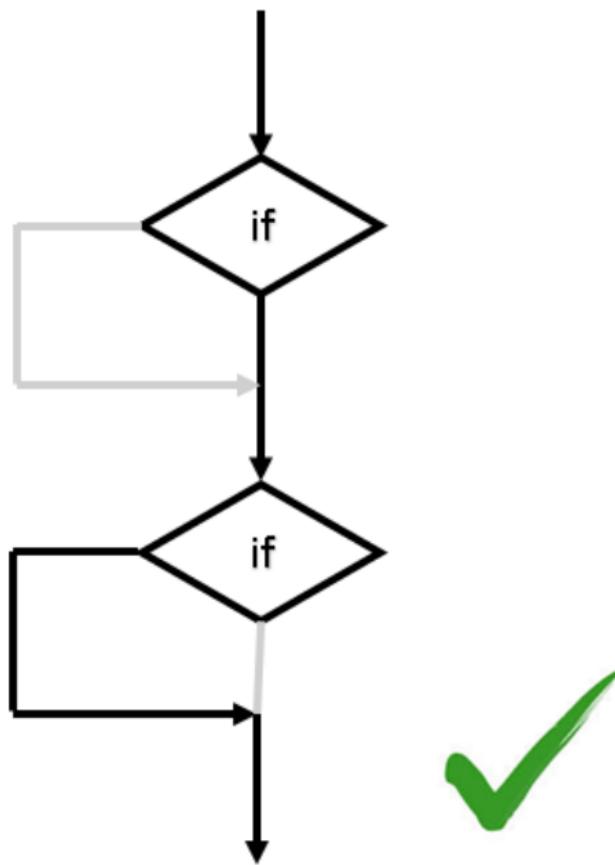
com.jidebug.demo.DemoTest [Runner: JUnit 4] (1,808 s)

- test1 (0,267 s)
- test2 (0,602 s)
- test3 (0,451 s)
- test4 (0,488 s) **(Failed)**

Failure Trace

```
java.lang.AssertionError  
at com.jidebug.demo.DemoTest.test4(DemoTest.java:26)
```

execution trace as standard



compare this and the failed one

execution traces should be recorded

servers are running and cannot be stopped



**recording can be started
and stopped at any point**

comparison result

```
public static void main(String args[])
{
    Integer convertedNumber = Integer.valueOf(args[0]);
    if (convertedNumber == 6)
        System.out.println(convertedNumber);
    else
        System.out.println("**");
}
```

What testers know better

based on the bug s/he knows when comparison can be used

the cause is that s/he knows tests and has a better overview

When to use execution comparison

to find the location of the code for a feature

for communication problem between the developer and the tester arises

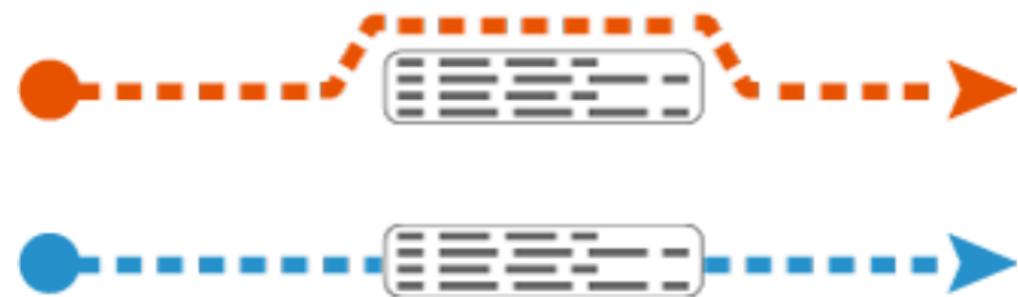
to find non-deterministic errors

when two similar inputs result in passed and failed executions

when different initial states result in passed and failed executions

when two different processes contain the same feature, but the executions of them results in passed and failed executions

how to find code to a feature



happy path



erroneous path



communication problem between the developer and the tester



Example Jidebug bug #847

Tester found a bug, i.e deleted a class A from Exclude. However, A were not running yet. It occurred that the tester deleted A from another panel, therefore A remained in Exclude.

Solution: When the developer compared with his own execution he immediately realised that the tester deleted A from another panel

Non-deterministic bug

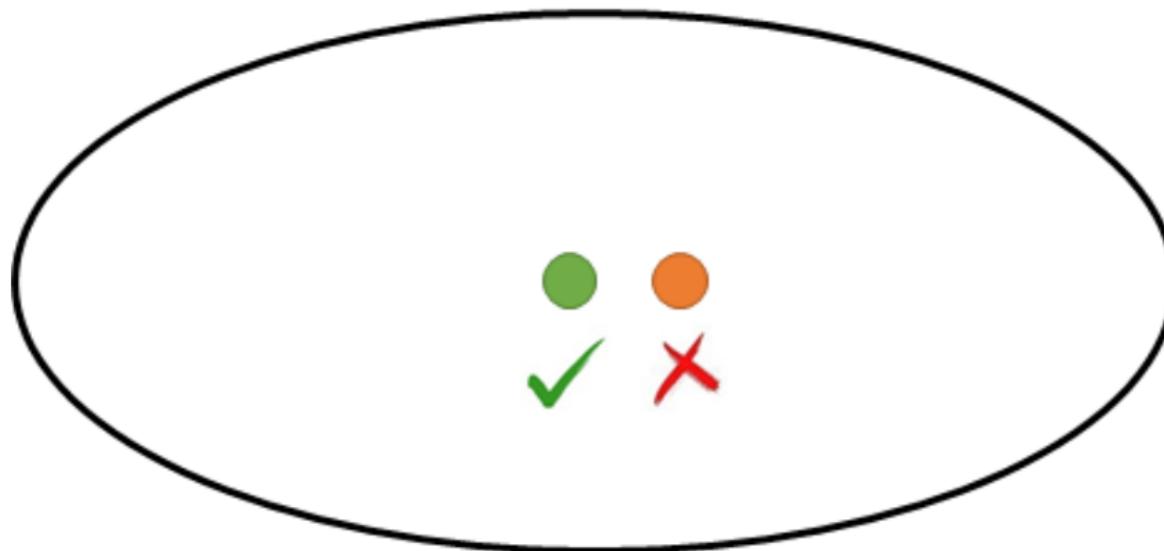


Example Jidebug bug #639

When attaching the whole Tomcat, and stopping it before finishing the process a process view remains four times out of five.

Solution: compare the two different cases.

two similar inputs result in passed and failed executions



Example: Bug in one of customers

Printing crashes for a new image while it was successful for the old image.

Solution: Recording and comparing both executions. Based on the differences it occurred that for the larger image a `close()` statement in the third party code executed too early.

different initial states result in passed and failed executions

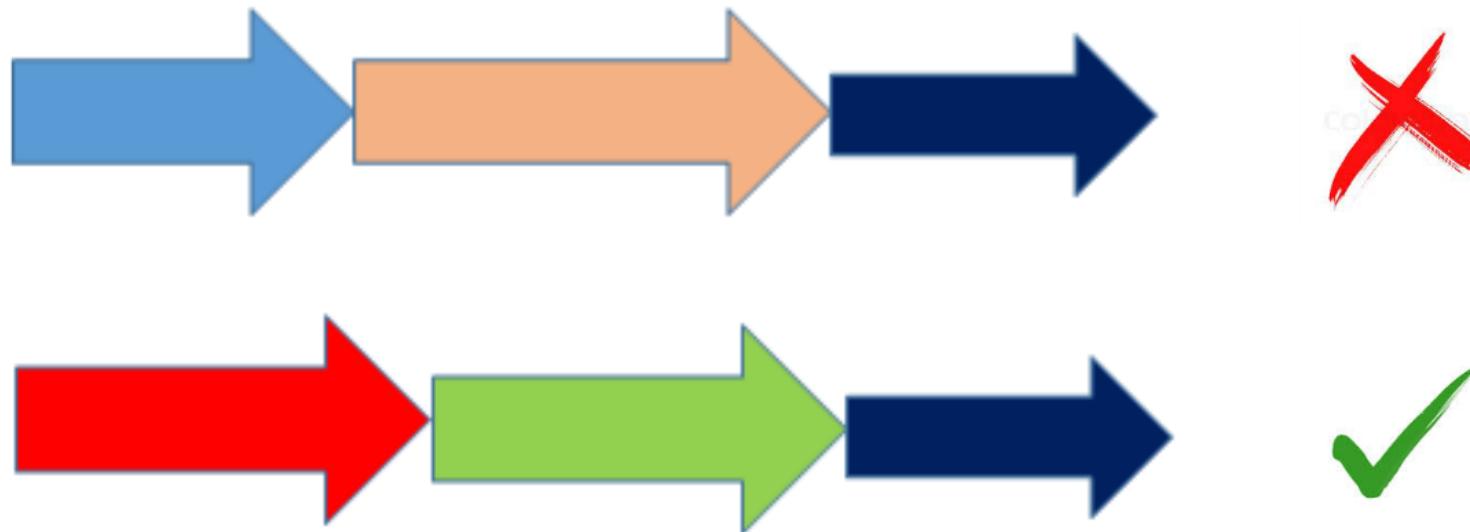


Example Jidebug bug #838

For the release version a dialog window always appears warning to include `-Xverify:none` In Eclipse it appears only when needed.

Solution: comparison differences for the two cases.

two different processes contain the same feature, but the executions of them results in passed and failed executions



Example Jidebug bug #896

Download All Remote Recordings isn't working.

Solution: Let only be one recording. Download it twice in different ways: firstly with Download All Remote Recordings, secondly by selecting this only recording. Both cases should result in the same downloading. Then we compare the differences.

Bonus example

Stackoverflow

What's the toughest bug you ever found and fixed?

How to use Jidebug

tester: is there any similar test which passed?

if yes, send the bug as "jidebugable"

developer: is there any good hypothesis to find the bug quickly?

if yes, hypothesis worked?

if no hypothesis or it didn't work and jidebugable then
use Jidebug

how to select appropriate executions?

start recording as late as possible

stop recording as early as possible

make two passed and failed tests so that

- no difference between fails tests
- no difference between passed tests

Jidebug features

records every program execution

recording can be started and stopped at any time

when stop it stores all relevant data

can be attached to any **remote** application already running
on JVM

compares the executions and the differences
are displayed

Jidebug

**execution comparison method
is built in Jidebug**

More information
jidebug.com

you can try it for free:

<http://www.jidebug.com/download>

contact:
forgacs@4dsoft.hu

Questions?