Software Testing

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Friday, November 2, 2012

Difference between error, fault, bug, failure and defect

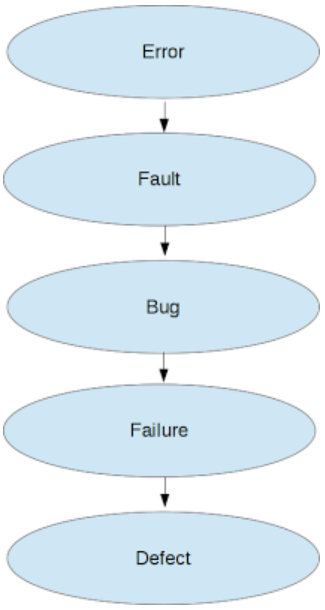

Figure 1

What is an error?

Error is deviation from actual and expected value.
It represents mistake made by people.

What is a fault?

Fault is incorrect step, process or data definition in a computer program which causes the program to behave in an unintended or unanticipated manner.
It is the result of the error.

What is a bug?

Bug is a fault in the program which causes the program to behave in an unintended or unanticipated manner.
It is an evidence of fault in the program.

What is a failure?

Failure is the inability of a system or a component to perform its required functions within specified performance requirements.
Failure occurs when fault executes.

What is a defect?

A defect is an error in coding or logic that causes a program to malfunction or to produce incorrect/unexpected results.
A defect is said to be detected when a failure is observed.

So I wrote a C program as mentioned below:

Labels

Bug (1)
Bugs (1)
Defect (1)
Error (1)
Facts about Software Testing (1)
Failure (1)
Fault (1)
Life Cycle of Software Testing (1)
Module testing (1)
Objectives of Software Testing (1)
Priority (1)
Priority of Bugs (1)
Severity (1)
Severity of Bugs (1)
Types of Bugs (1)
unit testing (1)
Why should Testing be performed? (1)

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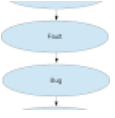

Difference between error, fault, bug, failure and defect
Figure 1 What is an error? Error is deviation from actual and expected value. It represents mistake made by people. W...

Severity and Priority of Bugs
Severity of Bugs: Severity of the bugs is classified depending upon the impact of error on the application / system. The severity class...

Life Cycle of Testing
Earlier, Testing was performed by developers themselves. After the developers implemented and tested the software, it was

Add two numbers program

Example 1:

As mentioned this program is required to add two numbers.

```
1    #include<stdio.h>
2
3    int main ()
4    {
5    int value1, value2, ans;
6
7    value1 = 5;
8    value2 = 3;
9
10   ans = value1 - value2;
11
12   printf("The addition of 5 + 3 = %d.", ans);
13
14   return 0;
15   }
```

When you compile and run this program you see the printed statement as below:

The addition of 5 + 3 = 2.

So after compiling and running this program we realize the program has failed to do what it was supposed to do.
The program was supposed to add two numbers but it certainly did not add 5 and 3. 5 + 3 should be 8, but the result is 2. There could be various reasons as to why the program displays the answer 2 instead of 8. For now we have detected a *failure*.
As the failure has been detected a *defect* can be raised.
Now lets go back to the program and analyze what was the fault in the program.

```
1    #include<stdio.h>
2
3    int main ()
4    {
5    int value1, value2, ans;
6
7    value1 = 5;
8    value2 = 3;
9
10   ans = value1 - value2;  // ----> Bug
11
12   printf("The addition of 5 + 3 = %d.", ans);
13
14   return 0;
15   }
```

We notice at line number 10, there is a '-' sign present instead of '+' sign. So the fault in the program is the '-' sign. Line 10 has the fault which caused the program to deviate from the functionality.
Error is the mistake I made by typing '-' instead of '+' sign. We have observed failure in correct execution of the program. And in this case we can also say we have found the bug.

A tester does not necessarily have access to the code and may be just testing the functionality of the program. In that case the tester will realize the output is faulty and will raise a defect. Due to the observed wrong result it is known of the fact that the program has an error which resulted in the fault in the program and due to which the program failed to give the correct result. But the tester may not know exactly what is causing the error.

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Posted by K Sha at 12:33 PM

+1 Recommend this on Google

Labels: Bug, Defect, Error, Failure, Fault

25 comments:

hafbloodyhaf May 17, 2013 at 12:34 PM

deployed to the ...

Interview Questions
Q1. What is an error? Error is deviation from actual and expected value. It represents mistake made by people. Q2. What is a fault?...

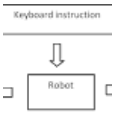
Type of Bugs
User Interface / Cosmetic bug: These types of errors are the result of incorrect formatting. The software functionality is least a...

Facts about Software Testing
Testing can find faults in the software but cannot prove that the software is error-free. Find us on facebook: fac...

Module Testing / Unit Testing Concept
Please refer to Move the Robot figure and explanation here - http://softwaretestingbykunti.blogspot.com/2013/10/move-robot-program.html ...

Objectives of Software Testing
To test whether the software is working as per the functional requirements. # To find errors in the software. # To test the quali...

Why should Testing be performed?
Humans make mistakes. Humans can make errors while typing the code, understanding the requirements, interpreting data and even wh...



Move the Robot Program
Fig 1 Move the Robot 1 2 3 4 1 Robot 2 ...

good explanation ! thanks mate

Reply

Replies

KShah S August 14, 2013 at 9:36 AM

Thanks for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

chitransh jain May 20, 2013 at 12:41 PM

awsmmm...

Reply

Replies

KShah S August 14, 2013 at 9:35 AM

Thanks Chitransh for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

Jansher Rahman June 20, 2013 at 12:09 PM

Very good explanation.thank you

Reply

Replies

KShah S August 14, 2013 at 9:36 AM

Thanks Jansher for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

AZMATH December 7, 2014 at 12:44 AM

Can you Explain Different Fault Diagnosis Processes according to Modern Technology

Reply

Rajkumar Pawar July 23, 2013 at 2:29 AM

Simple best example in very clear way ...thanks a lot

Reply

Replies

KShah S August 14, 2013 at 9:36 AM

Thanks Rajkumar for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

mary August 23, 2013 at 2:12 AM

it is very cleared answer

Reply

Replies

KShah S August 23, 2013 at 8:39 AM

Thanks Mary for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

Anonymous September 11, 2013 at 4:47 AM

The explanation is really good. I would like an example of Top down and Bottom up approach of testing.

Reply

Replies

KShah S October 24, 2013 at 9:16 AM

Thanks for your comment! I am working on your Top down and Bottom up approach of testing! Sorry for the delay!

KShah S October 25, 2013 at 11:16 AM

I have Module Testing / Unit testing post uploaded http://softwaretestingbykunti.blogspot.com/2013/10/module-testing-unit-testing.html
This would be a suggested read before Top down and Bottom up approach of testing. I am on working on the latter meanwhile!

Reply

Debashree Bose October 24, 2013 at 1:20 AM

Thanks a lot, the explanation is awesome.

Reply

Replies

KShah S October 24, 2013 at 9:16 AM

Thanks for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

Anonymous October 24, 2013 at 9:11 AM

Thanks bro gud explanation...

Reply

Replies

KShah S October 24, 2013 at 9:16 AM

Thanks for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

shivani soni April 10, 2014 at 2:17 PM

very nicely explained!! thanksss :)

Reply

Replies

KShah S April 11, 2014 at 9:04 AM

Thanks for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

Anonymous September 12, 2014 at 5:27 AM

Hi,
kindly explain V model and Agile model with example

Thanks and regards

Reply

Anonymous January 7, 2015 at 2:28 AM

Really awesome..

Reply

Replies

K Sha January 29, 2015 at 6:40 AM

Thanks for your comment! Please let me know if you need any particular examples / concept explained. I am working on some concepts which will come up soon! Watch this space for more!

Reply

Anonymous February 17, 2015 at 5:28 AM

Hai, I need some examples for top down approach and bottom up approach in integration testing

Reply

Anonymous May 19, 2015 at 7:02 AM

EXcellent explanation !!!

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