**Module - 4 (Defect Tracking)**

**What is priority?**

Priority is defined as the order in which a defect should be fixed. Higher the priority the sooner the defect should be resolved.

Defects that leave the software system unusable are given higher priority over defects that cause a small functionality of the software to fail.

**Priority Types**

Types of Priority of bug/defect can be categorized into three parts :

**Low**: The Defect is an irritant but repair can be done once the more serious Defect has been fixed

**Medium**: During the normal course of the development activities defect should be resolved. It can wait until a new version is created

**High**: The defect must be resolved as soon as possible as it affects the system severely and cannot be used until it is fixed

**What is severity?**

Severity is defined as the extent to which a particular defect can create an impact on the software. Severity is a parameter to denote the implication and the impact of the defect on the functionality of the software.

**Types of Severity**

In Software Testing, Types of Severity of bug/defect can be categorized into the following parts:

**Critical**: This defect indicates complete shut-down of the process, nothing can proceed further

Major: It is a highly severe defect and collapses the system. However, certain parts of the system remain functional

**Medium**: It causes some undesirable behavior, but the system is still functional

**Low**: It won’t cause any major break-down of the system

**Bug categories are…**

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**Different Types of Bugs in Software Testing:**

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**1.Software Bugs by Nature:**

Software bugs have different natures where they affect the overall functioning of the software differently. Though there are dozens of such bugs existing currently, you may not face them frequently. With that in mind, here are the most common software bugs categorized by nature that you are most likely to witness at some point in your software development career.

* **Performance Bugs:**

No user wants to use software with poor performance. Software bugs that lead to degraded speed, stability, increased response time, and higher resource consumption are considered performance bugs. The most significant sign of any such bug in software is by noticing slower loading speed than usual or analyzing the response time. If any such sign is found, the developer may begin diagnosing a performance bug. The performance testing phase is part of the development process where every such bug is detected in the software.

* **Security Bugs:**

While using software, security is the biggest concern of a user. Software with poor security will not only put the user’s data at risk but will also damage the overall image of the organization which may take years to recuperate. Due to their high severity, security bugs are considered among the most sensitive bugs of all types. Though it is self-explanatory, security bugs may make the software vulnerable to potential cyber threats. Sometimes, the software organization may not notice such attacks whereas in some cases, these attacks could cause monetary loss to the users, especially small and medium-scale businesses. XSS vulnerabilities, logical errors, and encryption errors are some of the commonest security bugs found in the software. Developers put special focus on checking the code to find any underlying security bug to minimize the risk of cyber-attacks.

* **Unit Level Bugs:**

Unit level bugs are fairly common in software development and do not cause much damage to it as well. Facing basic logic bugs or calculation errors are considered unit-level bugs. The testing team along with the agile team test a small part of the code as a whole. The reason why this testing method is preferred is to make sure that the entire code is working as it is meant to. While testing, the team may encounter unit-level bugs which can be fixed easily as the team is only working with a small code.

* **Functional Bugs:**

Software is as good as the feature it provides. If any of the functionality of a software is compromised, the number of users will start to decline drastically until it becomes functional again. A functional bug is when a certain feature or the entire software is not functioning properly due to an error. The severity of such bugs depends on the feature they are hampering. For instance, an unresponsive clickable button that is not functioning is not as severe as the entire software not working. Functional testing is done by the testing team to identify any such software bug causing functionality errors. Once identified, the team decides its further classification and severity.

* **Usability Bugs:**

Probably one of the most catastrophic bugs for software, a usability bug or defect can stop the software from working to its potential or make it entirely unusable. Examples of this bug in software testing are the inability to log in to the user account or the inefficient layout of the software for the user. The bottom line is that this type of defect or bug can make it complex for the user to use the software efficiently. The developers and engineers have to look out for the right usability requirements while testing the code to identify such bugs.

* **Syntax Errors:**

Syntax errors are among the commonest software bug types and do not allow the application to be compiled appropriately. This bug occurs due to an incorrect or missing character from the source code due to which the compiling will be affected. A small error like a missing bracket could lead to this problem. The development or testing team will get to know about this bug during compiling and will further analyze the source code to fix the missing or wrong characters.

* **Compatibility Errors:**

Whenever a software or an application is not compatible with hardware, or an operating system, it is considered as incompatible software or a compatibility error. Finding a compatibility error is not a common practice as they may not show up in the initial testing. Due to this reason, the developers should go for compatibility testing to make sure that their created software is compatible with common hardware and operating systems.

* **Logic Bugs:**

Another one of the most frequently found bugs in a software code, logic errors make the software give wrong output, software crash or failure. In the majority of cases, these bugs are caused due to coding errors where it may make the software stuck in a never-ending loading loop. In that case, only an external interruption or software crashing are the two only things that can break the loading loop.

**2.Priority-Based Software Bugs:**

The foremost category here is priority-based software bugs. These are based on the impact these bugs leave on the business. Here, the developers will analyze the bug to determine its impact and its defect priority. Afterward, the timeline is given to each bug where it should be rectified within the stipulated time frame to minimize the bug effect on the user. Here are the four types of priority-based software bugs.

* **Low-priority defects:**

Low priority defects do not cause much impact on the functioning of the application. Rather, they are more about software aesthetics. For instance, any issue with the spelling or the alignment of a button or text could be a low-priority defect. The software testing will move to the exit criteria even if the low-priority defects are not fixed, but they should be rectified before the final release of the software.

* **Medium-priority defects:**

Akin to low-priority defects, medium-priority defects do not cause any significant impact on the software, but they should be fixed in any subsequent or upcoming release. Such defects may not have the same effect for every user and it may vary with the device as well as specific configuration they have.

* **High-priority defects:**

Unlike the previous two, the exit criteria of high-priority defects are not met until the issue is resolved. Every bug falling in this category may make certain features of the software unusable. Even though it may not affect every user, it is mandatory to fix these bugs before any further step is taken in software development or testing.

* **Urgent Defects:**

As the name suggests, all bugs that should be dealt with utmost urgency fall under this category. Urgent defects may leave a lasting impact on the brand image as well as affect the user experience drastically. The stipulated timeline for fixing these bugs is within 24-hours of reporting.

**3.Software Bugs by Severity:**

Depending on the technical effect that the bug will cause on the software, the bugs are categorized into four categories.

* **Low Severity Bugs:**

Low severity bugs do not cause much damage to the functioning of the software as their primary target is the user interface. For instance, the font of the text on the program differs from what was used. These bugs can be fixed easily and are nothing to worry about.

* **Medium Severity Bugs:**

Every bug that can affect the functionality of the software a little bit is considered a medium severity bug. All such bugs make the software function different from what it is supposed to function. Though they are not also major for the program, they should be fixed for a better user experience.

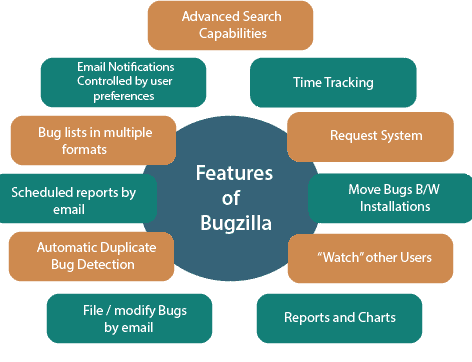
* **High Severity Bugs:**

High severity bugs affect the software functionality, making it behave differently from what it was programmed for. Not only are such bugs damaging for the software, they sometimes make the entire software unusable for the user.

* **Critical Bugs:**

Critical bugs are the most damaging bugs in the category that can hinder the functionality of the entire software. The reason why critical bugs are considered the most damaging is that further testing on the software becomes impossible till such bugs exist in the software.

**Advantage of Bugzila**



* Open source, free bug tracking tool.
* Automatic Duplicate Bug Detection.
* Search option with advanced features.
* File/Modify Bugs By Email.
* Move Bugs Between Installs.
* Multiple Authentication Methods (LDAP, Apache server).
* Time Tracking.
* Automated bug reporting; has an API to interact with system.
* Integrated email capabilities.
* Detailed permissions system.
* Optimized database structure to enhance performance.
* Robust security.
* Powerful query tool.
* Ideal for small projects.

**Difference between priority and severity**

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| **Priority** | **Severity** |
| Defect Priority has defined the order in which the developer should resolve a defect | Defect Severity is defined as the degree of impact that a defect has on the operation of the product |
| Priority is categorized into three types  Low  Medium  High | Severity is categorized into five types  Critical  Major  Moderate  Minor  Cosmetic |
| Priority is associated with scheduling | Severity is associated with functionality or standards |
| Priority indicates how soon the bug should be fixed | Severity indicates the seriousness of the defect on the product functionality |
| Priority of defects is decided in consultation with the manager/client | QA engineer determines the severity level of the defect |
| Priority is driven by business value | Severity is driven by functionality |
| Its value is subjective and can change over a period of time depending on the change in the project situation | Its value is objective and less likely to change |
| High priority and low severity status indicates, defect have to be fixed on immediate bases but does not affect the application | High severity and low priority status indicates defect have to be fixed but not on immediate bases |
| Priority status is based on customer requirements | Severity status is based on the technical aspect of the product |
| During UAT the development team fix defects based on priority | During SIT, the development team will fix defects based on the severity and then priority |