Software Requirements Specification
for
Bug Tracking System

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1. Introduction :

This is a project for developing a Bug-Tracking System. Basically, it's a web-based application, used to manage the bugs found during the testing and deployment processes in software projects.

1.1. Project Scope :

The developed Bug Tracking System will help in tracking and managing large number of bugs, keeping all stakeholders informed about the progress on the bug and documenting and archiving bugs for future references.

1.2. References :

- https://web.cs.dal.ca/~hawkey/3130/srs_template-ieee.doc

1.3. Product Features :

The final product should have the following features :

- Easy to use with user-friendly interfaces.
- Platform-independence.
- Simple and secure authentication for all the stakeholders involved.
- Online viewing of the status of the bug.

2.1. User classes and characteristics :

- **Bug Reporter / Tester :** The bug reporter / tester reports the bug when he / she catches one. They check whether the same kind of bug report exists or not by searching using the query tools and if nothing has been found, then the reporting process starts. The tester assigns the priority, severity, status, keyword(s), etc. for the bug report and then submits it.
- **Bug fixer / Developer :** The bug fixer / developer is responsible for solving the bug reported by the tester. There may be cases that the person responsible (for the task) changes during the bug's lifetime; e.g., the bug reporter may not have knowledge about who is the developer, so it may be the case that the reporter simply assigns the bug to the project manager or some other people who know

the source better. So, the bug fixer may change several times until it has finally arrived in the right person's hand.

- **User :** The user normally only browses the bug database for the information they are interested in. Users may securely login into the system and use the search feature using simple keywords to locate the desired bugs. The users may add further relevant information about the bug to aid in the resolving process.
- **Administrator / Manager :** The administrators / managers are a special group of users who can initiate bug reports to the system, assign privileges to the users in viewing the bug reports and alter the status of bugs.

2.2. Operating Environment :

- There is no specific choice of an operating system here as the Bug Tracking System will be designed to be platform-independent.
- The minimum processor specification is Intel(R) Core(TM) i3, 2.10 GHz.
- The concerned application will be supported by all web browsers, except Internet Explorer.

2.3. Design and Implementation Constraints :

Running the system should not require expensive software and/or hardware. Since the system is targeted at small companies, the investment in the software and hardware for running the Bug Tracking System must be reasonable. In most situations, it means that the system should run on low cost web servers, preferably the free ones. The hardware should be PC or low-end UNIX servers. This cost constraint also applies to the database systems, meaning that there should not be any advanced features in the database design / implementation that are only available commercially. The client / server model also puts constraints on the system response time, i.e. users should expect the system to respond to their requests quick enough.

2.4. User Documentation :

A detailed step-by-step manual for the Bug Tracking System will be provided upon the completion of the final product.

2.5. Assumptions and Dependencies :

This program will work with virtually any system that can connect to the internet and browse web pages.

3. Functional Requirements :

System Requirements :

- The system shall provide a web-based Graphical User Interface (GUI).
- The system shall be able to authenticate the users.
- The system shall ensure the integrity of the stored data.
- The system shall have a facility to add new, incoming bugs.
- The system shall have a facility for issuing bugs to the respective developers and testers by the concerned manager.
- The system shall add a timestamp as soon as the bug submission and assignment (to the respective testers and developers) are carried out.
- The system shall have a facility for displaying all the information associated with the bugs available.
- The system shall have built-in notification and messaging features.
- The system shall have a facility for resolving (deleting) the bugs that have been taken care of.

User Requirements :

- All classes of users (Managers, Developers and Testers) shall be able to login to the system with their respective valid credentials.
- New Developers and Testers should be able to register into the system and the Manager should be able to confirm their accounts.
- The Manager shall have full administrative rights over the system.
- The Manager shall be able to add a bug to the system.
- The Manager shall be able to create, modify and delete specific fields associated with a particular bug.
- The Manager shall be able to view the details about all the bugs.
- The Manager shall be able to allot a bug to certain Developers and Testers.
- The Manager shall be able to delete the bugs that have been resolved.
- The Manager shall be able to send messages to Developers and Testers.

- The users (Developers and Testers) shall be able to see the bugs issued to them.
- The users shall be able to view the messages sent by the Manager.

4. External Interface Requirements :

4.1. User Interfaces :

- User interface should be intuitive, consistent and easy to use. Each web page should be simple, understandable, with no redundant, unclear or duplicated information on it.
- Secure login - Basically the system should be able to provide a certain secure way to access the system. Any unauthenticated access is denied.
- Different type of users should have different accessible contents of interface according to their privileges. For example, administrator has some accessible maintaining functions, but the tester can't see them or access them.
- User interface should be lightweight. Text-based web page is used instead of graphics.
- Simple HTML should be used to make webpage compatible with different browsers.

4.2. Hardware Interfaces :

- The minimum processor specification is Intel(R) Core(TM) i3, 2.10 GHz.
- Internet connectivity should be enabled.

4.3. Software Interfaces :

- The concerned application will be supported by all web browsers, except Internet Explorer.
- Scripting should be enabled in the web browsers.

4.4. Communications Interfaces :

- All HTML pages will be transmitted with standard HTTP protocol.

5.1. Performance Requirements :

- The failure rate for the system (including both hardware and software failures) should be as low as possible. The availability can be readily improved by adding more servers to form a cluster. The system shall be cluster ready for this very purpose, i.e. forming a cluster shall not lead to modification of the product except for the configuration files.
- Due to the diversity of the client environment, the Bug Tracking System must be portable. It shall run on all modern operating systems and be able to interface major relational database systems from various vendors.

5.2. Safety Requirements :

- Any data stored in the system must be accessible only by the authenticated users and the system shall not disclose any information to parties without the required privileges.

5.3. Security Requirements :

- The system shall not disclose the passwords to other people, even the operator shall not be able to see any passwords in clear form.

5.4. Software Quality Attributes :

The Bug Tracking System will be based on the following tenets :

- **Adaptability :** Since the project will be developed as a web-based application, it can be accessed via a web browser (except the Internet Explorer) running on any operating system.
- **Availability :** The Bug Tracking System can be accessed as and when required, at any point of time during the day, provided the internet connection is enabled.
- **Reliability :** Any data stored in the system can be accessed only by the authenticated users and the system shall not disclose any information to parties without the required privileges. All the passwords stored will be encrypted by the system at the time of authentication.

- **Usability :** The Bug Tracking system will be an interactive, web-based application. The application will be GUI-based, mainly concerning with the users' ease of use.