



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Issue 12, December 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.524

9940 572 462

6381 907 438

ijirset@gmail.com

www.ijirset.com

Defect Tracking System

Jyothika D Meti ¹, Kavya K ², Preetika D M ³, Priya Narasagondar ⁴, Ramesh Kumar H K ⁵

U.G. Student, Department of Computer Engineering, Sri Taralabalu Jagadguru Institute of Technology, Ranebennur,
Karnataka, India^{1,2,3,4}

Assistant Professor, Department of Computer Engineering, Sri Taralabalu Jagadguru Institute of Technology,
Ranebennur, Karnataka, India⁵

ABSTRACT: Tracking of a reported bug for fixing is a fascinating area in software engineering. Many open sources, free and commercial bug tracking tools have been developed and are currently under development. The industry needs criteria to select the best tool among the available set of tools that will help in fixing and tracking the progress of bug. Our system helps in reporting the bug, assigning the bug to the developer for fixing, monitoring the progress of bug fixing and status updates and distributing fixes to users/developers. This project is aimed at developing an online defect tracking system useful for software applications developed in an organization. The Defect Tracking System (DTS) is a web-based application that can be accessed throughout the organization. This system can be used for logging defects against an application/module, assigning defects to individuals and tracking the defects to resolution. The developed software product facilitates seamless flow of the project deliverables. Right from the planning we can add multiple projects along with the milestones which help to track the deadlines of the project. The members who are in charge of the project can be added and assigned those roles based upon these designations. The project status along with defect tracking is implemented and kept in track using our web application system which facilitates an organization to track and resolve the defects in effective and efficient manner within the stipulated amount of time.

KEYWORDS: Bug Tracking, Issue Management, Workflow Automation, Error Reporting, Quality Assurance.

I. INTRODUCTION

Bug tracking is a system which is used to solve out any type of bugs in any software. It is mostly useful for any software company. In this system we have design different types of use permission like developer, tester having different rights to connect software. A bug tracking system helps us to keep track of bugs detected by tester of software and provide complete details regarding bugs to the developer as well as project manager of the software being tested. Bug Tracking System ensures the user of it will be able track the bug details as well as the status of debugging. For many years, bug-tracking mechanism is employed only in some of the large software development houses. Most of the other small firms and developers never bothered with bug tracking at all, instead they simply relied on shared lists and email to monitor the status of defects. This procedure is error-prone and tends the developer to consider the bug as insignificant which ends up being dropped or ignored. Bug Tracking System plays a vital role in the testing phase. The Bug Tracking System maintains the different user interfaces separately i.e., it provides separate environments for project manager, developer and tester. Bugs will be assigned to a person along with a bug id, screenshot, description, project name, etc. Bug can be submitted to the tester with an attachment for detailed report of the bug. Admin can maintain users, projects, organizations, bug categories, bug priorities, status of bug.

II. RELATED WORK

A. EXISTING SYSTEM

In Existing System, the client should report the Organization's Help Desk about the errors and They have to wait until the Solution from helpdesk management arrives. Due to all the error reports of various clients are submitted to helpdesk may causes many errors report to be missed by helpdesk before giving solutions to it.

- Current bug tracking systems, user do not effectively elicit all of the information needed by developers.
- Without this information to resolve bugs form the given system software.
- There is no efficient software to keep track the number of Bugs
- There is no efficient software to keep track the status of Bugs

B. PROPOSED SYSTEM

Defect tracking system is essential and used extensively by companies developing software products. A major component of a defect tracking system is a database that records facts about known defects.

Facts may include the time a defect was reported, its severity, the erroneous program behaviour, and details on how to reproduce the defect; as well as the identity of the person who reported it and any programmers who may be working on fixing it. Typical Defect Tracking Systems support the concept of the life cycle for a defect which is tracked through status assigned to the defect. In proposed system,

- The client should report the server program about the errors.
- If the error is already present in the database the server gives the remedy.
- If the error is not found then the client should submit the error to the server.
- The server then gives the remedy to the error through the Specialized Engineer and inserts the new error and its remedy into the database.
- Existing system does not have option of creating N number of projects, users, roles
- Existing system does not have option of creating workflow
- There is no efficient software to keep track the resolution given of Bugs

III. METHODOLOGY

1. Identifying Defects

Definition of a Defect: Any deviation from the expected behaviour of the software.

Defect Discovery: Defects can be identified during testing, user feedback, or production use.

Sources:

- Manual testing
- Automated testing tools
- Peer reviews
- End-user reports

2. Logging Defects

Defects are recorded in a centralized defect tracking tool.

Essential Information to Record

Defect ID: A unique identifier.

Title: A concise description of the defect.

Description: Detailed steps to reproduce, expected and actual behavior.

Severity and Priority: Categorizing the defect's impact and urgency.

Environment Details: OS, browser, software version, etc.

Attachments: Screenshots, logs, or videos for clarity.

3. Classification and Prioritization

- Severity Levels:
 - Critical: System crashes, data loss.
 - High: Major functionality fails.
 - Medium: Minor functionality fails or non-critical bugs.
 - Low: Cosmetic or trivial issues.
- Priority Levels:
 - High Priority: Fix immediately.
 - Medium Priority: Fix in upcoming sprints.
 - Low Priority: Address in the backlog.

4. Assigning and Tracking

- Assignment: Assign the defect to the appropriate developer or team for resolution.
- Tracking: Use status updates (e.g., New, Open, In Progress, Fixed, Retested, Closed).
- Regularly update defect records with progress and comments

5. Fixing Defects

- Developers analyse and resolve defects based on the logs.
- Root cause analysis (RCA) is often used to prevent similar defects.

6. Testing the Fix

- Once resolved, the defect is assigned to the QA team for retesting.
- Verification ensures the defect is fixed and no new issues are introduced.

7. Closure

- After successful retesting, the defect is marked as Closed.
- If the defect persists, it is reopened for further analysis.

8. Continuous Improvement

Post-project reviews to analyse defect trends and process efficiency.
Update testing and development practices to reduce defects in the future.

IV. EXPERIMENTAL RESULTS

When we have to create a new project we should be login as a administrator.

Login

Use a local account to log in.



The screenshot shows a login form with the following elements:

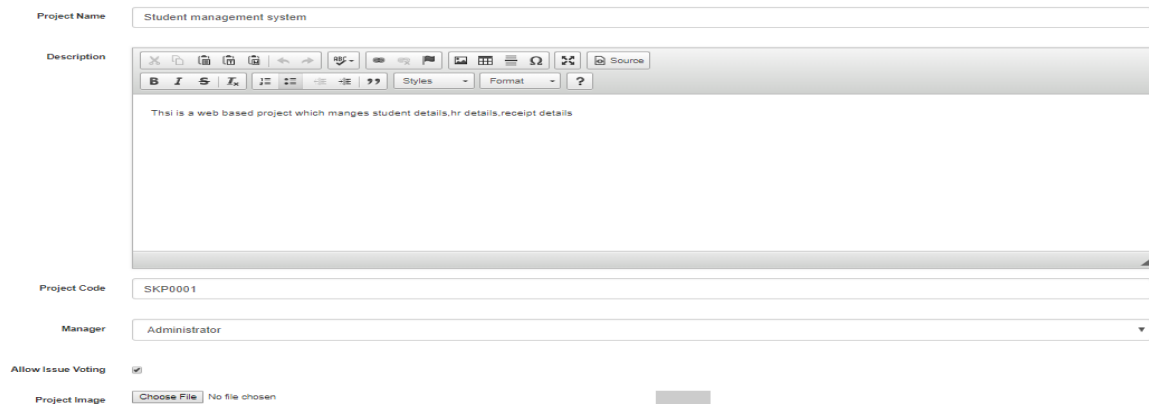
- Username:** A text input field containing the text "admin".
- Password:** A password input field with masked characters "*****".
- Remember me:** A checkbox labeled "Remember me next time." which is currently unchecked.
- Login:** A blue button with the text "Login".
- Forgot your password?:** A blue link below the login button.

Fig 1. Admin Login Page

Project Details

Details

Enter the details for the project.



The screenshot shows a project details form with the following elements:

- Project Name:** A text input field containing "Student management system".
- Description:** A rich text editor area containing the text "This is a web based project which manages student details,hr details,receipt details".
- Project Code:** A text input field containing "SKP0001".
- Manager:** A dropdown menu with "Administrator" selected.
- Allow Issue Voting:** A checked checkbox.
- Project Image:** A "Choose File" button and a "No file chosen" label.

Fig 2. Project Details

Categories:

Categories

When you create an issue, you assign the issue a category. Add categories by clicking the add category button and entering the name of the category. You can add sub-categories by selecting a parent category from the tree view below then entering the child category in the textbox and clicking the add button. To delete a category select the category then click the delete button.

 Add Category  Delete Category





-  PERFORMANCE
-  UI/UX

Fig 3. Create Categories

Status

Status

When you create an issue, you assign the issue a status such as In Progress or Completed. Enter the list of status values below. Each status can be associated with an image.

Status	Image	Is Closed State	Order
 New		<input type="checkbox"/>	▲▼ 
 Open		<input type="checkbox"/>	▲▼ 
 Assigned		<input type="checkbox"/>	▲▼ 
 Fixed		<input type="checkbox"/>	▲▼ 
 Tested		<input type="checkbox"/>	▲▼ 
 Closed		<input checked="" type="checkbox"/>	▲▼ 

Add New Status

Name

Is Closed State

Image None          












Fig 4. Status of the Project

Priorities

Priorities represent the important of an issue, such as High, Medium Low.

Priorities

When you create an issue, you assign the issue a priority such as High, Normal, or Low. Enter the list of priorities below. Each priority can be associated with an image.

	Priority	Image	Order	
	High			
	Normal			
	Low			

Add New Priority

Name











Image None      

Fig 5. Priorities of the Project

Milestones:





Milestones

When creating an issue, you assign the issue a version or milestone such as First, Second, or Third. Enter the list of Milestones below.

	Milestone	Image	Due Date	Release Date	Is Completed	Notes	Order
	Release 1		4/21/2019	5/1/2019	<input type="checkbox"/>		 

Add New Milestone

Name

Image None    

Due Date

Release Date

Completed Milestone

Notes










Fig 6. Milestones of the Project

Issue Types

Issue types identify the type of issue such as a Bug, New Feature or Task.












Issue Types

When you create an issue, you assign the issue a type such as Bug or Task. Enter the list of status values below. Each type can be associated with an image.

Issue Type	Image	Order
Bug		 
Error		 
Task		 

Add New Issue Type

Name

Image None           

Activate Windows
















Fig 7. Issues types

Resolutions:

Resolutions identify how the issue was resolved or fixed.






Resolutions

When you complete an issue or task you can set how the issue was resolved such as fixed, duplicate or not valid.

Resolution	Image	Order
Deferred		 
Rejected		 
Duplicate		 
Not a Bug		 
Fixed		 

Add New Resolution

Name

Image None     

Activate Windows
Go to Settings to activate Windows.






Fig 8. Resolutions of the Project

Security Roles

Several security roles are added by default and can be modified as necessary.

Manage Security Roles

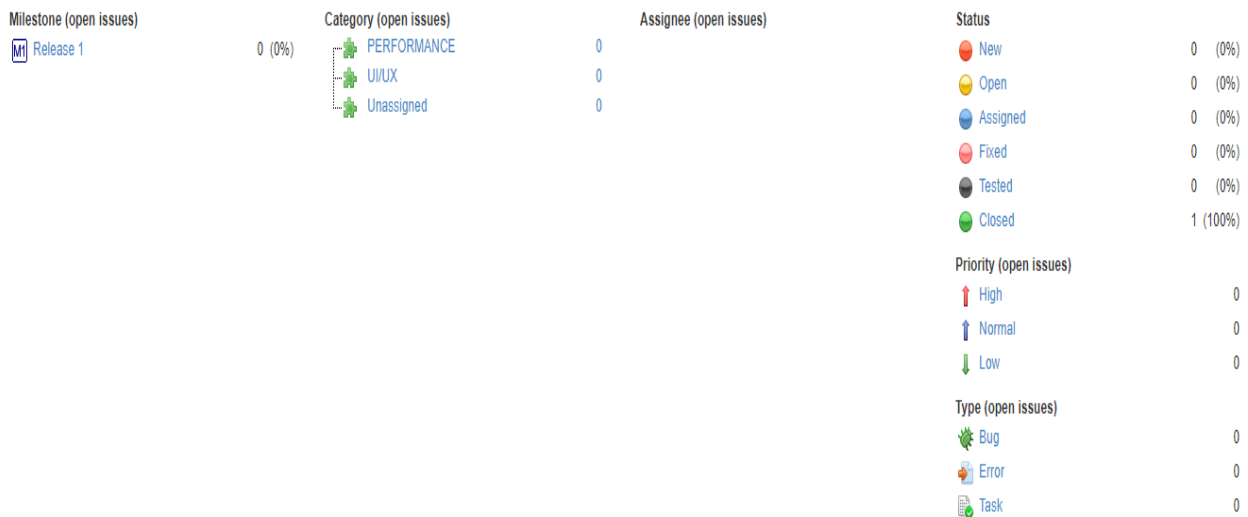
Each project can have its own roles to group like users and permissions. By default when a new project is created several roles are predefined for you. If you need to create a custom role click the add new role button then assign permissions to the role.

Name	Description	Auto Assignment
 Project Administrators	Project Administrators	<input type="checkbox"/>
 Read Only	Read Only	<input type="checkbox"/>
 Reporter	Reporter	<input type="checkbox"/>
 Developer	Developer	<input type="checkbox"/>
 Quality Assurance	Quality Assurance	<input type="checkbox"/>

[Add New Role](#)

Fig 9. Security Roles of the Project

Student management system SKP0001



Powered by Bug Tracking Software 1.0.0.0

Fig 10. New Project

Quality assurance

After creating a project we have to login as a quality assurance [qa]

Login

Use a local account to log in.


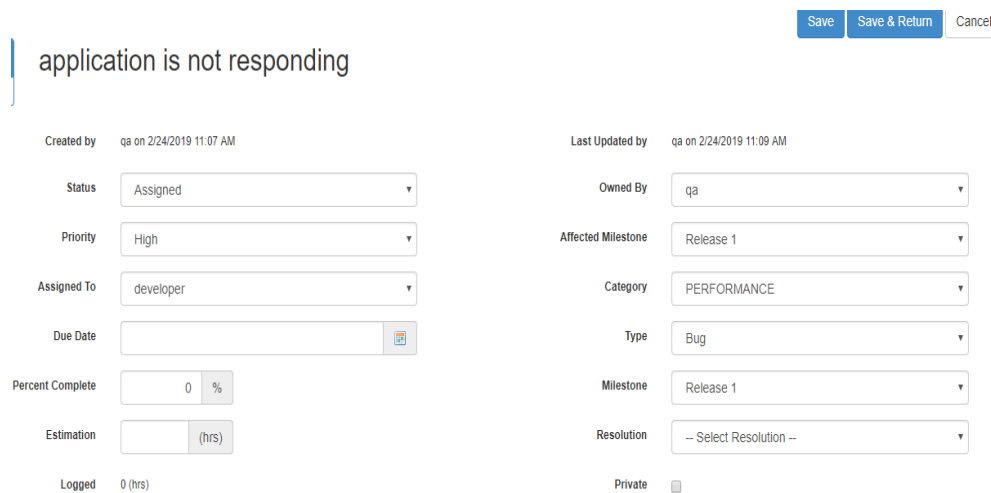


Fig 11 qa Login Page

Here the issue is assigned to the developer the status is[assigned]



Developer:

Here we have to login as a developer

Login

Use a local account to log in.

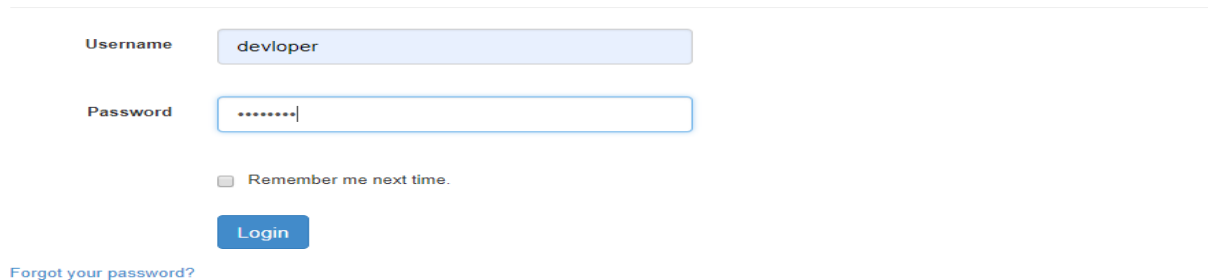


Fig 12. Developer Login Page

When you're logged in as an developer, you will see additional menu such as issues, my issues, new issues ,project.

Issues

View Issues Open Issues ▾

For Selected: [Edit Properties](#) Select columns Export RSS

ID	TITLE
SKP0001-5	application is not responding

1 - 1 of 1 10 Per Page 1

SKP0001-5 Save Save & Return Cancel

1 application is not responding vote

Created by qa on 2/24/2019 11:07 AM

Status Fixed ▾

Priority High ▾

Assigned To manager ▾

Due Date

Milestone Release 1 ▾

Resolution Fixed ▾

Last Updated by qa on 2/24/2019 11:09 AM

Owned By qa ▾

Affected Milestone Release 1 ▾

Category PERFORMANCE ▾

Type Bug ▾

Percent Complete 0 %

Estimation (hrs)

Logged 0 (hrs)

Private

Description
application crashing at login

[Comments \(0\)](#) [Attachments \(0\)](#) [History \(1\)](#) [Notifications \(2\)](#) [Sub Issues \(0\)](#) [Parent Issues \(0\)](#) [Related Issues \(0\)](#) [Revisions \(0\)](#) [Time Tracking \(0\)](#)

There are no comments for this issue.

Leave a comment

fixed by changing the query

Activate Windows
Go to Settings to activate Windows.

Manager

Here we should be login assign a manager

Login

Use a local account to log in.

Username

Password

Remember me next time.

[Forgot your password?](#)

Fig 13. Manager Login Page

Issue Summary For manager

Statistics

(Total Issues)

- Assigned to you: 3
- Created by you: 0
- Owned by you: 0
- Monitored by you: 3
- Closed by you: 0

Project:

View Issues: Exclude closed issues

ID	TITLE	PROJECT	VOTES	CATEGORY	CREATOR	OWNER	ASSIGNED	TYPE
SKP0001-5	application is not responding	Student management system	1	PERFORMANCE	qa	qa	manager	

1 - 1 of 1 Per Page 1

Here the manager is to close the bug what were the roles assigned by the developer.

SKP0001-5

1

vote

application is not responding

Created by: qa on 2/24/2019 11:07 AM

Status:

Priority:

Assigned To:

Due Date:

Milestone:

Resolution:

Last Updated by: developer on 2/24/2019 11:15 AM

Owned By:

Affected Milestone:

Category:

Type:

Percent complete: %

Estimation:

Logged:

Private:

Description
application crashing at login

There are no comments for this issue.

Leave a comment

the application is closed

V. CONCLUSION

It has been a great pleasure for me to work on this exciting and challenging project. This project proved good for me as it provided practical knowledge of not only programming in ASP.NET and VB.NET web based application and no some extent Windows Application and Post Grey SQL, but also about all handling procedure related with “**DEFECT TRACKING SYSTEM**”. It also provides knowledge about the latest technology used in developing web enabled application and client server technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

REFERENCES

- [1]. BUG TRACKING SYSTEM (BTS)- Nitumani Sarmah¹, Samiran Kakoty² IRJET
- [2]. Online Bug Tracking System - Nilesh Zaware, Priyanka Datir, Mauli Balwadkar, Vivek Wadje IRJET
- [3]. Bug Tracking and Reliability Assessment System (BTRAS) V.B. Singh¹, Krishna Kumar Chaturvedi² - International Journal of Software Engineering and its Applications
- [4]. Improving Bug Tracking Systems - Thomas Zimmermann^{1,2}, Rahul Premraj³, Jonathan Sillito² - International Conference on Software Engineering
- [5]. N. Bettenburg, S. Just, A. Schroter, C. Weiss, R. Premraj, and T. Zimmermann. What makes a good bug report? In FSE'08: Proceedings of the 16th International Symposium on Foundations of Software Engineering, pages 308–318, November 2008.
- [6]. S. Breu, J. Sillito, R. Premraj, and T. Zimmermann. Frequently asked questions in bug reports. Technical report, University of Calgary, March 2009
- [7]. S. Artzi, S. Kim, and M. D. Ernst. Recrash: Making software failures reproducible by preserving object states. In ECOOP'08: Proceedings of the 22nd European Object-Oriented Programming Conference, pages 542–565, 2008.
- [8]. J. Anvik, L. Hiew, and G. C. Murphy. Who should fix this bug? In ICSE'06: Proceedings of the 28th International Conference on Software engineering, pages 361–370, 2006.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details