INTRODUCTION

The online bug tracking system is a web application that allows users to track bugs in software projects. The system stores all data in a database, including information about users, projects, bugs, and their interactions.

Users-

The system has three types of users: project managers, developers, and testers.

* Project managers are responsible for creating and managing projects. They can create new projects, add and remove team members, and assign bugs to developers. They can also track the progress of bugs and close bugs.
* Developers are responsible for fixing bugs. They can view bugs that have been assigned to them, and they can mark bugs as closed when they have been fixed. They can also comment on bugs and add attachments.
* Testers are responsible for finding bugs. They can create new bug reports, and they can view the status of bugs that have already been reported. They can also comment on bugs and add attachments.

Projects-

The system can have multiple projects. Each project has a unique project ID, project name, description, start date, status (in-progress or completed), and team members.

Teams-

Every project has a team of members. The members consist of:

* A single project manager
* Multiple developers
* A single tester

BUGS-

Bugs or defects are shortcomings or a flaw in the project, which deviates the actual result from the expected one. Every bug will have a:

* Unique ID
* Title
* Description
* Project name (ID)
* Created by (Testers register the bug)
* Open date
* Assigned to (A project manager assigns a bug to a developer)
* Marked for closing (A developer marks a bug to be closed)
* Closed by (A project manager closes the bug)
* Closed on
* Status (open/closed)
* Severity level (critical/major/minor/trivial)
* Steps to reproduce the bug
* Expected result
* Actual result
* Visual evidence (screenshots, videos, etc.)

SYSTEM FLOW-

The system flow is as follows:

1. A tester finds a bug and creates a new bug report.
2. The bug report is assigned to a developer.
3. The developer fixes the bug and marks the bug as closed.
4. The project manager closes the bug.

SECURITY-

The system is secured using the following measures:

* Username and password authentication
* Role-based access control
* Data encryption

METHODOLOGY USED -

Agile methodology: The agile methodology is an iterative approach to software development. The project is broken down into smaller, more manageable tasks, and these tasks are completed in short cycles. This methodology is well-suited for projects with changing requirements and a need for flexibility.

Here are the steps on how the agile methodology can be used in the online bug tracking system project:

1. Define the project goals and requirements. The first step is to define the project goals and requirements. This will help to ensure that everyone involved in the project is on the same page.
2. Break down the project into smaller tasks. Once the goals and requirements have been defined, the project can be broken down into smaller, more manageable tasks. This will make it easier to track progress and identify potential problems.
3. Estimate the time and resources needed for each task. Once the tasks have been defined, the time and resources needed for each task should be estimated. This will help to create a realistic timeline and budget for the project.
4. Start working on the tasks. Once the timeline and budget have been created, the tasks can be started. The agile methodology typically uses short sprints, which are typically two-week periods where the team focuses on completing a specific set of tasks.
5. Hold daily stand-ups. Daily stand-ups are short meetings where the team members discuss what they worked on the previous day, what they plan to work on today, and any blockers they are facing. These meetings help to keep the team on track and identify potential problems early on.
6. Hold sprint reviews and retrospectives. At the end of each sprint, a sprint review is held to review the work that was completed. This is also a good time to get feedback from stakeholders. A sprint retrospective is held to discuss what went well during the sprint and what could be improved. This information is used to improve the process for the next sprint.
7. Continue iterating until the project is complete. The agile methodology is an iterative process, which means that the project is constantly being refined. This allows the team to adapt to changes in requirements or scope.

The agile methodology is a good fit for the online bug tracking system project because it is flexible and adaptable. The project is likely to have changing requirements, and the agile methodology can help to manage these changes. Additionally, the agile methodology is iterative, which means that the project is constantly being refined. This can help to ensure that the system meets the needs of the users.

Here are some of the benefits of using the agile methodology in the online bug tracking system project:

* Increased flexibility and adaptability
* Reduced risk of project failure
* Improved communication and collaboration
* Faster time to market
* Better quality software

ER DIAGRAM-

+----------------+ +-------------------+

| User | | Project |

+----------------+ +-------------------+

| UserID | | ProjectID |

| Name | | ProjectName |

| Email | | Description |

| UserType | | StartDate |

+----------------+ | Status |

| +------------------+

|

| 1

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+------------+

| Team |

+------------+

| TeamID |

+------------+

|

| N

|

+--------------------------+

| Bug |

+--------------------------+

| BugID |

| Title |

| Description |

| ProjectID |

| CreatedBy |

| OpenDate |

| AssignedTo |

| MarkedForClosing |

| ClosedBy |

| ClosedOn |

| Status |

| SeverityLevel |

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TEST CASE-

Test Case 1: Register

* ID:REG-01
* Description: Test the registration functionality to ensure that all fields are mandatory.
* Steps:
  1. Go to the Register page.
  2. Leave one or more fields blank.
  3. Click the "Register" button.
* Expected Result: The registration should fail and an error message should be displayed.
* ID: REG-02
* Description: Test the registration functionality to ensure that the email address exists and matches with the role.
* Steps:
  1. Go to the Register page.
  2. Enter an email address that does not exist.
  3. Click the "Register" button.
* Expected Result: The registration should fail and an error message should be displayed.
* ID: REG-03
* Description: Test the registration functionality to ensure that the user should not have already been registered.
* Steps:
  1. Register a new user.
  2. Try to register the same user again.
* Expected Result: The registration should fail and an error message should be displayed.

Test Case 2: Create New Project

* ID: CPN-01
* Description: Test the create new project functionality to ensure that the start date should be at least 2 days later than the current date.
* Steps:
  1. Go to the Create New Project page.
  2. Set the start date to today's date.
  3. Click the "Create Project" button.
* Expected Result: The project creation should fail and an error message should be displayed.
* ID: CPN-02
* Description: Test the create new project functionality to ensure that the project status should be set to "in-progress".
* Steps:
  1. Go to the Create New Project page.
  2. Set the project status to "completed".
  3. Click the "Create Project" button.
* Expected Result: The project creation should fail and an error message should be displayed.
* ID: CPN-03
* Description: Test the create new project functionality to ensure that developers can be assigned to only one project.
* Steps:
  1. Go to the Create New Project page.
  2. Add a developer to the project.
  3. Try to add the same developer to the project again.
* Expected Result: The developer should not be added to the project a second time.
* ID: CPN-04
* Description: Test the create new project functionality to ensure that testers can be assigned to a maximum of 2 projects.
* Steps:
  1. Go to the Create New Project page.
  2. Add 3 testers to the project.
* Expected Result: Only 2 testers should be added to the project.
* ID: CPN-05
* Description: Test the create new project functionality to ensure that testers can be assigned to projects only under the same project manager.
* Steps:
  1. Create a project with a project manager.
  2. Create another project with a different project manager.
  3. Try to assign a tester from the first project to the second project.
* Expected Result: The tester should not be assigned to the second project.

ADDITIONAL FEATURES -

The system also includes the following additional features:

* Commenting. Users can comment on bugs to provide additional information or ask questions.
* Attachments. Users can attach files to bugs, such as screenshots or videos.
* Notifications. Users can receive notifications when new bugs are created, assigned to them, or closed.
* Search. Users can search for bugs by title, description, project name, or other criteria.
* Reports. Users can generate reports on bugs, such as the number of bugs open, the number of bugs closed, and the severity of bugs.

CONCLUSION -

The online bug tracking system is a powerful tool for managing bugs in software projects. The system provides a centralized location for storing bug information, tracking the progress of bugs, and communicating with other users. The system also includes a number of additional features that make it easy to use and manage bugs.

FUTURE SCOPE -

Future scope of the online bug tracking system project:

* Integration with other tools. The system could be integrated with other tools, such as version control systems, continuous integration systems, and test automation tools. This would allow users to track bugs from the initial identification to the final resolution.
* Machine learning. Machine learning could be used to automate the process of bug identification and prioritization. This would free up developers to focus on fixing bugs.
* Chatbot. A chatbot could be implemented to answer users' questions about the system. This would make it easier for users to get help and information.
* Mobile app. A mobile app could be developed to allow users to access the system from their mobile devices. This would make it easier for users to track bugs when they are not at their desks.
* Customization. The system could be customized to meet the specific needs of different organizations. This could be done by adding or removing features, or by changing the look and feel of the system.

These are just a few ideas for the future scope of the online bug tracking system project. The specific features and functionality that are implemented will depend on the needs of the users and the organization.