Bug Tracking System

Project Scope

The project is an online bug tracking system for projects. The application allows software testers to report bugs for a project, project managers to view all bugs, assign bugs to developers and developers to update the bug status.

Description

- Information about all the raised bugs should be reported to Project manager.
- It is tester who will inspect and raise bugs whenever needed.
- Bugs get assigned to persons who are responsible for code development.
- All users are to be identified using userid. Some other details like name, email and field that identifies type of user should be added.
- Bugs are raised against projects.
- Projects are assigned to teams hence raised bug should get associated appropriately.
- Once an assigned bug is resolved, it should get reflected in the system. i.e. tracking status of bug is extremely important.
- Severity level of bugs is also important because on basis of it the resolution time and importance is decided.

User Interface Design

The application should have following screens/pages to interact with various users of the application:

1. Application should have single entrypoint with home page which contains navigation to following actions:
    1) **User registration:** This page should allow user to register with the system with required fields. Consider different roles for user as per the above description (i.e. project manager, developer, tester). Apply validation for all the fields.
    2) **Login:** This page should allow user to login to the system with valid credentials.
    3) **Import users:** this page should be able to import users data in json/xml format .
2. Bug Tracking System Main Page **(accessible to Project Manager)**

    - The page should display the user information (Email address, Role and last logged in date and time).
    - Should have a link to create a new project.
    - Should display a list of all projects managed by the project manager. The project name should be a link which should display details of the project.

3. Project Details **(accessible to Project Manager)**

    Displayed when the project manager clicks on the project name in the Bug Tracking system Main Page.

    - **Part I**

- This screen should display the project details (Project Name, start date, project manager and the list of team members with their roles.

➢ **Part II**

- It should display a sortable/filterable list of bugs for the projects.

➢ **Part III**

- Tasks to perform on bugs.
  - Assign a bug to a developer.
  - Close a bug.

4. New Project **(accessible to Project Manager)**

Displayed when the project manager clicks on the create new project link in the Bug Tracking system Main Page.

The page displays a form to create a new project. Fields to display

- Project Name.
- Start Date (Selectable from a dropdown/date/calendar control)
- UI to assign team members to the project.
- Start date should be at least 2 days later than the current date.
- The project status should be set to "In Progress".
- Developers can be assigned to only one project.
- Testers can be assigned to a maximum of 2 projects.
- A project manager can manage a maximum of 4 projects.
- A unique project id should be generated.

5. Bug Tracking system Main Page **(accessible to Tester)**

The page is displayed when a tester logs in to the system.

- The page should display the user information (Username, Email).
- If the user is not assigned to any project, it should display a message saying so.
- If the user is assigned to a project, it should display the list of projects.
- For each project it should display the list of bugs. Link to report a new bug.
- Only bugs created by the tester can be viewed by him/her.

6. Report a New Bug **(accessible to Tester)**

The page is displayed when a tester clicks on the Report a New Bug link from the Bug Tracking system Main Page.

- The page displays a form to report a new bug. Fields to capture.Project Name, Title, Description, Severity Level
- Bugs can be reported only by the tester.
- The tester can report bugs only for projects he/she is assigned to.
- The bugs can be reported only for projects with status in-progress
- A unique id should be generated.
- The createdBy should the tester
- The createdOn should be current date and time.

7. Bug Tracking system Main Page (Role, Developers)

The page is displayed when the developer logs in to the system.

1. The page should display the user information (Username, Email).
2. If the user is not assigned to any project, it should display a message saying so.

3. If the user is assigned to a project, it should display the project details: Project Name, Manager, Start Date, List of members
4. Tasks
    - The developer should be able to mark a bug for closing.
    - A proper UI with validations should be provided.

Test Cases

Write Junit test cases for all scenarios present in the application.

Guidelines

1. Divide your team into two sub teams.
    - **UI Team** - The UI Team will be responsible to design and develop the User Interface with the help of UI Technologies like HTML, CSS, Java Script. All required pages develop with the dummy data.
    - **Back End Team** – The Back End Team will be responsible for designing and developing Business Logic, DAO and Database.

2. Use layered architecture with loose coupling.
3. Functional requirements should be ideally implemented using Aspect-Oriented Programming.
4. Validate all user inputs with proper error handling.
5. The UI should use a layout with a header, footer and sidebar (with navigation links), which should be maintained on all pages.
6. Optional: Explore the various CSS frameworks for designing the UI, The UI should look elegant.

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