

Software Engineering Lab Task 3

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Introduction to JIRA Software:

- JIRA is a proprietary product developed by Atlassian.
- Used for bug tracking, issue tracking, and agile project management.
- Popular among software development teams for planning, tracking, and releasing software projects.
- Provides a centralized platform for managing tasks and organizing work.
- Integrates with other software development tools and offers customizable features.

Uses of JIRA Software

1. Agile Project Management:

- Supports Scrum (sprints) and Kanban (continuous flow) methodologies.
- Helps in creating user stories, managing sprints, and tracking progress.

2. Bug and Issue Tracking:

- Logs, prioritizes, and resolves software bugs effectively.
- Allows assigning tasks with clear deadlines to team members.

3. Task Management:

- Breaks large projects into manageable tasks.
- Monitors status through workflows.

4. Software Development:

- Tracks code changes and manages version control.
- Integrates with CI/CD tools for streamlined development.

5. **Tracking and Reporting:**

- Uses dashboards and charts to monitor project performance.

6. **Team Collaboration:**

- Facilitates seamless communication between teams.
- Centralizes project data for alignment and transparency.

Key Features of JIRA

- Issue Tracking and Custom Workflows
- Reporting and Analytics
- Integrations with other tools
- Automation capabilities
- Task prioritization and user management

JIRA Scheme:

- A JIRA scheme is a collection of values used in one or more JIRA projects.
- Schemes that apply to the entire JIRA project or all issue types within the project include:
 1. Issue Type Scheme
 2. Notification Scheme
 3. Permission Scheme
 4. Issue Security Scheme

System Administration:

JIRA offers several useful features for administrators and users:

➤ Audit Log:

- View details about issues created and changes made.
- Helps in tracking the history and modifications of issues.

➤ Issue Linking:

- Shows if issues are linked to other existing issues.
- Allows deactivating issue linking from the panel.

➤ Mail in JIRA:

- Send issues to an account on a POP or IMAP mail server.
- Messages can be written to the file system generated by an external mail service.

➤ Events:

- Describe the status, default template, notification scheme, and workflow transition post-function associations.
- Classified into System events (JIRA defined) and Custom events (User defined).

➤ Watch List:

- Allows users to watch specific issues and receive notifications about updates.
- Click "watch" in the issue window to start watching an issue.
- Click on the number in brackets to see who is watching your issues.

JIRA Issues and Issue Types:

- Issue: A unit of work that needs to be tracked and managed.
- Issue Types: Categorize and manage work items effectively.
 1. Bug: Error, flaw, or problem in the software.
 2. Improvement: Enhancements or modifications to improve an existing feature.
 3. Task: Specific action or piece of work that needs to be completed.
 4. Epic: Large, high-level body of work broken down into smaller components.
 5. Story: User-focused requirement or feature.

6. Incident: Disruptions, failures, or unexpected problems in services.
7. Sub-Task: Smaller work item created under a larger issue.

JIRA Issue Attributes:

- Attributes describe, organize, and track work efficiently.
 - Summary: Concise title describing the issue.
 - Description: Detailed explanation of the issue.
 - Status: Current progress of the issue (e.g., Open, In Progress, Resolved, Closed).
 - Assignee: Team member assigned to work on the issue.
 - Reporter: Person who identified or reported the issue.
 - Priority: Importance or urgency of the issue (High, Medium, Low).
 - Labels: Tags or keywords for grouping and filtering issues.
 - Components: Sections or sub-parts of a larger project.
 - Fix Version: Software version where the issue will be resolved.

JIRA Software Statuses:

- Statuses track the progress of issues and tasks.
 1. Open: New issue, not yet assigned.
 2. In Progress: Work has begun on the issue.
 3. Resolved: Issue has been fixed but needs verification.
 4. Closed: Issue is completed and finalized.
 5. Reopened: Issue reopened after being previously resolved.
 6. Pending: Issue waiting for input from another team member.
 7. On Hold: Issue temporarily paused.
 8. Deferred: Issue postponed for later.
 9. Done: Issue completed and ready for closure.

JIRA Components:

- Components are core features of JIRA Software, enabled by default.
- Components page displays a list of components and details for each component.
- Includes Name, Description, Lead, Default assignee, Associated issues, etc.
- Add, edit, or delete components on the project's Components page.

Sub-Tasks:

- Split a parent issue into smaller, manageable tasks.
- Components:
 - Sub-Task Issues: Break down issues into smaller tasks for comprehensive addressing.
 - Creation Methods:
 - Create a sub-task under a parent issue.
 - Convert an issue into a sub-task.

Workflows:

- Define the lifecycle of an issue through a set of statuses and transitions.
- Components:
 - Statuses: Represent the positions of issues within a workflow (e.g., Open Issue, Resolved Issue, In Progress Issue, Reopened Issue, Close Issue).
 - Transitions: Bridges between statuses, showing how an issue moves from one status to another.
 - Assignee: The person responsible for the issue.
 - Resolution: Explains why an issue transitions from open to closed.
 - Conditions: Control who can perform a transition.

- Validators: Ensure the transition can happen given the state of the issue.
- Properties: Recognized by JIRA on transitions.

➤ Usage:

- Assign the status of the issue from the window.
- The workflow maps the progress of the project and provides a quick overview of the work in progress.

Plug-ins in JIRA:

- Enhance JIRA's functionality with additional features.
- Examples:
 - Zendesk, Salesforce, GitHub, Gitbucket.
 - Enable support teams to report issues directly into JIRA.
 - Create unlimited private repositories with full-featured issue and test management support.

JIRA Agile:

- Supports Agile methodologies like Scrum and Kanban.
- Components:
 - Agile Board: Shows the progress of sprints and issues.
 - Backlog: Plan sprints and estimate stories.
 - Workflow: Map columns to the statuses of your workflow.

Clone and Link in JIRA:

- Cloning Issues:
 - Allows different teams to work separately on the same issue.
 - Helps resolve issues quickly.
- Issue Linking:
 - Create associations between two existing issues on the same or different JIRA servers.
 - Helps in tracking related issues and their progress.

Reports in JIRA:

- Track progress and provide insights into project performance.
- Types of Reports:
 - Burndown Chart: Shows the actual and estimated amount of work to be done in the sprint.
 - Sprint Report, Epic Report, Version Report, Velocity Chart, Control Chart, Cumulative Flow Diagram.
 - Use different chart options to represent project progress.