

# SOFTWARE ENGINEERING LAB TASK 3

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## Introduction to JIRA Software

JIRA is a proprietary software developed by Atlassian, widely used for:

- **Bug tracking, issue tracking, and agile project management.**
- **Planning, tracking, and releasing** software projects.
- Providing a centralized platform to manage tasks and organize work.
- Integrating with other development tools and offering customizable features.

## Uses of JIRA Software

### 1. Agile Project Management

- Supports Scrum (sprints) and Kanban (continuous flow).
- Helps create user stories, manage sprints, and track progress.

## 2. **Bug and Issue Tracking**

- Logs, prioritizes, and resolves bugs efficiently.
- Assigns tasks with deadlines to team members.

## 3. **Task Management**

- Breaks 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 processes.

## 5. **Tracking and Reporting**

- Dashboards and charts monitor project performance.

## 6. **Team Collaboration**

- Centralizes project data to ensure transparency and alignment.

## **Key Features of JIRA**

- **Issue tracking** and **custom workflows**.
- **Reporting and analytics** tools.
- Integrations with other tools.
- **Automation** capabilities.
- Task prioritization and user management.

## JIRA Scheme

A JIRA scheme is a collection of values applied to one or more projects. Examples include:

1. **Issue Type Scheme:** Defines different types of work items.
2. **Notification Scheme:** Configures notifications for changes.
3. **Permission Scheme:** Manages user permissions for accessing resources.
4. **Issue Security Scheme:** Controls issue visibility.

## System Administration in JIRA

JIRA provides several features for system administration:

- **Audit Log:** Tracks issue history and modifications.
- **Issue Linking:** Links related issues for better tracking.
- **Mail Integration:** Allows sending issues through POP or IMAP servers.
- **Events:** Manages templates, notifications, and workflow transitions.
- **Watch List:** Enables users to monitor updates on specific issues.

## JIRA Issues and Issue Types

- **Issue:** A unit of work to be tracked and managed.
- **Issue Types:** Categorize and manage work effectively.

- Bug: Software error or flaw.
- Improvement: Enhancing existing features.
- Task: Specific work to be completed.
- Epic: Large, high-level work divided into smaller components.
- Story: User-centric requirements or features.
- Incident: Unexpected disruptions or failures.
- Sub-task: Smaller work items under a parent issue.

### **JIRA Issue Attributes**

- **Summary:** Brief title of the issue.
- **Description:** Detailed explanation.
- **Status:** Current progress (e.g., Open, In Progress).
- **Assignee:** Responsible team member.
- **Reporter:** Person who reported the issue.
- **Priority:** Importance (High, Medium, Low).
- **Labels:** Tags for organization and filtering.
- **Components:** Specific project sections.
- **Fix Version:** Target version for resolution.

## **JIRA Software Statuses**

Statuses reflect issue progress:

- Open: Newly created, unassigned issue.
- In Progress: Work started.
- Resolved: Fixed but not verified.
- Closed: Finalized issue.
- Reopened: Issue reopened after resolution.
- Pending: Waiting for input.
- On Hold: Temporarily paused.
- Deferred: Postponed for later.
- Done: Ready for closure.

## **JIRA Components**

- Represent core features of JIRA.
- Details include name, description, lead, and associated issues.
- Manage components via the project's Components page.

## **Sub-Tasks in JIRA**

- Break parent issues into smaller tasks for better organization.
- Created as sub-tasks or by converting existing issues.

## Workflows in JIRA

Workflows define the lifecycle of an issue, including:

- **Statuses:** Positions of issues (e.g., Open, Resolved).
- **Transitions:** Movement between statuses.
- **Conditions:** Control who can transition issues.
- **Validators:** Ensure transitions are valid.
- **Assignee:** Responsible person.

## Plug-ins in JIRA

Plug-ins enhance functionality with additional features.

Examples include:

- Zendesk, Salesforce, GitHub.
- Enable direct issue reporting and management.

## JIRA Agile

Supports Agile methodologies with components like:

- Agile Board: Tracks sprint progress.
- Backlog: Plans and estimates stories.
- Workflow: Maps columns to workflow statuses.

## Clone and Link in JIRA

- **Cloning Issues:** Enables teams to work independently on the same issue.
- **Linking Issues:** Tracks related issues across servers.

## Reports in JIRA

JIRA offers multiple reporting options for tracking progress:

- **Burndown Chart:** Displays work completed vs. remaining.
- **Velocity Chart, Control Chart, Sprint Report, Epic Report:** Provide project insights.