

EXPERIMENT 6

STUDYING AGILE METHODOLOGY AND TEST CASE MANAGEMENT USING JIRA TOOL

Theory:

1. Introduction to Agile Methodology

Agile methodology is an iterative approach to software development and project management that emphasizes flexibility, collaboration, and customer feedback. It helps teams deliver high-quality software in incremental steps rather than following a rigid plan.

1.1 Agile Manifesto

Agile is based on four core values:

1. Individuals and interactions over processes and tools.
2. Working software over comprehensive documentation.
3. Customer collaboration over contract negotiation.
4. Responding to change over following a plan.

1.2 Agile Principles

Agile follows 12 principles, including:

- Customer satisfaction through early and continuous delivery.
- Embracing changing requirements for the customer's competitive advantage.
- Delivering working software frequently.
- Close collaboration between business and development teams.
- Motivated individuals and self-organizing teams.
- Continuous attention to technical excellence.

2. Agile Frameworks

Several frameworks exist under Agile, including:

1. Scrum – A framework for iterative and incremental product development.
2. Kanban – A visual workflow management system.
3. Extreme Programming (XP) – Focuses on engineering practices.
4. Lean Software Development – Focuses on minimizing waste and maximizing value.

2.1 Scrum Framework

Scrum is one of the most popular Agile frameworks. It consists of:

- Scrum Team: Product Owner, Scrum Master, Development Team.
- Scrum Artifacts: Product Backlog, Sprint Backlog, Increment.
- Scrum Events: Sprint Planning, Daily Stand-ups, Sprint Review, Sprint Retrospective.
- Sprint Cycle: A time-boxed period (usually 2-4 weeks) where a team completes selected backlog items.

3. Introduction to Jira

Jira is a popular tool developed by Atlassian for Agile project management, issue tracking, and test case management. It helps teams plan, track, and manage software development projects efficiently.

3.1 Features of Jira

- Customizable dashboards for tracking project progress.
- Issue tracking for creating, assigning, and monitoring tasks.
- Workflow automation to improve efficiency.
- Integration with various development and testing tools.

4. Test Case Management Using Jira

Jira can be used to manage test cases effectively by integrating with testing plugins like Zephyr and Xray.

4.1 Steps to Manage Test Cases in Jira

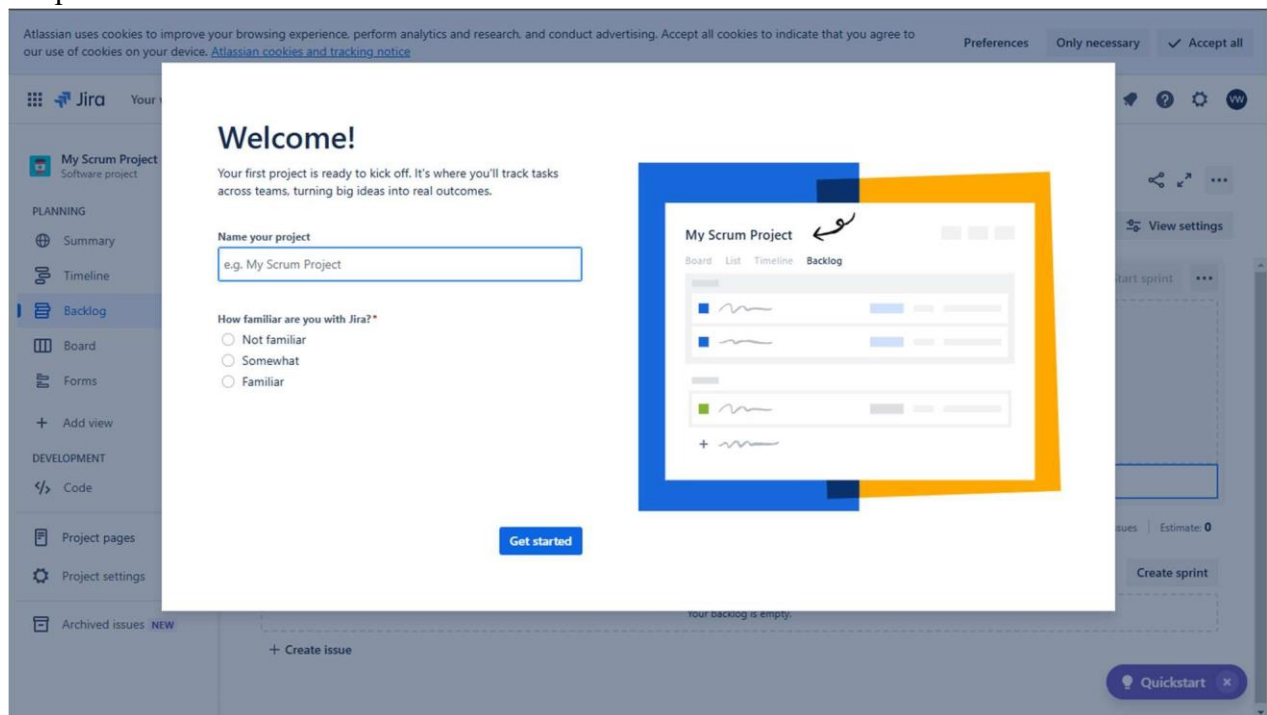
1. Creating a Test Case:
 - o Navigate to the Jira project.
 - o Click on Create Issue and select Test Case (if using Zephyr/Xray). o Define the test case with details such as Test Summary, Preconditions, Test Steps, and Expected Results.
 - o Click Create to save the test case.
2. Executing a Test Case:
 - o Open the created test case.
 - o Click Execute and select the test cycle. o Update the test execution status (Pass, Fail, In Progress, Blocked).
3. Tracking Test Results:
 - o Use Jira dashboards to generate reports on test execution progress.
 - o Analyze defects by linking test cases to bug reports.
4. Integrating Jira with CI/CD Pipelines:

- o Jira can integrate with Jenkins, Bamboo, and other DevOps tools to automate testing workflows.

5. Benefits of Using Jira for Agile and Test Case Management

- Centralized Tracking: All tasks, sprints, and test cases are managed in one place.
 - Collaboration: Teams can communicate and update task statuses in real-time.
 - Customization: Jira can be tailored to fit any workflow.
 - Automation: Reduces manual effort through workflow automation and integration with DevOps tools.
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Output:



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Welcome!

Your first project is ready to kick off. It's where you'll track tasks across teams, turning big ideas into real outcomes.

Name your project

SEPLab6

How familiar are you with Jira?*

☒ Not familiar
☐ Somewhat
☐ Familiar

[Get started](#)

SEPMLab6

Board List Timeline Backlog

0 issues | Estimate: 0

4 Your backlog is empty.

[+ Create issue](#)

[Quickstart](#)

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Jira Your work Projects Filters Dashboards Teams Plans Apps Create 30 days left Search

SEPMLab6 Software project

PLANNING

Summary

Timeline

Backlog

Board

Forms

Goals

+ Add view

DEVELOPMENT

Code

Project pages

Project settings

Archived issues NEW

Projects / My Scrum Project

Backlog

Q Search VW Epic

INSIGHTS View settings

SCRUM Sprint 1 Add dates (0 issues) 0 0 0 Start sprint

Plan your sprint

Drag issues from the Backlog section, or create new issues, to plan the work for this sprint. Select **Start sprint** when you're ready.

[+ Create issue](#)

0 issues | Estimate: 0

Backlog (0 issues) 0 0 0 Create sprint

Your backlog is empty.

[+ Create issue](#)

Quickstart

- ✓ Create a project
- ✓ Create an issue
- ▶ Create Issue | ...

Issues are individual pieces of work that you assign to teammates.

[Show me](#) [View issue tutorial](#)

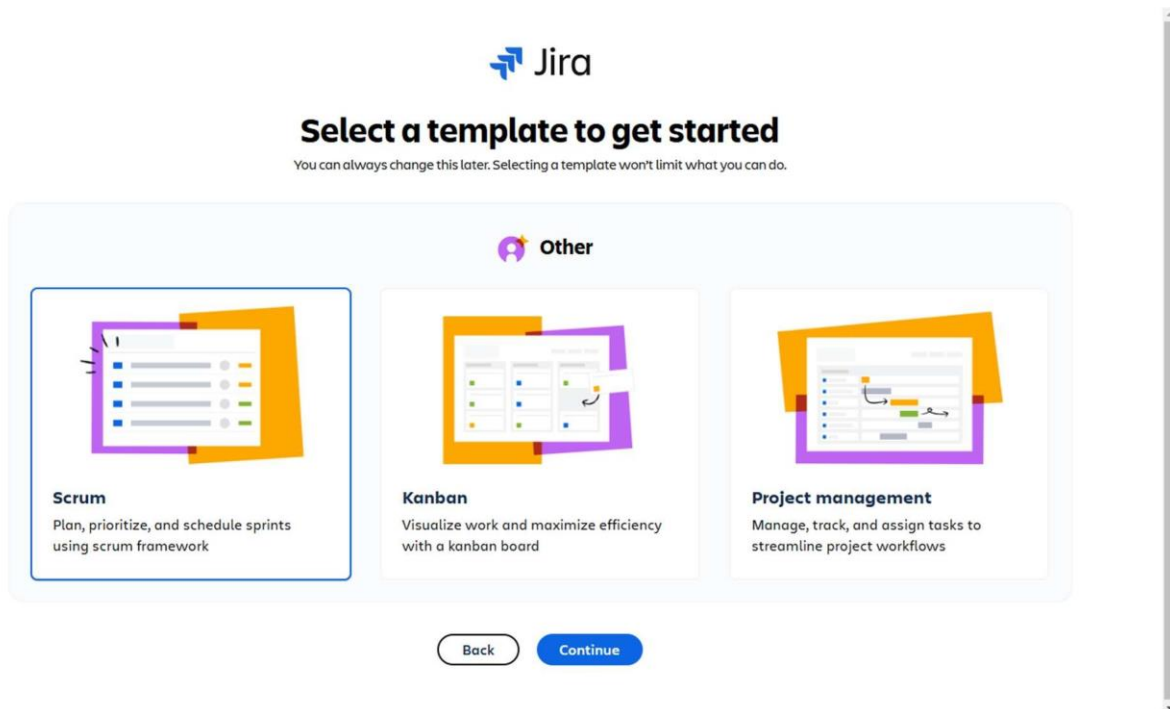
- ✓ Start with the basics
- ✓ Invite your teammates

[Dismiss Quickstart](#)

The image displays two screenshots of the Jira SEPMLab6 project timeline, illustrating the progress of a project over time.

Top Screenshot: The timeline view shows the project SEPMLab6. The left sidebar lists navigation options: Summary, Timeline (selected), Backlog, Board, Forms, Goals, Add view, Code, Project pages, Project settings, and Archived issues. The main area displays the timeline for the month of February. Under the 'Sprints' section, four sprints are listed: SCRUM-1 Web Development, SCRUM-2 Flutter, SCRUM-3 API_Gangster, and SCRUM-4 Data Science. A 'Create Epic' button is visible below the sprints. The right sidebar shows a 'Quickstart' guide with steps: Create a project, Map out your project goals, Identify small chunks of work, Monitor and manage risk, Create an issue, and Start with the basics. A video thumbnail for 'Create Issue' is also present.

Bottom Screenshot: This screenshot shows the same timeline view, but with progress updates. The sprints SCRUM-1 Web Development and SCRUM-4 Data Science are now marked as 'DONE' in green. The other sprints (SCRUM-2 Flutter and SCRUM-3 API_Gangster) remain in the timeline. The 'Quickstart' sidebar is still visible on the right.



Conclusion

This experiment provided an overview of Agile methodology and how Jira is used for project and test case management. Jira enhances Agile practices by improving workflow efficiency, collaboration, and test case execution tracking, making it a valuable tool in modern software development.