Name : Taha Alotwala
Roll No. : 03
Batch : T11

Experiment 6 : Agile Methodology

Aim :

To Study Agile Methodology and Test case Management using JIRA Tool.

Theory :

1.1. Agile Overview

Agile is a methodology focused on delivering small, incremental improvements to a product through short, iterative cycles called **sprints**. The idea is to break the project into smaller, manageable pieces that can be developed and delivered quickly, allowing the team to gather frequent feedback and make necessary adjustments.

The key benefits of Agile include:

- **Flexibility** to adapt to changing requirements.
- **Collaboration** between cross-functional teams.
- **Faster delivery** of product increments to get early feedback from customers.
- **Improved risk management** since any issues can be detected early in the iterative process.

1.2. Agile Manifesto and Principles

The **Agile Manifesto** lays out the philosophy behind Agile development, but it is also supported by 12 principles that further guide how to operate within the Agile framework:

1. **Customer satisfaction through early and continuous delivery** of valuable software.
2. **Welcome changing requirements**, even late in development.

3. **Deliver working software frequently**, with a preference to shorter timescales.

4. **Business people and developers must work together** daily.

5. **Build projects around motivated individuals**, give them the environment and support they need, and trust them to get the job done.

6. **Face-to-face communication** is the most effective way to convey information.

7. **Working software is the primary measure of progress**.

8. **Sustainable development**, where the pace of development can be maintained indefinitely.

9. **Continuous attention to technical excellence** and good design enhances agility.

10. **Simplicity**—the art of maximizing the amount of work not done—is essential.

11. **Self-organizing teams** produce the best architectures, requirements, and designs.

12. **Regular reflection** on how to become more effective, then tuning and adjusting behavior accordingly.

1.3. Popular Agile Frameworks

Scrum

Scrum is one of the most popular Agile frameworks, focusing on **fixed-length iterations** (called **sprints**) that typically last between 2–4 weeks. Scrum has defined roles and ceremonies that help teams organize and manage their work:

- **Roles:**
    - **Product Owner:** Responsible for defining the product backlog (a prioritized list of features and requirements).
    - **Scrum Master:** Facilitates the Scrum process, removes obstacles, and ensures the team adheres to Scrum practices.

    - **Development Team:** A cross-functional group of individuals who work together to deliver product increments.

- **Ceremonies:**

    - **Sprint Planning:** Define goals and break them down into tasks for the sprint.

    - **Daily Standup (Daily Scrum):** A quick daily meeting to share progress and discuss any blockers.

    - **Sprint Review:** A meeting held at the end of the sprint to demonstrate the work completed and gather feedback.

    - **Sprint Retrospective:** A reflection meeting where the team discusses what went well, what could be improved, and actionable improvements for the next sprint.

Kanban

Kanban is a continuous flow-based methodology with an emphasis on **visualizing work** using boards to track the progress of tasks. It doesn't use fixed iterations like Scrum but instead focuses on limiting the number of tasks in progress to improve flow and efficiency.

Extreme Programming (XP)

XP is designed to improve software quality and responsiveness to changing customer requirements. It includes practices such as:

- **Pair programming:** Two developers work on the same code, which increases code quality and spreads knowledge.

- **Test-driven development (TDD):** Writing tests before the code to ensure that the software meets its requirements.

- **Continuous integration:** Frequent code integration to ensure that the software is always in a working state.

Lean

The Lean methodology focuses on eliminating waste, improving efficiency, and maximizing value. This means optimizing the flow of value through the system while

continuously eliminating steps that don’t add value.

---

2. Test Case Management with JIRA

2.1. Introduction to JIRA for Test Case Management

JIRA, developed by Atlassian, is widely used for issue tracking, project management, and as a tool for managing Agile processes. However, JIRA is highly customizable, and when combined with plugins such as **Zephyr** and **Xray**, it becomes a powerful tool for managing test cases and test execution.

JIRA allows teams to:

- **Track bugs** and issues.
- **Organize tasks** and sprints.
- **Document test cases** and **log test results**.
- **Report on test execution** and project progress.

2.2. Key JIRA Features for Test Case Management

Issue Types:

- **Test Case Issue:** In JIRA, a Test Case is typically modeled as an issue, often with the issue type set to "Test". This allows the creation of detailed descriptions of the test case, such as steps, expected outcomes, and priority.
- **Defects (Bugs):** These are logged if a test case fails, helping track problems related to functionality.

Boards:

- **Scrum and Kanban Boards:** JIRA boards (whether Scrum or Kanban) help visualize the status of test cases, tasks, and bugs. You can customize these boards to track the progress of specific issues (such as test cases) through various stages, e.g., "To Do", "In Progress", "In Testing", "Done".

Filters and Dashboards:

JIRA allows the creation of **custom filters** to find specific test cases or bugs. For

example, you could filter by:

- Test cases linked to a specific Epic or User Story.
- Test cases with a status of "Failed".
- Test cases assigned to a specific tester or developer.

Dashboards allow you to create custom views where you can track important metrics like:

- Total number of test cases passed/failed.
- Number of defects reported per sprint.
- Burndown charts tracking test progress during the sprint.

2.3. Managing Test Cases in JIRA

Creating Test Cases:

- In JIRA, test cases are often created as individual **issues**. With **Zephyr** or **Xray** plugins, you can add more sophisticated attributes to each test case:
    - **Test Steps:** Each test case can include individual steps, expected outcomes, and actual outcomes.
    - **Test Data:** Details on the data required for testing.
    - **Priority:** Set the priority of the test case based on business importance.

Executing Test Cases:

- Once test cases are created, they are executed in **Test Execution** sessions.
- In **Zephyr**, testers can run the tests directly from the JIRA interface, and results are logged automatically.
- After execution, the results can be marked as:
    - **Pass** (if the test works as expected),
    - **Fail** (if the test does not meet expectations),

- **Blocked** (if there's an issue preventing the test from running, such as a dependency on another task or defect).

Defects Reporting:

- When a test case fails, JIRA allows testers to create a **Defect** issue, which is typically linked to the failing test case. This allows for traceability between test results and issues that need resolution.

- **Defects** can be assigned to developers, prioritized, and tracked through their lifecycle, ensuring that critical bugs are fixed in a timely manner.

Test Case Execution Reporting:

- JIRA generates various reports (e.g., **Test Execution Report**, **Test Summary Report**) to show how many test cases were executed, how many passed, and how many failed. This can be used for **Sprint Review** and to measure quality over time.

2.4. Best Practices for Test Case Management in JIRA

- **Use Custom Workflows:** Customize workflows to meet the needs of your testing process. For example, you can create a "Test Execution" workflow where each step (e.g., Test Passed, Test Failed, Defect Raised) has specific transitions and actions.

- **Version Control:** Ensure that test cases are versioned, especially when managing test cases across different releases. This helps avoid confusion when a test case changes, as teams can reference the test case by version.

- **Automation Integration:** Integrating JIRA with test automation frameworks like **Selenium** or **Cucumber** can provide real-time test results and save time in manual execution.

- **Traceability:** Ensure that each test case is linked to specific **User Stories**, **Epics**, or **Requirements** so that stakeholders can easily trace the test cases back to the original business requirements.

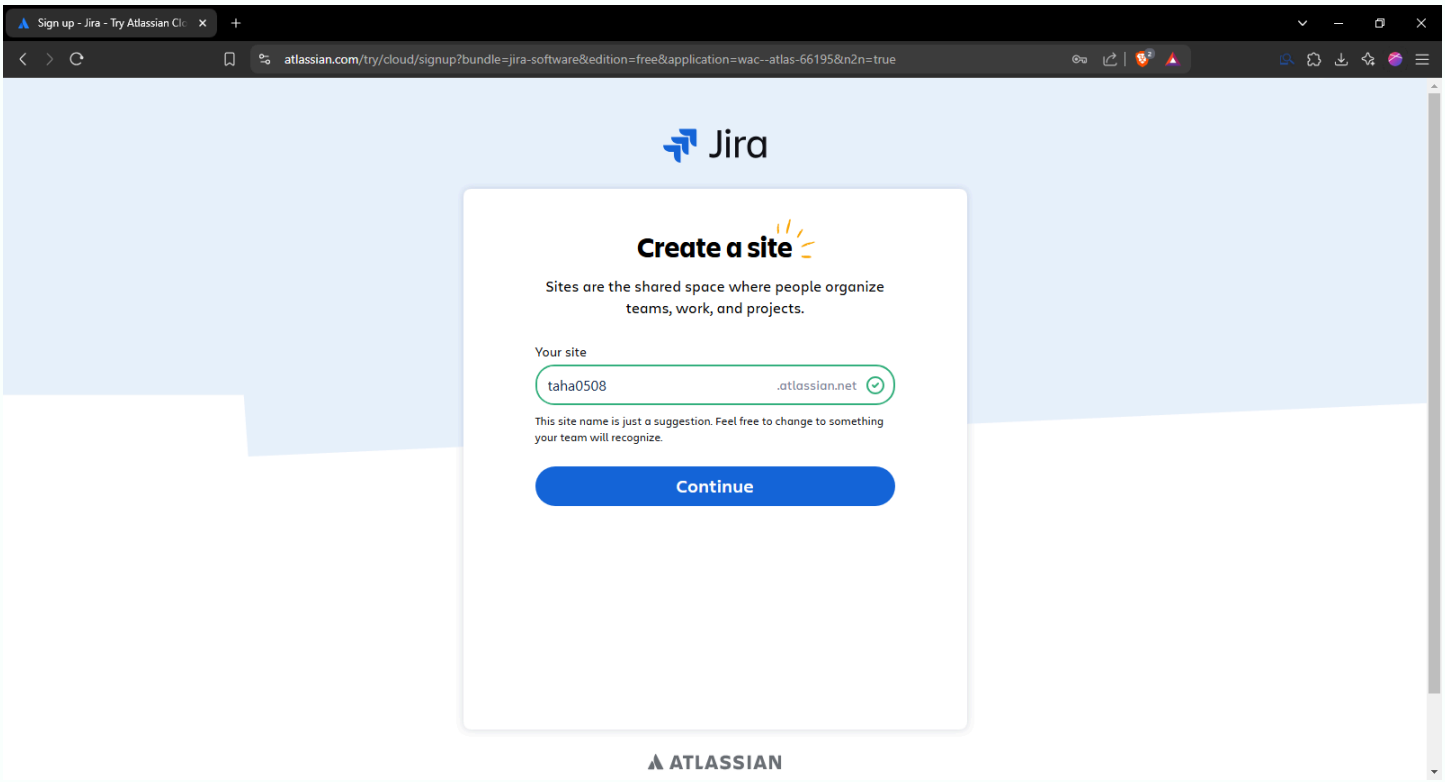
2.5. Reporting and Metrics

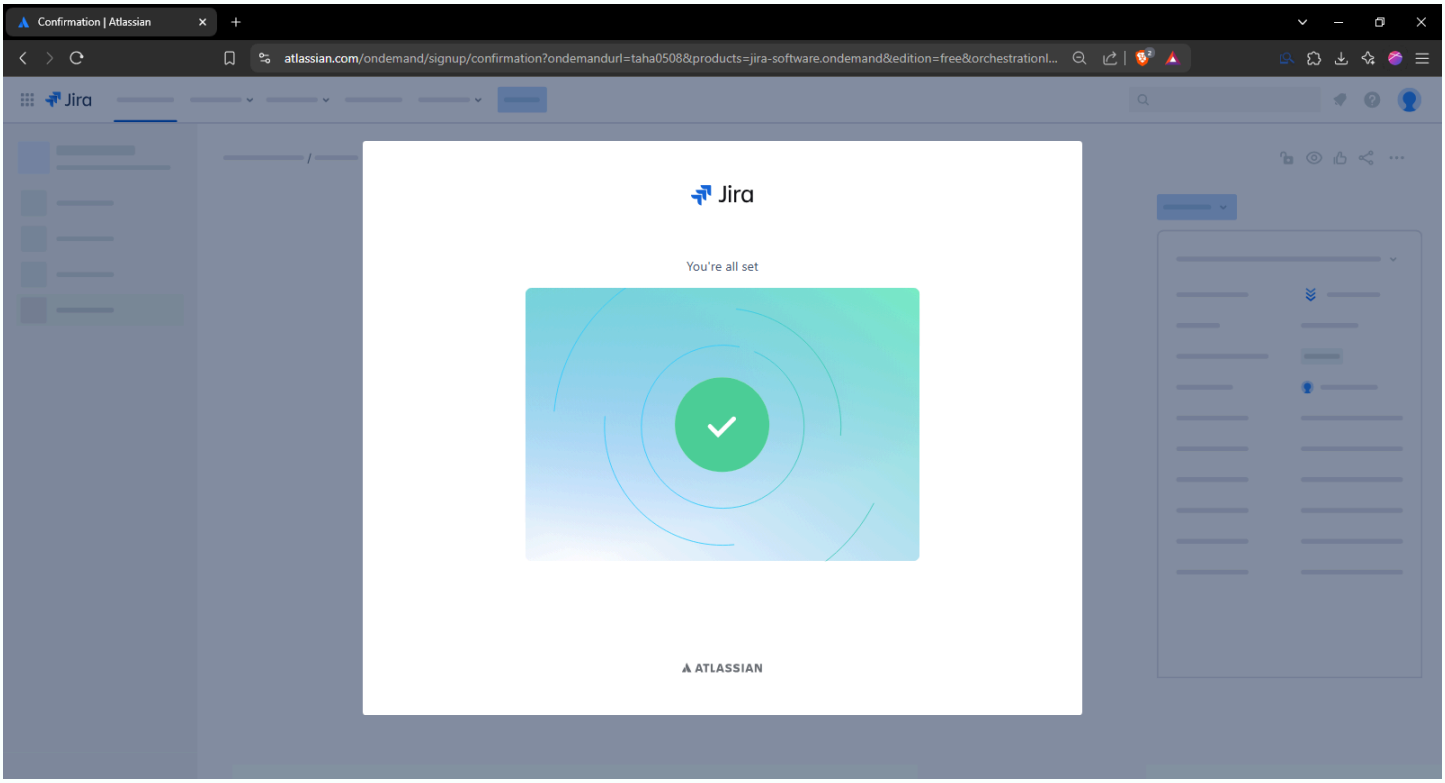
JIRA provides several out-of-the-box and customizable reports for **test case**

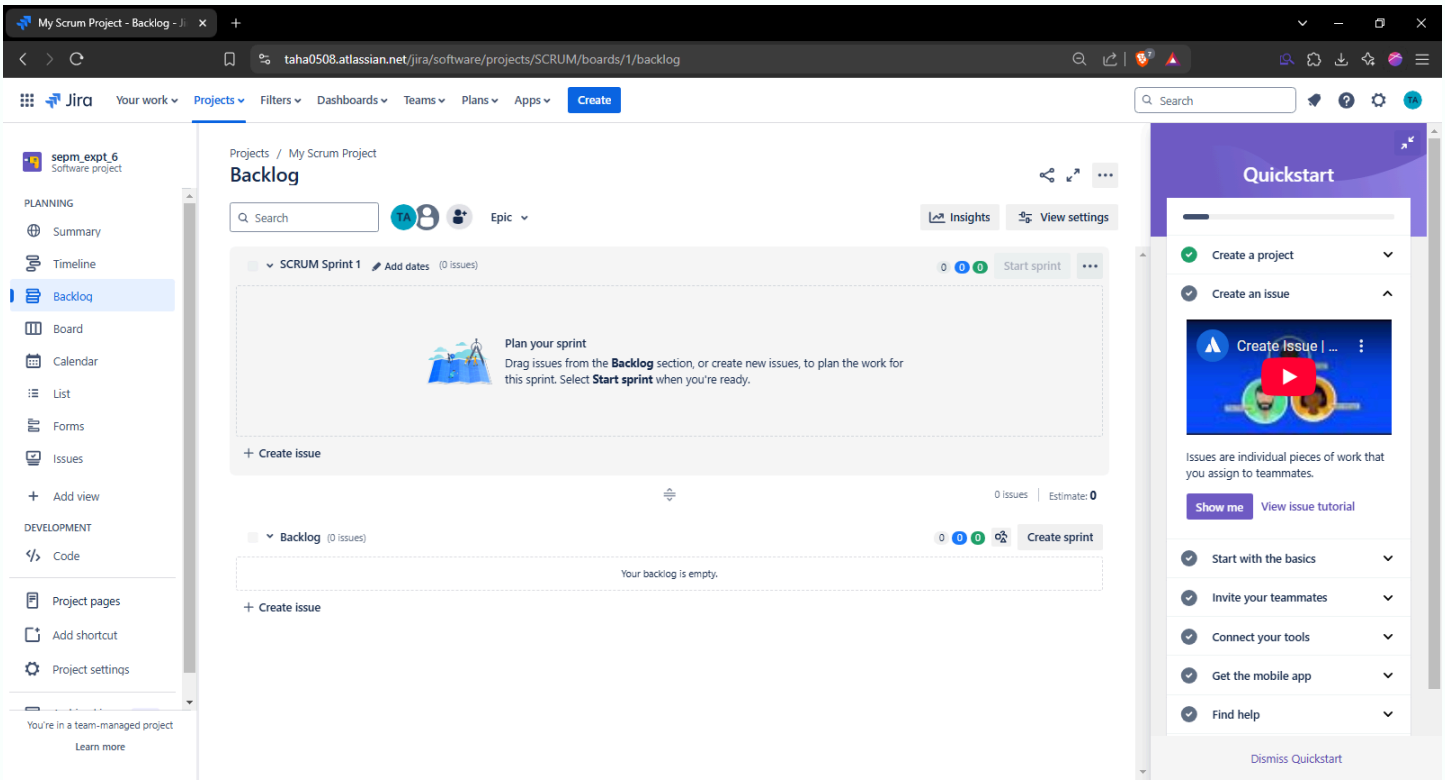
management:

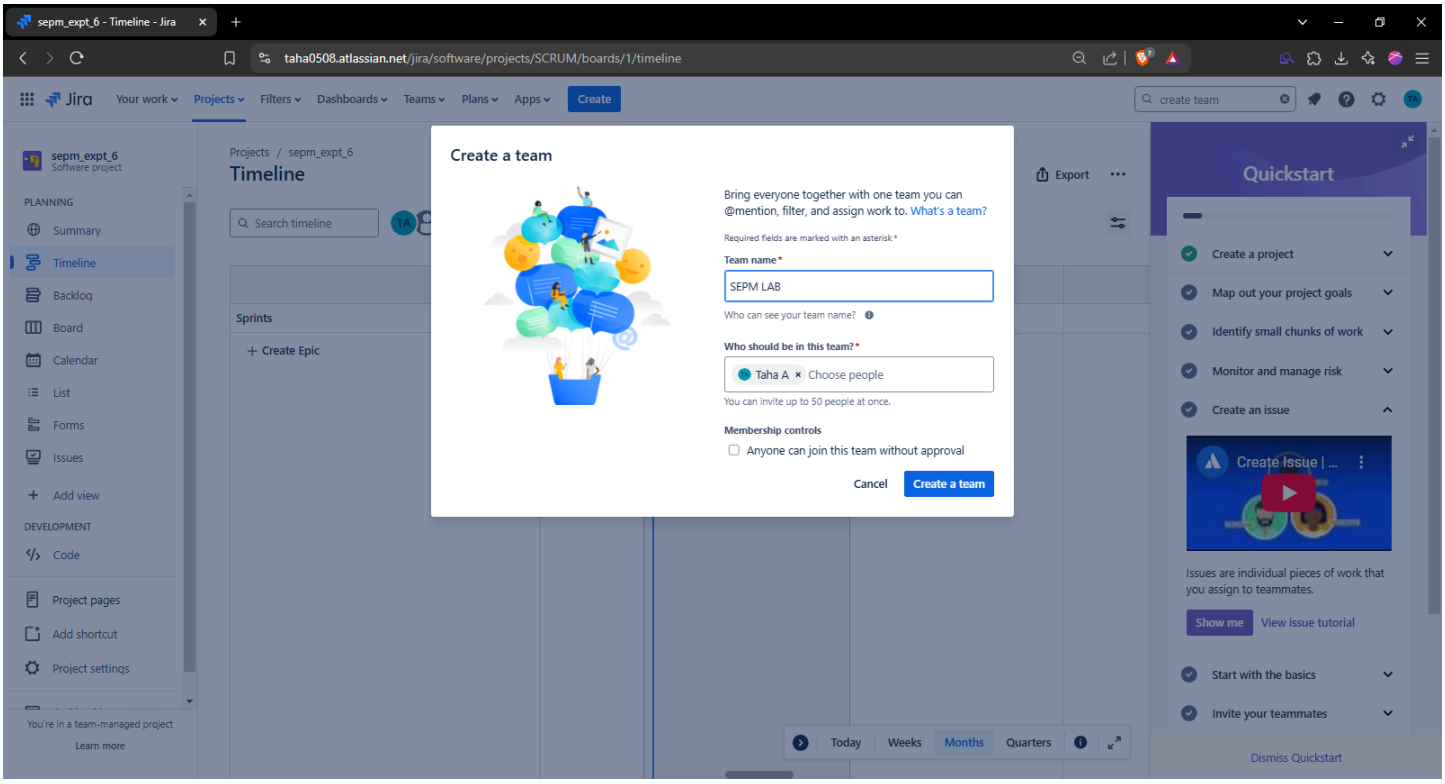
- **Burndown Charts**: Track the progress of test case execution across sprints.
- **Test Execution Reports**: Provides a summary of how many tests have passed, failed, or are blocked.
- **Defect Reports**: Track defects linked to test failures, and see trends in defect resolution.

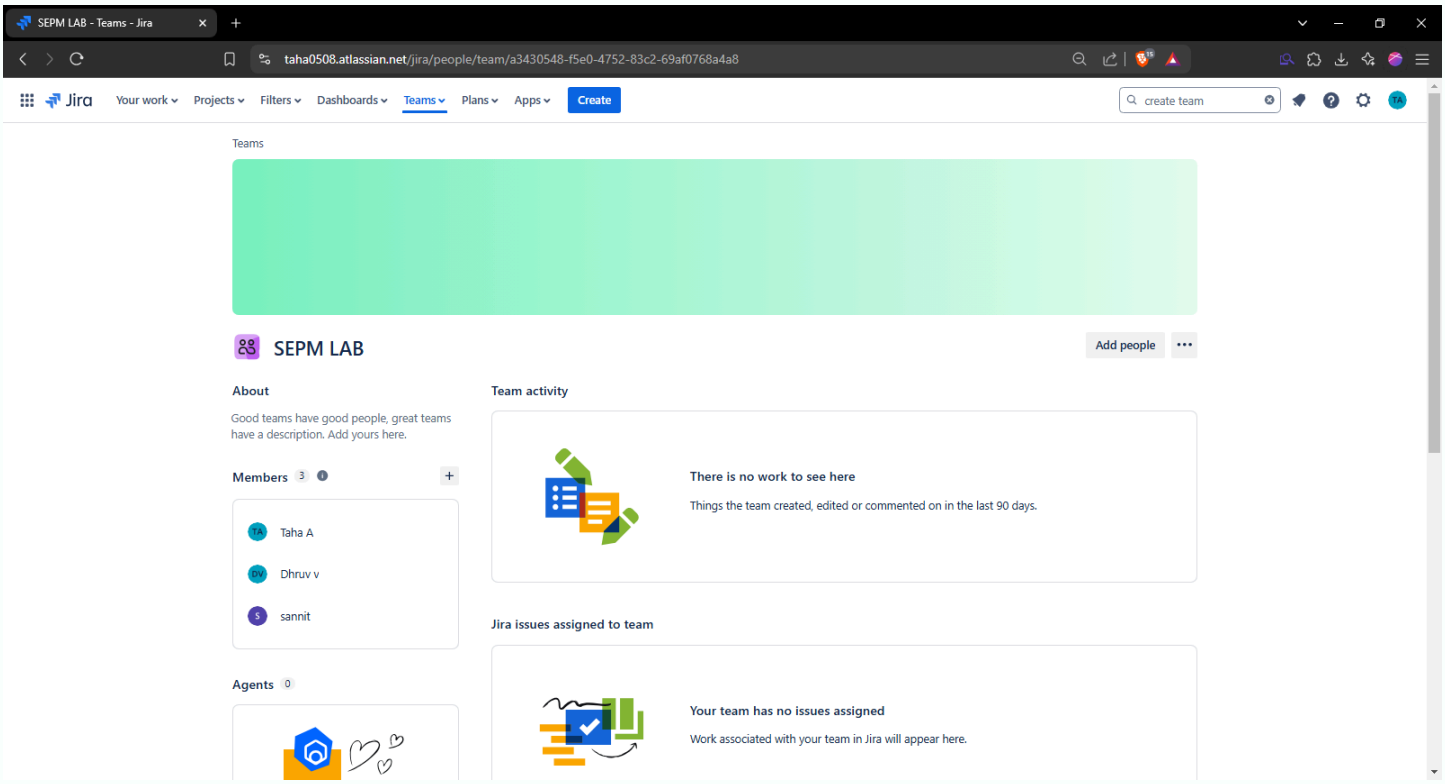
Output :

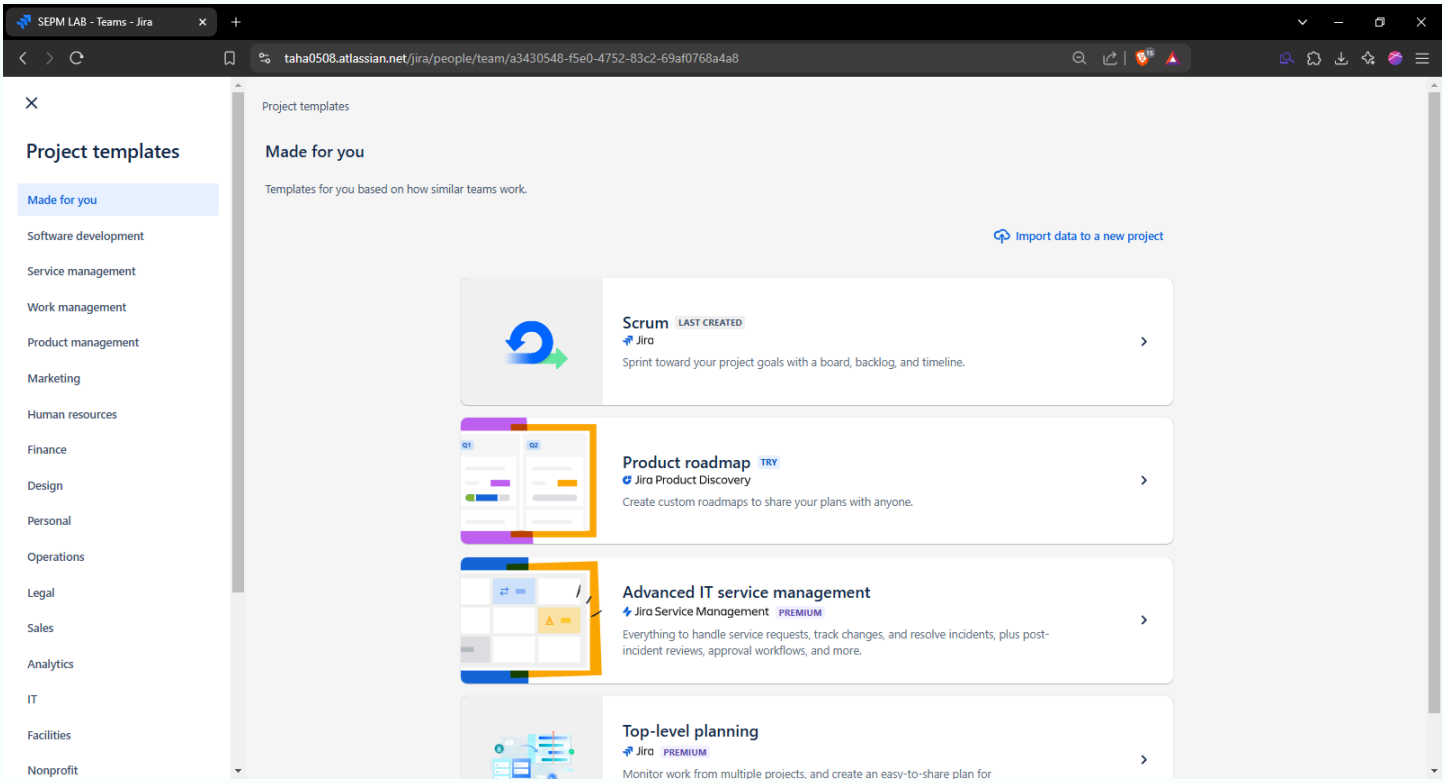


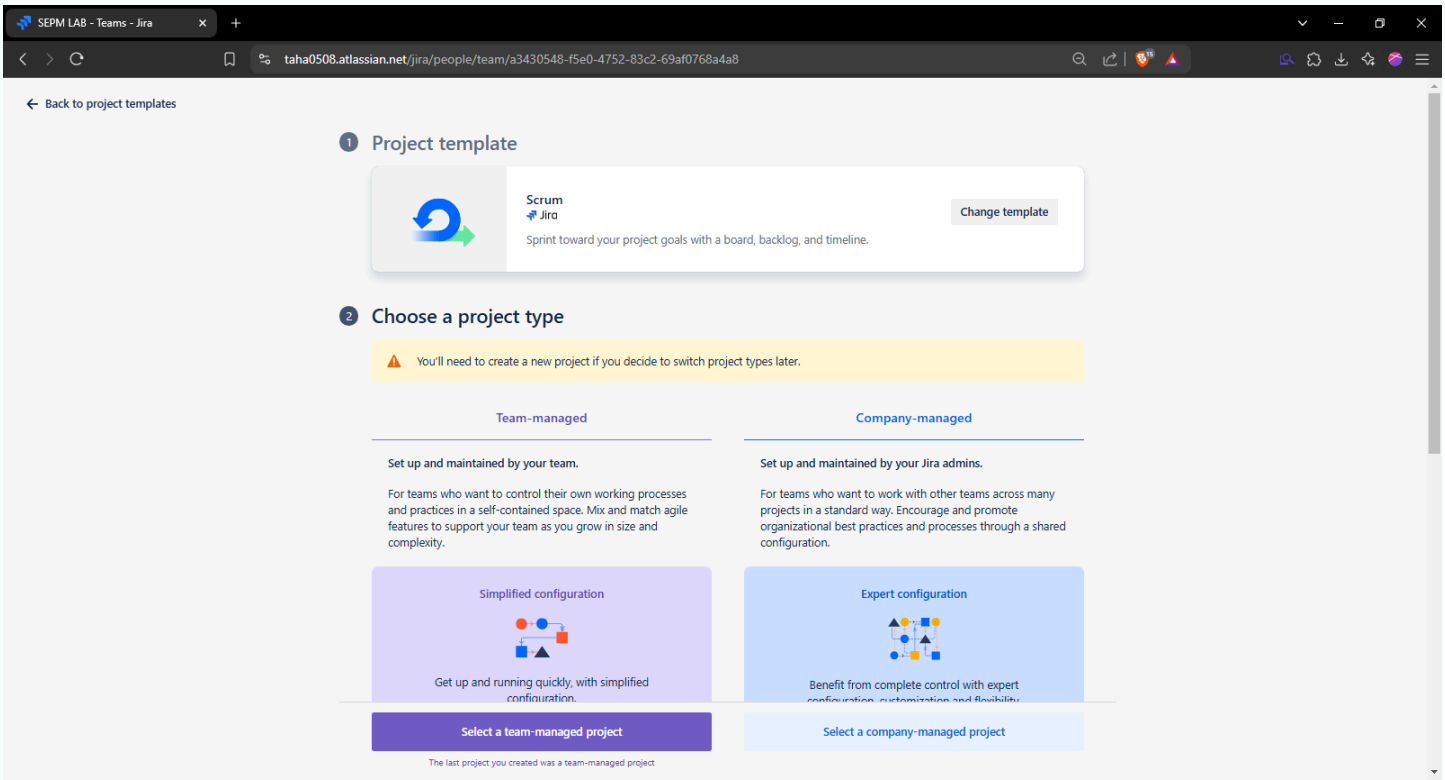

Confirmation | Atlassian
atlassian.com/ondemand/signup/confirmation?ondemandurl=taha0508&products=jira-software.ondemand&edition=free&orchestrationl...
Jira
Jira
You're all set
ATLASSIAN

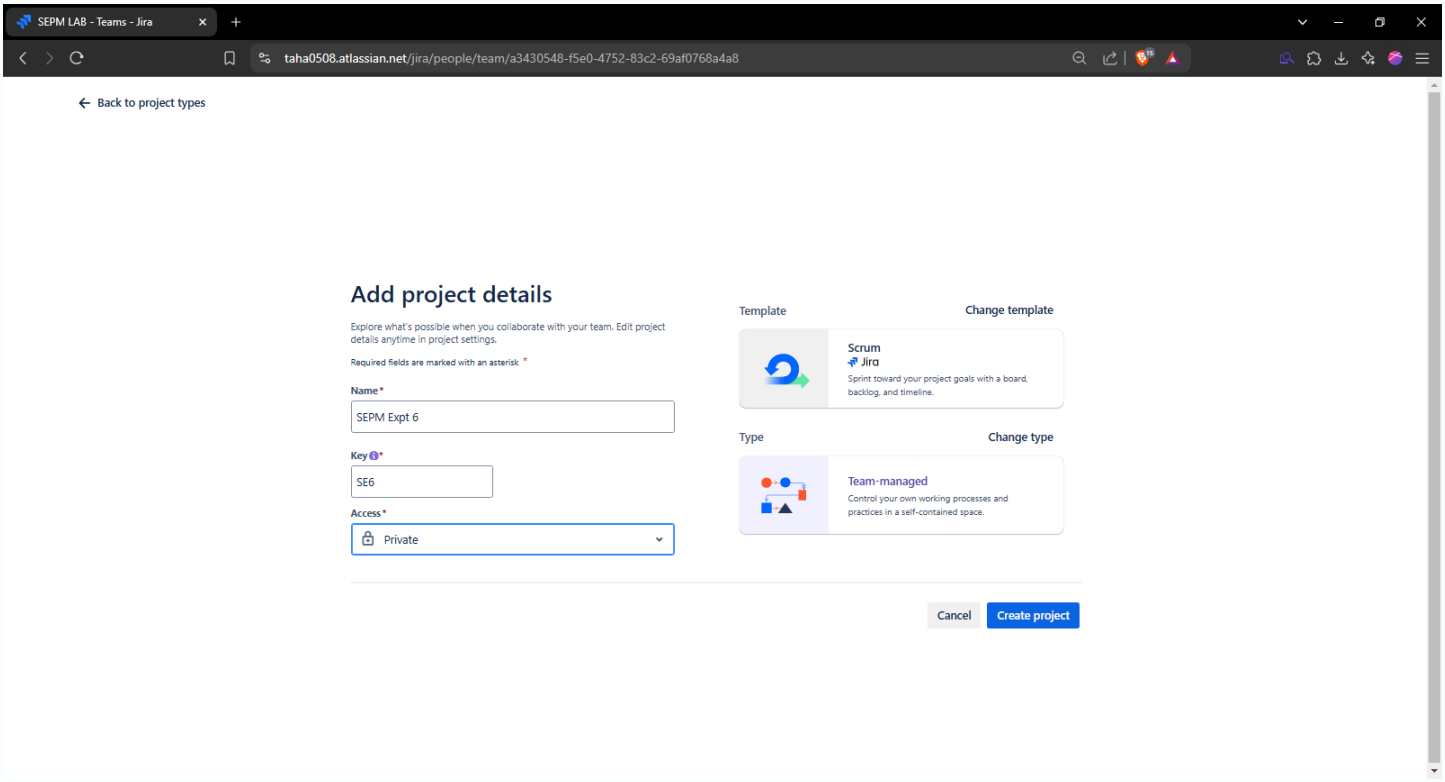

My Scrum Project - Backlog - Ji
taha0508.atlassian.net/jira/software/projects/SCRUM/boards/1/backlog
Jira
Your work
Projects
Filters
Dashboards
Teams
Plans
Apps
Create
Search
sepm_expt_6
Software project
PLANNING
Summary
Timeline
Backlog
Board
Calendar
List
Forms
Issues
Add view
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / My Scrum Project
Backlog
Search
Epic
Insights
View settings
SCRUM Sprint 1
Add dates
(0 issues)
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)
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
Connect your tools
Get the mobile app
Find help
Dismiss Quickstart

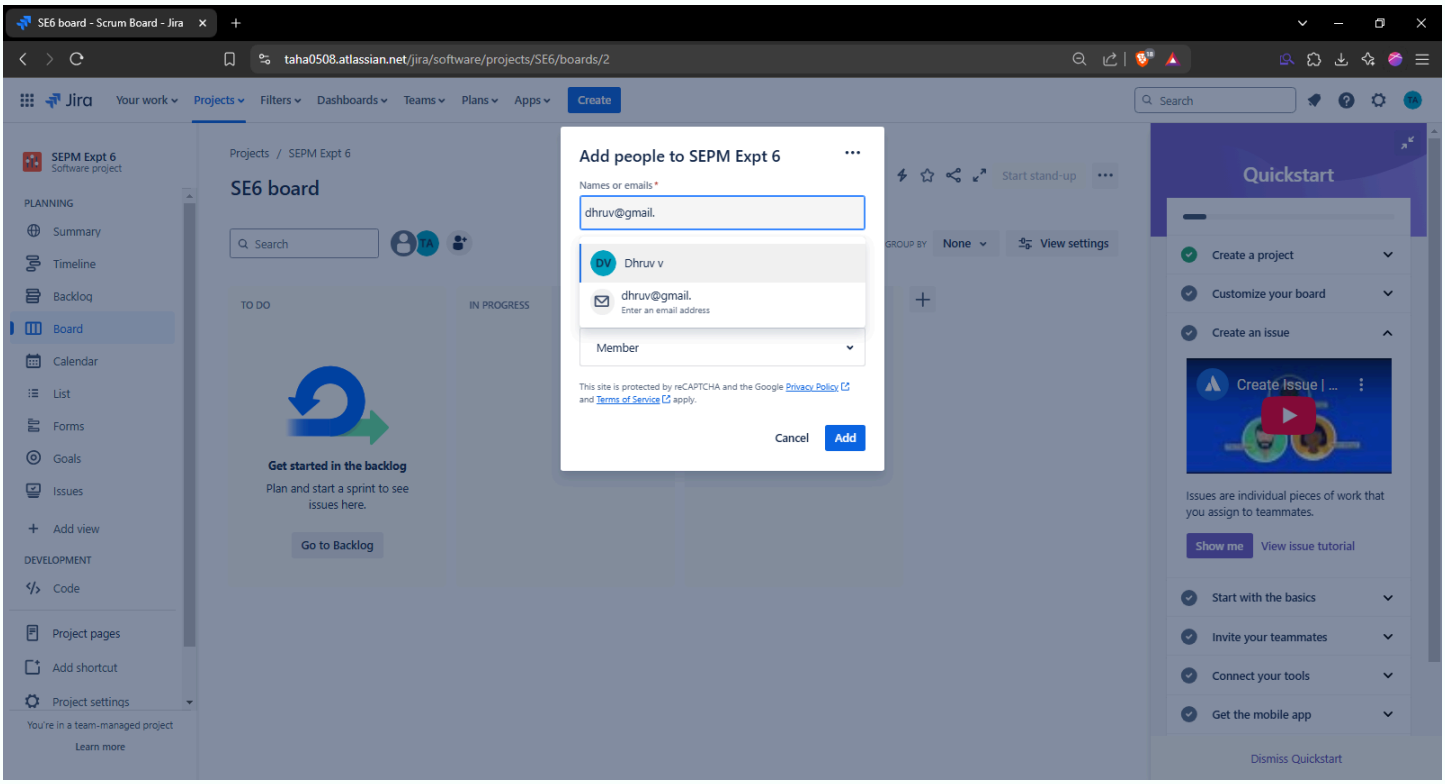

sepm_expt_6 - Timeline - Jira
taha0508.atlassian.net/jira/software/projects/SCRUM/boards/1/timeline
Jira
Your work
Projects
Filters
Dashboards
Teams
Plans
Apps
Create
create team
sepm_expt_6
Software project
PLANNING
Summary
Timeline
Backlog
Board
Calendar
List
Forms
Issues
Add view
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / sepm_expt_6
Timeline
Search timeline
Sprints
+ Create Epic
Export
Today
Weeks
Months
Quarters
Create a team
Bring everyone together with one team you can @mention, filter, and assign work to. What's a team?
Required fields are marked with an asterisk *
Team name *
SEPM LAB
Who can see your team name?
Who should be in this team? *
Taha A
Choose people
You can invite up to 50 people at once.
Membership controls
Anyone can join this team without approval
Cancel
Create a team
Quickstart
Create a project
Map out your project goals
Identify small chunks of work
Monitor and manage risk
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

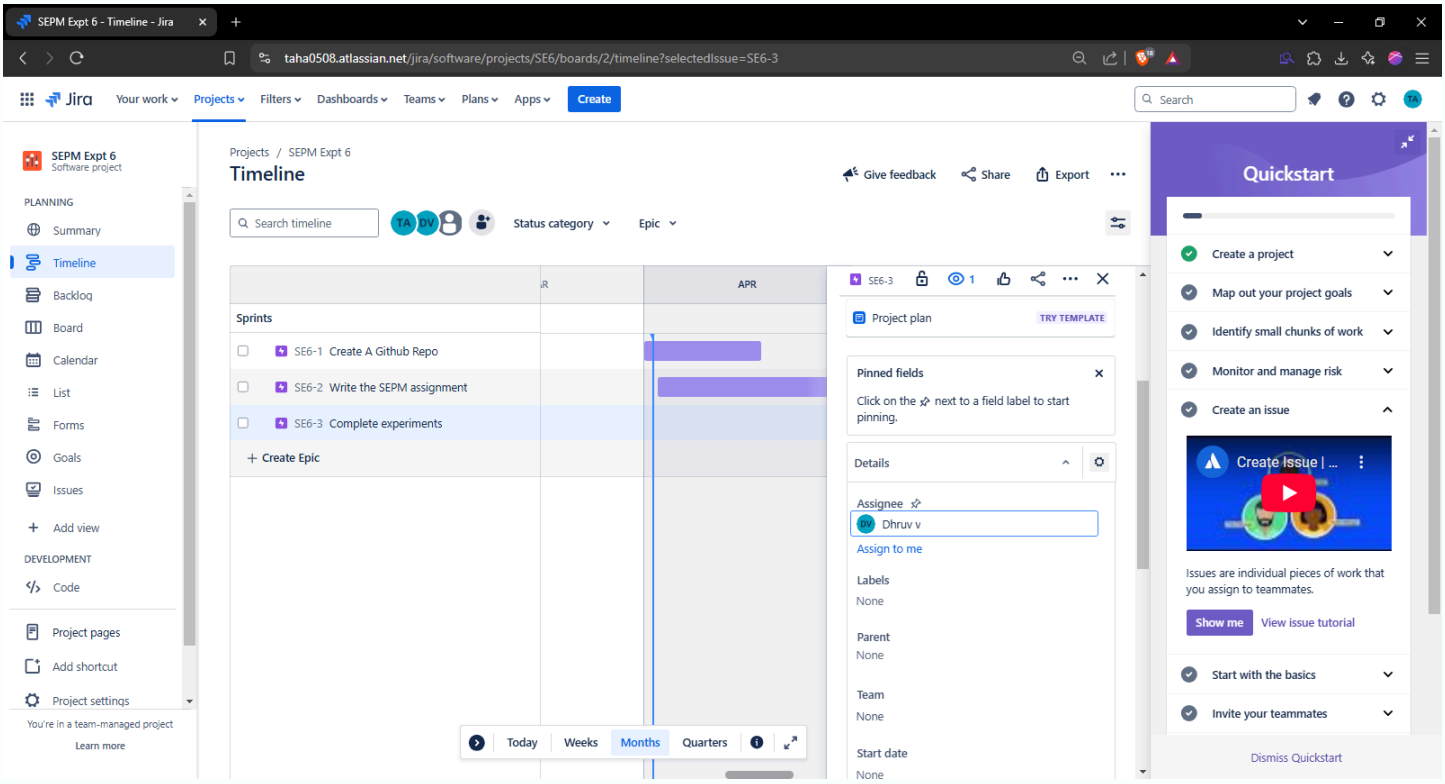

SEPM LAB - Teams - Jira
taha0508.atlassian.net/jira/people/team/a3430548-f5e0-4752-83c2-69af0768a4a8
Jira
Your work
Projects
Filters
Dashboards
Teams
Plans
Apps
Create
create team
Teams
SEPM LAB
Add people
About
Good teams have good people, great teams have a description. Add yours here.
Members 3
Taha A
Dhruv v
sannit
Agents 0
Team activity
There is no work to see here
Things the team created, edited or commented on in the last 90 days.
Jira issues assigned to team
Your team has no issues assigned
Work associated with your team in Jira will appear here.

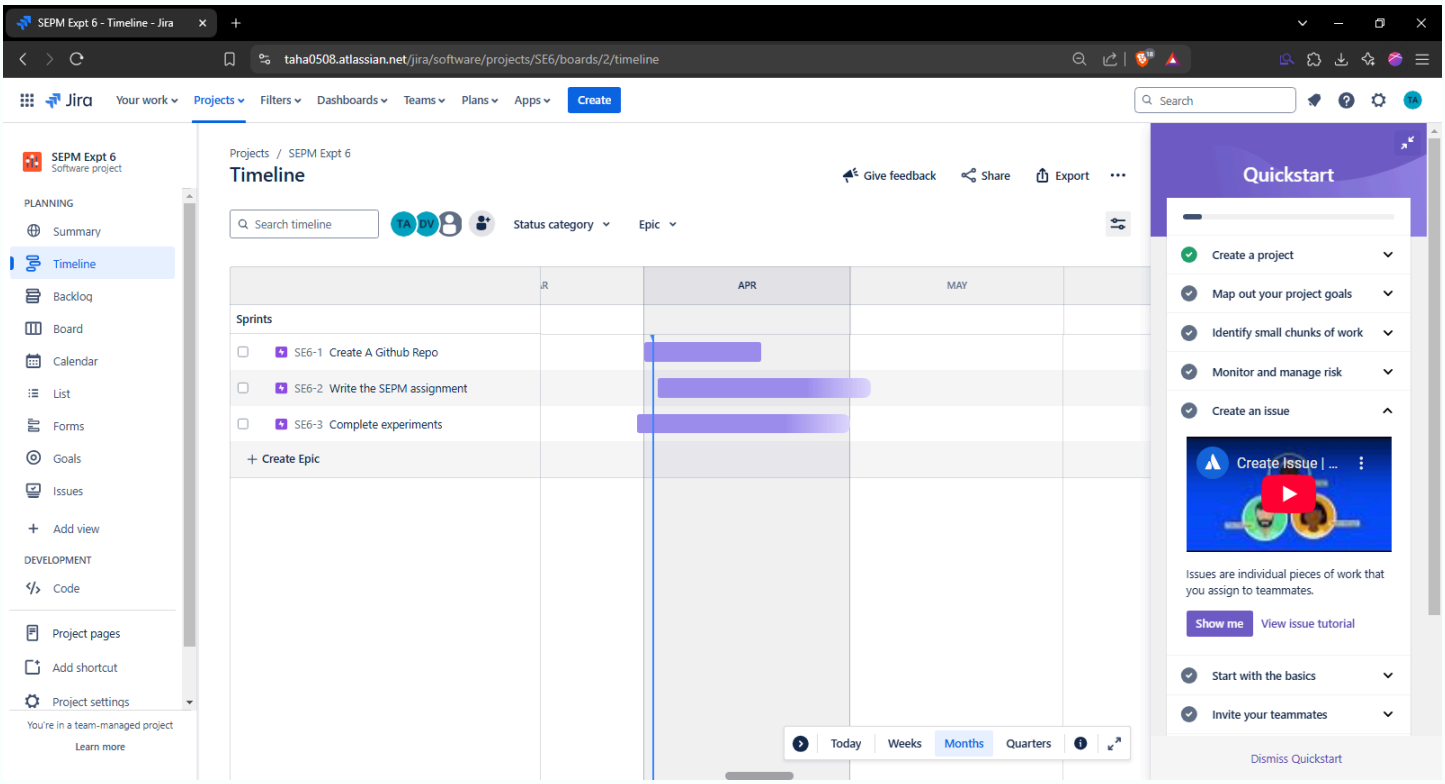

SEPM LAB - Teams - Jira
taha0508.atlassian.net/jira/people/team/a3430548-f5e0-4752-83c2-69af0768a4a8
Project templates
Made for you
Templates for you based on how similar teams work.
Import data to a new project
Made for you
Software development
Service management
Work management
Product management
Marketing
Human resources
Finance
Design
Personal
Operations
Legal
Sales
Analytics
IT
Facilities
Nonprofit
Scrum LAST CREATED
Jira
Sprint toward your project goals with a board, backlog, and timeline.
Product roadmap TRY
Jira Product Discovery
Create custom roadmaps to share your plans with anyone.
Advanced IT service management
Jira Service Management PREMIUM
Everything to handle service requests, track changes, and resolve incidents, plus post-incident reviews, approval workflows, and more.
Top-level planning
Jira PREMIUM
Monitor work from multiple projects, and create an easy-to-share plan for

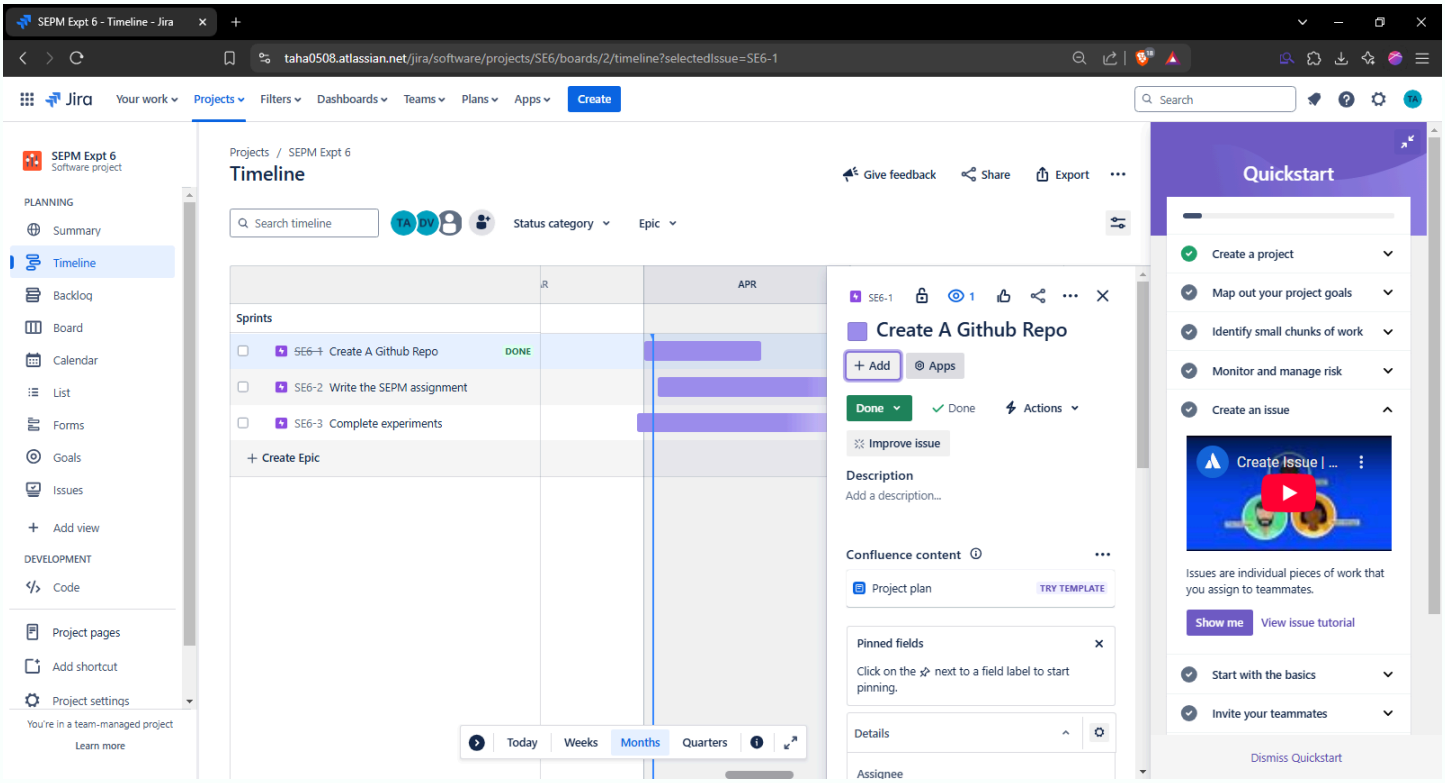

SEPM LAB - Teams - Jira
taha0508.atlassian.net/jira/people/team/a3430548-f5e0-4752-83c2-69af0768a4a8
Back to project templates
1 Project template
Scrum
Jira
Sprint toward your project goals with a board, backlog, and timeline.
Change template
2 Choose a project type
You'll need to create a new project if you decide to switch project types later.
Team-managed
Set up and maintained by your team.
For teams who want to control their own working processes and practices in a self-contained space. Mix and match agile features to support your team as you grow in size and complexity.
Simplified configuration
Get up and running quickly, with simplified configuration.
Select a team-managed project
The last project you created was a team-managed project
Company-managed
Set up and maintained by your Jira admins.
For teams who want to work with other teams across many projects in a standard way. Encourage and promote organizational best practices and processes through a shared configuration.
Expert configuration
Benefit from complete control with expert
Select a company-managed project


SEPM LAB - Teams - Jira
taha0508.atlassian.net/jira/people/team/a3430548-f5e0-4752-83c2-69af0768a4a8
Back to project types
Add project details
Explore what's possible when you collaborate with your team. Edit project details anytime in project settings.
Required fields are marked with an asterisk *
Name*
SEPM Expt 6
Key*
SE6
Access*
Private
Template
Change template
Scrum
Jira
Sprint toward your project goals with a board, backlog, and timeline.
Type
Change type
Team-managed
Control your own working processes and practices in a self-contained space.
Cancel
Create project


SE6 board - Scrum Board - Jira
taha0508.atlassian.net/jira/software/projects/SE6/boards/2
Jira
Your work
Projects
Filters
Dashboards
Teams
Plans
Apps
Create
Search
SEPM Expt 6
Software project
PLANNING
Summary
Timeline
Backlog
Board
Calendar
List
Forms
Goals
Issues
Add view
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / SEPM Expt 6
SE6 board
Search
TO DO
IN PROGRESS
Get started in the backlog
Plan and start a sprint to see issues here.
Go to Backlog
Add people to SEPM Expt 6
Names or emails*
dhruv@gmail.
DV
Dhruv v
dhruv@gmail.
Enter an email address
Member
This site is protected by reCAPTCHA and the Google Privacy Policy and Terms of Service apply.
Cancel
Add
Start stand-up
GROUP BY
None
View settings
Quickstart
Create a project
Customize your board
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
Connect your tools
Get the mobile app
Dismiss Quickstart


SEPM Expt 6 - Timeline - Jira
taha0508.atlassian.net/jira/software/projects/SE6/boards/2/timeline?selectedIssue=SE6-3
Jira
Your work
Projects
Filters
Dashboards
Teams
Plans
Apps
Create
Search
SEPM Expt 6
Software project
PLANNING
Summary
Timeline
Backlog
Board
Calendar
List
Forms
Goals
Issues
Add view
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / SEPM Expt 6
Timeline
Give feedback
Share
Export
Search timeline
Status category
Epic
APR
Sprints
SE6-1 Create A Github Repo
SE6-2 Write the SEPM assignment
SE6-3 Complete experiments
Create Epic
Today
Weeks
Months
Quarters
SE6-3
Project plan
TRY TEMPLATE
Pinned fields
Click on the next to a field label to start pinning.
Details
Assignee
Dhruv v
Assign to me
Labels
None
Parent
None
Team
None
Start date
None
Quickstart
Create a project
Map out your project goals
Identify small chunks of work
Monitor and manage risk
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


SEPM Expt 6 - Timeline - Jira
taha0508.atlassian.net/jira/software/projects/SE6/boards/2/timeline
Jira
Your work
Projects
Filters
Dashboards
Teams
Plans
Apps
Create
Search
SEPM Expt 6
Software project
PLANNING
Summary
Timeline
Backlog
Board
Calendar
List
Forms
Goals
Issues
Add view
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / SEPM Expt 6
Timeline
Give feedback
Share
Export
Search timeline
Status category
Epic
APR
MAY
Sprints
SE6-1 Create A Github Repo
SE6-2 Write the SEPM assignment
SE6-3 Complete experiments
Create Epic
Today
Weeks
Months
Quarters
Quickstart
Create a project
Map out your project goals
Identify small chunks of work
Monitor and manage risk
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



Conclusion :

Hence, we have successfully implemented Agile Methodologies in JIRA.