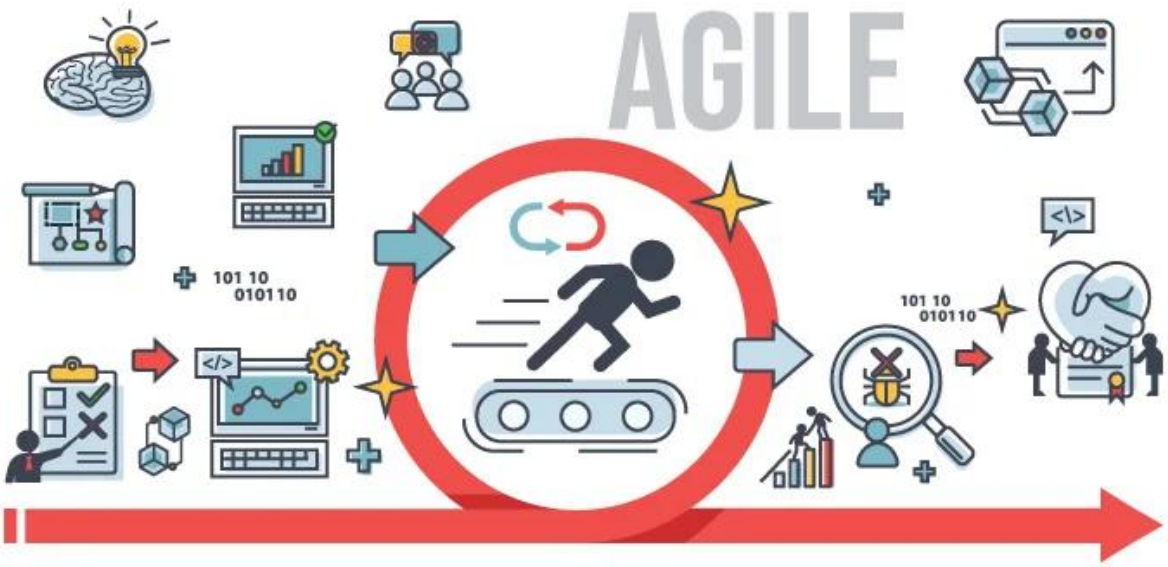
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What is SDLC?

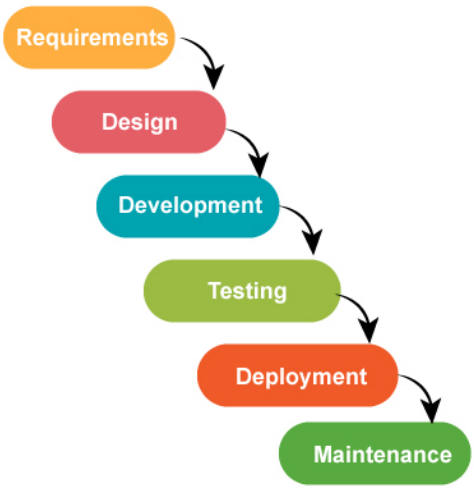
- SDLC stands for Software development Life Cycle that refers to a methodology.
- SDLC clearly defines the process of creating high-quality software project.
- SDLC methodology focuses on below phases of software development.
    - Requirement Analysis
    - Planning
    - Software Design or Architectural Design
    - Development
    - Testing
    - Deployment
    - Support/ Maintenance

We have several methodologies in SDLC

a. Waterfall model
b. V-Model
c. Spiral Model
d. Agile Model

Waterfall Model

- Waterfall model introduced in 1970.
- The waterfall model was the first model that introduced in 1970 as Process Model.
- It is a liner a sequential approach to develop the project. And also called as Step by step approach develop the project.
- In this model we will complete one phase then we will move on to next phase.



When to use Waterfall

- When requirements are fixed.
- When project is small
- When budget if fixed

Disadvantages of waterfall

- Risk is high
- Requirement can't be changed in middle
- We can't go to previous phase
- Testing will happen at the end.
- Client involvement is very less.

- Software industry has been continuously evolving both in terms of technology used and processes used for building great software to serve millions of customers across the globe. It has become a mandate to have 100% satisfied customers by delivering the best software with precise quality (meeting the business needs), in quick time as possible, and with desirable cost.
- The traditional ways of building software could no longer be used, and thus resulting into a need for a dynamic way of software development, which ensure best possible software delivery managing the balance between customer needs and technical delivery. So as to have a successfully functional overall system. This emerged AGILE.

What is AGILE?

- Agile is a **'time-box, iterative approach'** of software development or SDLC Model.
- Time-box - within a specified time frame you need to develop and release the software functionality. Ideal time frame would be 1-4 weeks, to have a working 'ready' piece of software.
- So, you don't wait for building up entire software and then do a bulk release in one go.
- This would help us to know, whether our understanding of the requirement is same as what the client wants.
- Requirements and discussion that we have had are aligned to what the customer wants.
- In every iteration (called as Sprint – in Scrum modal), you plan, design, build, test, review, release a working piece of software.
- So, more the iterations that get carried out, the customer gets to know

what is building up. And can strategize his business accordingly.

- To overcome this gap (gap is, customer is seeing the developed component, in the very end of the software development), and to involve the customer more in the S/W development cycle itself, we introduced AGILE. This results in 100% customer satisfaction.
- Old method, generally clients were involved in the very early stages and were not interacting anymore, just waiting on the final outcome. Due to this, clients had no idea about what is going to be delivered to them in the end. Also, earlier methods used to freeze client's requirements after a particular time and so customers were not able to change or add any features flexibly. Such restrictions started affecting the IT industry and leaving customers frustration and not getting what they want, despite putting enough money.

Advantages of AGILE method of software development

- Good for the clients:
  - Client changes can be incorporated during the SDLC itself.
  - Client gets a chance to see what is getting developed during the development process itself no need to wait till the very end for getting the product.
  - Helps ensuring the organization to get the confidence of what we are developing is equivalent to what is expected by the client.
  - We can develop and deliver any new requirement to the client, even though the development has already started.
  - It helps to ensure 100% customer satisfaction.
  - Clients can market their software and get started with the business as soon as first key delivery is done. And not wait for full completion of software.

- Good for employees:
  - The process ensures employees to estimate and own their work.
  - It helps them being responsible for their work.
  - Deliver with high productivity.

- Be a great team player, and even help others getting their work done.
- Work as a unit, instead of an independent developer.
- Generate decision making and result oriented outcome from employees.
- Chance for choosing to work on different challenges and technologies. Learning opportunities.

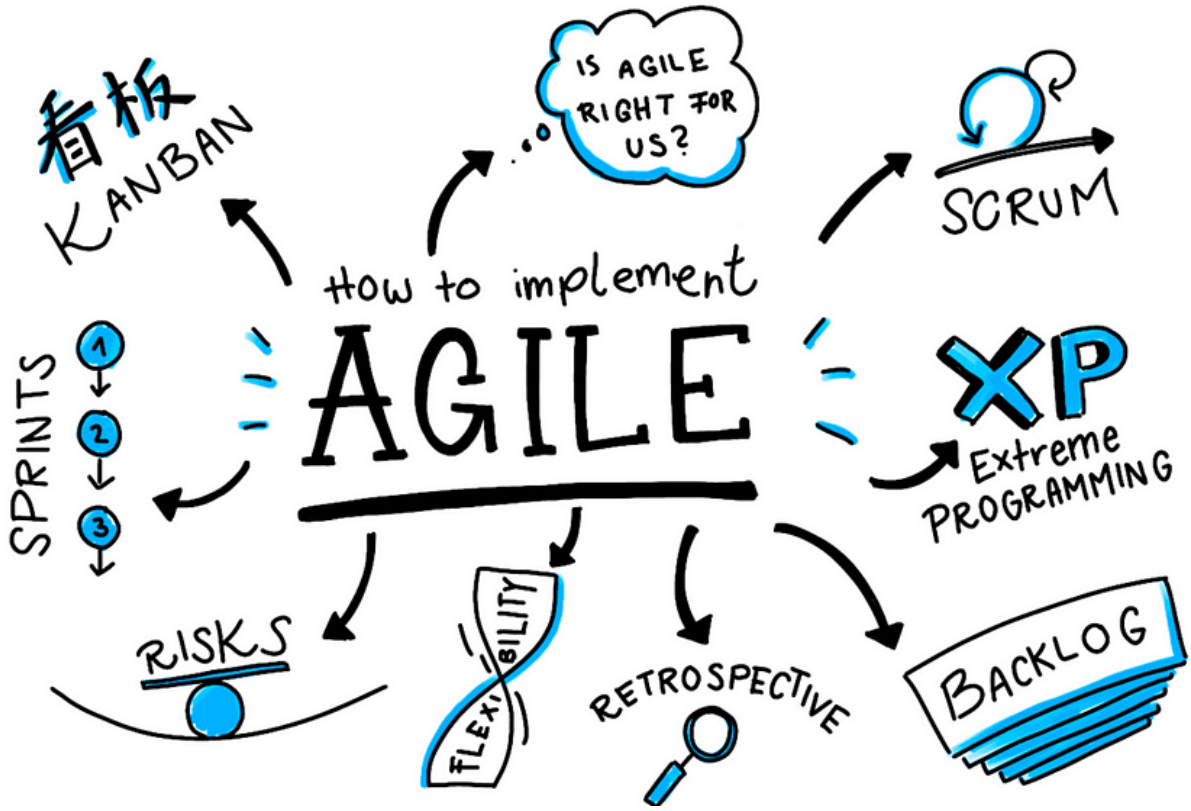
- Good for the organization:
  - Having satisfied, re-occurring clients.
  - Having great working employee base.
  - Is a massive benefit for the IT companies.

How to implement AGILE

- There are multiple ways of applying agile. And market if full of options of which one approach to follow too precisely apply Agile to software development.
- However, as far my experience goes, the right way of applying Agile is a mix of ideas and concepts prescribed in such multiple methods.
- However, there are some methodologies who have grown very vastly adapted widely across the industry. For example, 'Scrum', 'Kanban', in proper composition have achieved remarkable results.
- However further mixing with other methods like 'Extreme programming' and 'Lean programming', would enhance the strategy and outcome further.
- In my view the right way of applying agile, is to have an open mind, so as to understand the problems encountered in software development, and improve on those problems to maximize the delivery. It might even include using the right mix of traditional waterfall approach and current Agile approaches. But reaching to this decision making evolves with time.

Some popular Agile methodologies

- Agile Scrum Methodology
- Kanban
- Extreme Programming (XP)
- Lean Software Development
- Crystal
- Dynamic Systems Development Method (DSDM)
- Feature Driven Development (FDD)

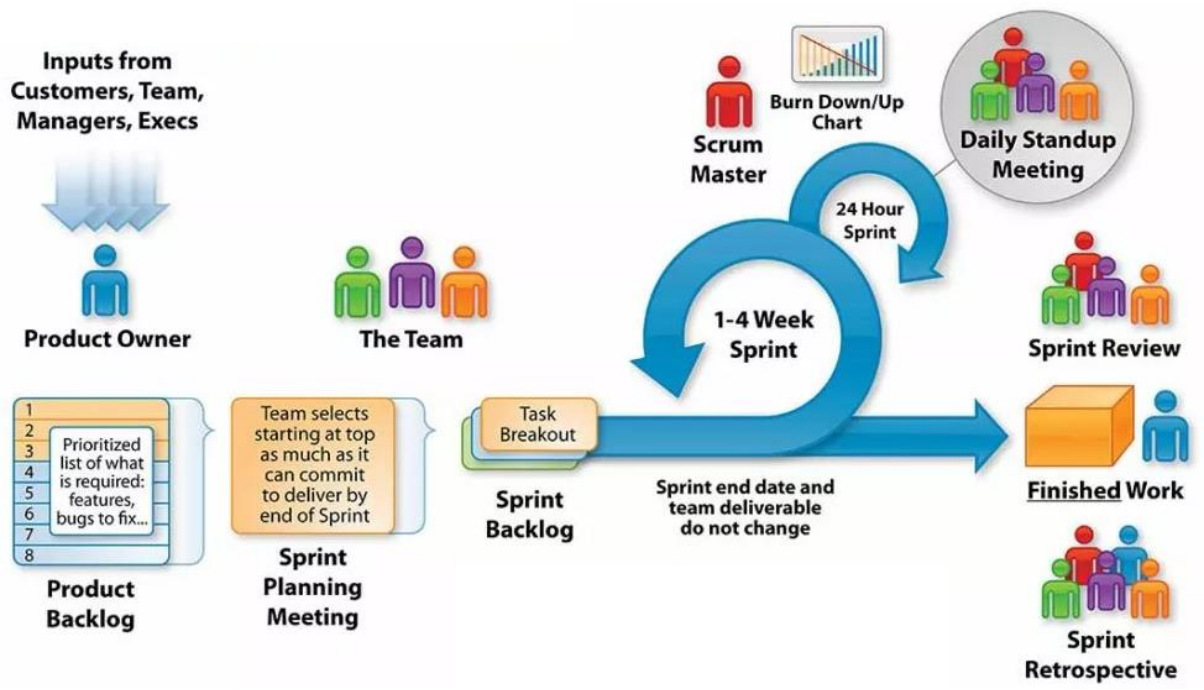


Note:

- ✓ AGILE – Set of rules/ specification of software development.
- ✓ To monitor work flow, to define process, to see reports of Agile implementations we can user Jira software.

Agile Scrum Methodology

- Scrum is a lightweight Agile project management framework that can be used to manage iterative and incremental projects of all types. It has become increasing popular over the years due to its simplicity, proven productivity, and ability to incorporate with various other methodologies. “Scrum” is one of the most widely used framework these days.
- Scrum approach divides the s/w development into small chunks called as sprints.
- Each sprint delivers a working piece of software.
- It has multiple designations like, Product owner, Scrum master, Team. The role of traditional Project manager, is split between Product owner and Scrum master.
- There are tools like Jira (by Atlassian), which provides end-to-end capability to managing projects using Scrum.



Agile Scrum Terminology

Product Owner/ PO

- Product owner is the person who is responsible to deliver product to client (stockholders).
- Product owner is one of our company Employee.
- Product owner will collect the client requirements.
- Product owner will provide suggestions to team members during work.
- Product owner will update clients feedback about our work to team.

- Product owner may not be a technical person.

Scrum Master

- Scrum master is one employee in our company.
- Scrum master will manage Agile/ Scrum team members.
- Scrum master will conduct meetings with Team members.
- Scrum master will collect daily status update from Team members.
- Scrum master may not be a technical person.
- Scrum master will get requirements from Product owner.
- Scrum master will address issues facing by team members.

Agile/ Scrum Team Members

- Agile teams are small in nature.
- As per industry Agile team size should be 7 or less.
- Agile teams contains both developers & testers.

Tech Lead

- In Agile team one team member will be Tech Lead.
- Tech Lead is the person who is technically strong and knows entire project.
- He is responsible to help team members whenever they face any technical issue.
- He is responsible to give KT (Knowledge Transfer) for new joiners in the project.

Backlog Grooming

- It is one meeting which will be conducting by Scum master.
- All Agile team members, scrum master and product owner will be part of this meeting.
- In this meeting we will identify our future work (tasks).
- We will create user stories/ epics for requirements in Jira.
- All team members will create stories in Jira in backlog grooming for that every team member will have access for JIRA
- In Backlog grooming we will create JIRA stories in Backlog bucket.

Backlog

- Backlog means pending works, we need to complete in future.
- A prioritized list of features or user stories that need to be implemented.
- Backlog is a central component of agile methodologies, and it helps

teams manage and prioritize the work they need to accomplish during the course of a project.

Story/ User Story/ Issue

- Task that we will create in JIRA.
- Every story will have story ID, title, description, reporter name, priority & story points and etc.
- A user story is a concise description of a feature or functionality from an end user's perspective.

Story point

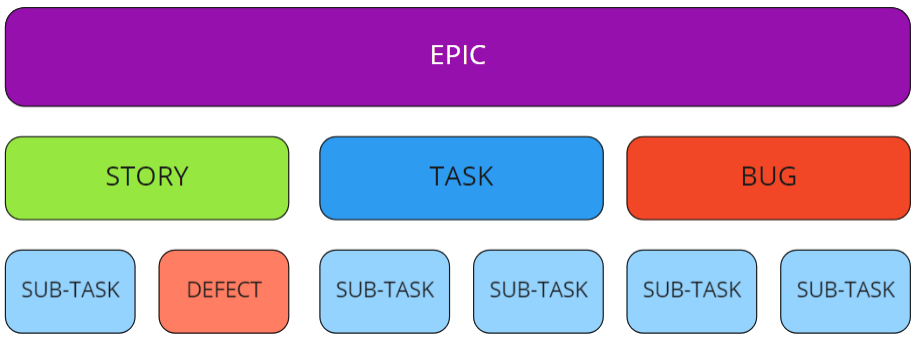
- Story points are a relative measure used by development teams to estimate the complexity of implementing a user story.
- Story points are a unitless measure that reflects the overall effort, complexity of a particular task. It defers company to company.

Epic

- Epic is a larger body of work that typically encompasses multiple user stories.
- Epics are used to group related features, functionality, or tasks that together deliver a significant and valuable outcome.

Note:

- ✓ In JIRA every this treated as issue and issues are different types
  - Story - A user story represents a small, self-contained piece of functionality that delivers value to the end-user.
  - Task - Tasks are smaller, more granular pieces of work that are derived from user stories. They represent the specific actions or steps needed to complete a user story.
  - Bug - Bugs represent issues, defects, or problems in the software that need to be fixed.
- ✓ Related issue will assign to one epic.



Sprint

- Sprint means release means set of stories to complete in some duration.
- Every Sprint will have some duration of 2 weeks.
- Every Sprint will have target of minimum 80-180 story points.

Sprint Planning

- It is a meeting which will conduct by scrum master for Agile team.
- In Sprint planning all team member, scrum master and product owner will join.
- As part of Sprint planning, we will identify which stories we need to deliver in upcoming Sprint.
- In this Sprint planning session after deciding stories to deliver team will walk through all stories and will verify title, description and story points and will check any corrections are required, if required then will do.
- In sprint planning, scrum master will create Sprint.

Scrum/ Daily Scrum

- In Sprint ever day scrum meeting will be available.
- Scrum master will conduct scrum meeting.
- Scrum meeting duration will be 15-30 minutes of time.
- In scrum meeting, scrum master will collect team members work status details.
- If you are not able to join scrum meeting, we have to send our status details to Scrum master in email.

Note: The below details will collect from the use

- Yesterday what you done?
- Today what you are doing?
- Any blocker issues?

Mid-Iteration Review/ Sprint Review

- Mid iteration review is a meeting will be conducted by Scrum master.
- Once half od the sprint duration completed this meeting will happen.
- The main agenda of this meeting to check our progress on Sprint.
- In this meeting Scrum master will go through all the pending stories available in Sprint in JIRA.
- Scrum master will discuss improvement areas.

Retrospective

- This meeting will be conducted by Scrum master.

- Once sprint is completed, scrum master will schedule retrospective meeting.
- In this meeting we will discuss about improvement areas, new ideas, learnings and achievements of previous sprint (wins & worried).
- Before going to start retrospective scrum, master will share an idea board to share our ideas.
- Scrum master will open and go through idea board.

Note:

- ✓ Once retrospective meeting is completed, then next Sprint planning will happen.
- ✓ If we are not able to complete all stories, those stories are in progress or to do status will be moved to next sprint.

Email Templates

Status Email if you unable to Join the Scrum meeting

To: smith.bulter@sahu.com [SM]

Cc: irsteam@sahu.com [Team members]

Subject: Scrum Status (27-01-2024)

Body:

Hi Smith,

Today I am unable to attend the scrum call because of doctor appointment. Please find my status below.

Yesterday: I worked on IRS-04 (In Progress)

Today: I am working on same IRS-04 (Targeted for today)

Issues: Currently No

Thanks & Regards,
Nirmala Kumar Sahu
Sr. Java Developer

For sending a mail to DevOps team for creating GitHub repository

To: irsdevops@sahu.com [DevOps Team]

Cc: smith.bulter@sahu.com, irsteam@sahu.com [SM, TM]

Subject: IRS-1 | GitHub repository creation

Body:

Hi Team,

Greeting for the day …!! Hope you guys are doing well.

As part of Sprint 1.1 we need to create GitHub repository. Please create the repository with below details.

Repository Name: IRS
Description: The repository belongs to main repository for IRS project.

Thanks & Regards,
Nirmala Kumar Sahu
Sr. Java Developer

JIRA

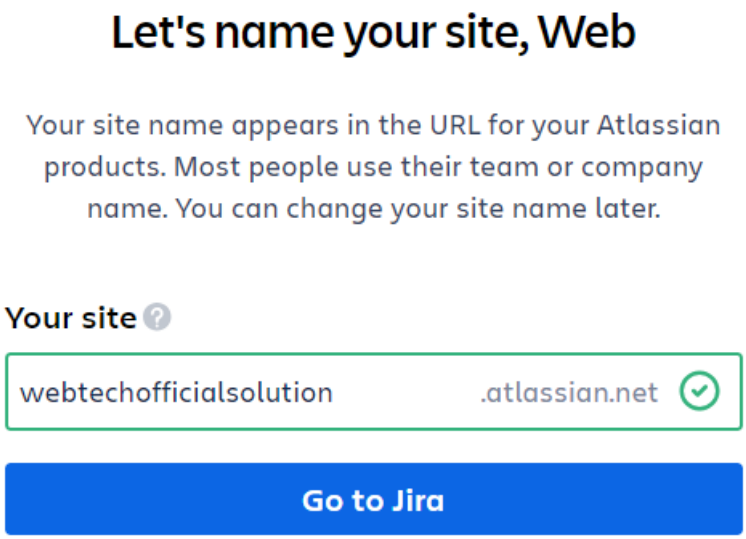
- It is an Atlassian company product.
- It is used to manage our project work. And also, we can use this as a bug reporting tool also.
- We no need to install Jira. Jira is a web application directly we can access from web.

How to use JIRA

Step 1: Go to Jira site [Link].

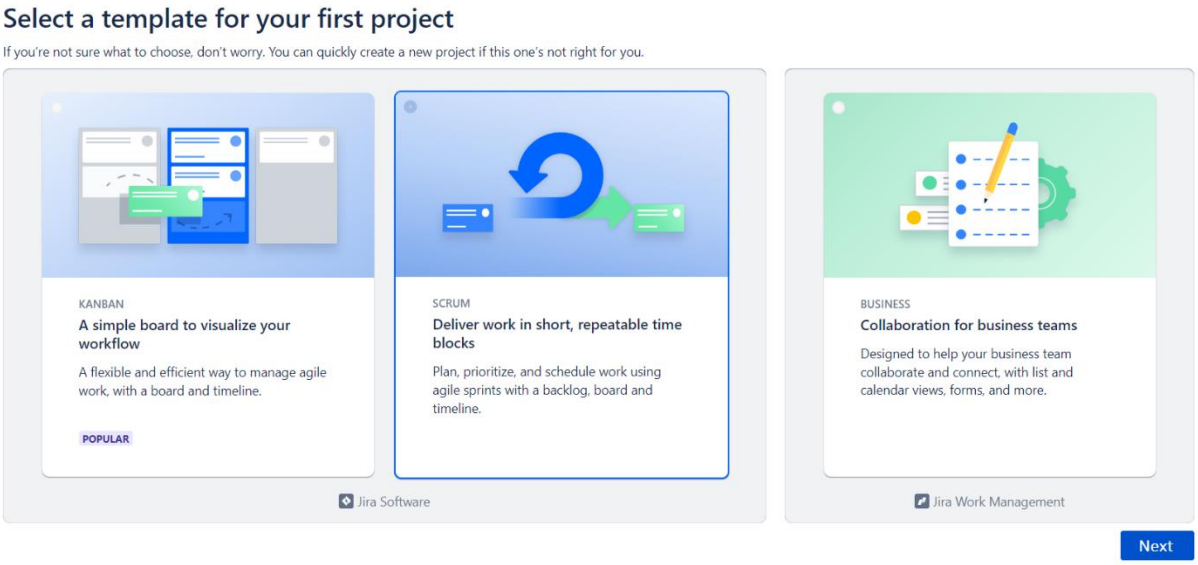
Step 2: Create an account in JIRA and Login into JIRA software.

Step 3: After create and login for first time you will get an option to create your site as like below, give **You site** name and click on **Go to Jira** button.

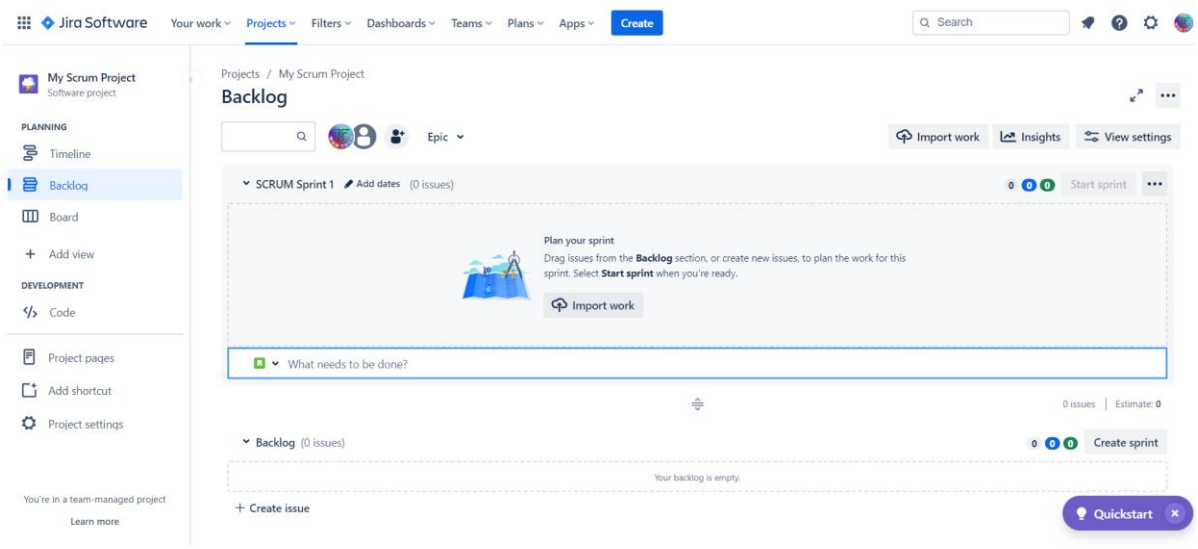


After that you will get some question if you want to fill it just fill other wise simply skip it, after that you site will be ready and your URL will change like below https://<your_site_name>.atlassian.net

Step 4: Now you will get an option to choose the template for your project show select **SCRUM** then click on **Next** button.



Step 5: Then a dummy project will be created Name as **My Scrum Project** that you can take and explore and according you need you can change and use the JIRA software.



To the best of my ability, I have explored JIRA software extensively. However, due to limitations in this text-based format, a comprehensive explanation may not be feasible. I kindly request you to refer to the attached video link for a holistic understanding of JIRA software, covering all its sections [Video Link].

---------- The END ----------