SABARAGAMUWA UNIVERSITY

OF

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Report

Agile Methodology

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Agile methodology

Agile methodology, also referred to simply as "Agile," is a set of guidelines and procedures for managing projects and developing software that places a focus on adaptability, teamwork, and continuous improvement. It was created as an answer to the shortcomings of conventional, linear project management techniques, which found it difficult to keep up with the quick-changing nature of software development.

The Agile technique places a strong emphasis on incremental and iterative development, where work is broken down into more manageable "sprints" or "iterations." A subset of features or activities are planned, carried out, reviewed, and adjusted during each iteration. This enables routine evaluation and adaptation in response to altering needs, fresh information, and developing business requirements.

Key principles of the Agile methodology include:

1. Working Software over Comprehensive Documentation:
   While documentation is still necessary, Agile emphasizes developing usable software rapidly, so developers put more of their effort into creating a working product than in producing comprehensive documentation that may become stale.

2. Responding to Change over Following a Plan:
   Agile is aware that specifications and priorities might alter as a project progresses. It motivates groups to be flexible and react to unforeseen events, even if it means departing from the original plan.

3. Individuals and Interactions over Processes and Tools:
   Agile places a higher priority on team members' abilities, communication, and cooperation than it does on strict adherence to procedures and equipment. Processes and tools are crucial, but they shouldn't get in the way of productive teamwork

4. Embracing Change:
   Change is welcomed by agile as a normal and expected aspect of the development process. Agile techniques are made to adapt to these changes because requirements are expected to change over time

5. Customer Collaboration over Contract Negotiation:
   Agile places a strong emphasis on close cooperation between project teams, consumers, and stakeholders (including end users and customers). By doing this, it is made sure that the product being created will meet the genuine demands and expectations of its intended users.

Agile is being employed in a variety of industries where adaptability, teamwork, and iterative improvement are crucial. Its application has gone beyond software development. It has resulted in higher customer satisfaction, quicker product delivery, and better alignment with shifting market demands.

Practices that can be followed in agile methodology

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1. User Stories:

   Agile teams frequently utilize user stories to record needs from the user's perspective rather than voluminous documentation. A user story is a brief, straightforward description of a functionality or feature that has to be implemented.

2. Sprints:

   Sprints are time-limited iterations used for development work. Typically, a sprint lasts one to four weeks. From the product backlog, the team chooses a collection of user stories to focus on during the sprint. A potentially shippable increment of the product is created at the conclusion of the sprint.

3. Product Backlog:

   The features, improvements, and bug fixes that must be handled in the project are listed in the product backlog in order of priority. Based on comments and shifting needs, it is regularly improved and reprioritized.

4. Sprint Planning:

   The squad holds a sprint planning meeting before each sprint. After going over the items in the product backlog, they decide which ones they'll commit to finishing up during the sprint. The group divides the chosen items into tasks and determines how much work will be involved.

5. Sprint Review:
   A sprint review meeting is held to present the work finished during the sprint to stakeholders, such as the product owner and users, at the conclusion of each sprint. Feedback is gathered, and the product backlog may change as a result.

Frame work under agile methodology

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Scrum:

One of the most well-known Agile frameworks is Scrum. It entails sprints, which are time-limited iterations that typically run one to four weeks. A Product Owner, a Scrum Master, and the Development Team make up a Scrum team. The Product Owner is in charge of managing the product backlog, while the Scrum Master is in charge of guiding the Scrum process. Scrum uses rituals including the Daily Standup, Sprint Planning, Sprint Review, and Sprint Retrospective.

Kanban:

A system called Kanban focuses on streamlining and visualizing workflow. On a Kanban board, work items are represented by cards, and each column on the board corresponds to a particular stage of the development process. Limits on work in progress (WIP) are used by teams to monitor and improve their workflow. Teams who manage a steady stream of incoming tasks or teams looking to progressively switch to Agile principles will find Kanban to be very helpful.

Extreme Programming (XP):

The XP framework for Agile places a focus on engineering methods to guarantee high-quality software. Test-Driven Development (TDD), Pair Programming, Continuous Integration, and frequent releases are examples of XP methods. Additionally, XP appreciates consumer feedback and promotes open communication with them.

Lean:

The manufacturing-based lean ideas have been applied to software development. Lean Agile places a strong emphasis on reducing waste, streamlining procedures, and providing value promptly. Small batch sizes, effective workflows, and customer value are emphasized.

Feature-Driven Development (FDD):

An Agile framework called FDD is especially well suited for bigger projects. It places a strong emphasis on segmenting the software into distinct features, creating them one at a time, and tracking progress as they are finished. Specific roles and artifacts are included in FDD to oversee feature development.