

Tutorial 05

- What is Agile Methodology and what are its key principles and values?
Agile methodology is an iterative and flexible approach to project management.
- Widely used in software development but can also be applied to various other industries and projects.
- Focuses on delivering value to customers through continuous collaboration, adaptation and quick response to changes.

The key principles and values of agile methodology are based on the Agile Manifesto, which was developed by a group of software developers in 2001. The Agile Manifesto outlines the following four values and twelve principles.

Values of Agile Methodology

- Individuals and interactions over processes and tools. Agile values the importance of effective communication, collaboration and teamwork among individuals involved in the project. It emphasizes that people and their interactions drive the success of a project rather than relying solely on processes and tools.
- Working Software over comprehensive documentation. Agile emphasizes the primary focus on delivering a working product or software that meets the customer's needs. While documentation is still important, it should be concise and serve the purpose of supporting the development process.

Principles of Agile Methodology

1. Customer satisfaction through early and continuous delivery of valuable software.
2. Welcome changing requirements even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, with a preference for shorter timescales.
 - + Business people and developers must work together daily throughout the project.
4. Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.
5. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
6. Working software is the primary measure of progress.
7. Agile processes promote sustainable development. The sponsors, developers and users should be able to maintain a constant pace indefinitely.
8. Continuous attention to technical excellence and good design enhances agility.
9. Simplicity is essential. The art of maximizing the amount of work not done is essential.
10. The best architectures, requirements and designs emerge from self-organizing teams.
11. At regular intervals, the team reflects on how to become more effective and adjusts its behavior accordingly.
- Q2. How does Agile differ from traditional waterfall methodologies?
- Q3. What is requirement?
- Q4. Describe the 4 categories of requirements?

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Aspect	Agile Methodology	Waterfall Methodology
Project Approach	Iterative and incremental approach	Sequential and linear approach
Requirements	Evolving and flexible	Defined and fixed
Planning	Adaptive and dynamic	Comprehensive and detailed
Timeframe	Short and fixed-duration iterations (sprints)	Longer and fixed-duration phases
Feedback	Continuous feedback and regular reviews	Feedback at the end of each phase or stage
Change Management	Embraces and accommodates changes	Changes are difficult to accommodate and may cause delays
Team Structure	Self-organizing, cross-functional teams	Functionally specialized teams
Deliverables	Frequent, smaller deliverables (working software)	Final deliverable at the end of the project
Risk Management	Continuous risk identification and mitigation	Risk analysis at the beginning and minimal updates
Documentation	Minimal documentation focused on essential information	Extensive documentation at each stage
Quality Assurance	Continuous testing and quality control throughout	Testing at the end of the project
Adaptability	Emphasizes adaptability and embraces change	Less adaptable, changes are often challenging
Success Measurement	Customer satisfaction, working software and value delivery	Adherence to the planned schedule and budget.

03. A Software Requirements Specification (SRS) is a document that describes what the software will do and how it will be expected to perform. It also describes the functionality the product needs to fulfill the needs of all stakeholders (business, users).

There are four types of requirements.

Business requirements

User requirements

System requirements - Functional requirements

Non-Functional requirements

04. Business requirement - The purpose of business requirements is to define a project's business need, as well as the criteria of its success. Business requirements describe why a project is needed, whom it will benefit, when and where it will take place, and what standards will be used to evaluate it.

Ex: Super market online sales system

improve number of sales

improve customer base

User requirement - User requirements are just what the name implies. They are requirements set by the end user. These requirements express how a facility, equipment or process should perform in terms of the product to be manufactured, required throughput and conditions in which product should be made.

Ex: Online sales system - Customer - Sign up and login

place orders

compare products and prices

make online payments

search products

Admins (owner, manager)

Add products and update the details of the products

Review orders

Functional requirement - Functional requirements describe the desired end function of a system operating within normal parameters, so as to assure the design is adequate to make the desired product and the end product reaches its potential of the design in order to meet user expectations.

Ex: What are the data you should collect name and NIC address

email address

username

password

validate the data entered by the user

update the user database

Non-functional requirement - Non-functional requirements or NFRs are a set of specifications that describe the system's operation capabilities and constraints and attempt to improve its functionality. These are basically the requirements that outline how well it will operate including things like speed, security, reliability, data integrity, etc.

Ex: Security expectations

language

speed

response

colours

logos

videos

pictures