

Functional and Non-Functional Requirements

What are Requirements?

- **Requirements** describe what a system or software must do and how it should perform.
- They are important because they guide developers in building the software and help ensure it meets user needs.

1. Functional Requirements

Definition:

- **Functional requirements** define specific **features, tasks, or functions** the system must perform.
- These are things the system **must do** to fulfill its purpose.

Examples:

- **Login Feature:** The system must allow users to log in with a username and password.
- **Search Feature:** Users must be able to search for products using a search bar.
- **Payment Processing:** The system must allow users to make payments via credit card or PayPal.

Why Functional Requirements are Important:

- They describe the **core functionality** of the system.
- Developers use them to ensure the software does what users expect.

2. Non-Functional Requirements

Definition:

- **Non-functional requirements** describe how the system should **perform** rather than what it should do.
- They focus on the **quality** of the system, such as speed, security, usability, etc.

Examples:

- **Performance:** The system should load pages within 2 seconds.
- **Security:** The system must protect user data with encryption.
- **Usability:** The interface should be easy to navigate for beginners.
- **Scalability:** The system should handle up to 1,000 users simultaneously.

Why Non-Functional Requirements are Important:

- They ensure the system is **efficient, reliable, and secure**.

- They improve the **user experience** and ensure the system performs well under different conditions.

Difference Between Functional and Non-Functional Requirements

Functional Requirements

Describes **what** the system should do.

Focuses on **features and tasks**.

Example: The system must allow users to log in.

Non-Functional Requirements

Describes **how** the system should perform.

Focuses on **performance and quality**.

Example: The system must load within 2 seconds.

Conclusion

- **Functional requirements** focus on the specific tasks or functions the software must perform.
- **Non-functional requirements** focus on the performance, quality, and overall experience of using the software.
- Both types of requirements are essential for building software that is both useful and high quality.