

Functional vs Non Functional Requirements

Key Difference between Functional and Non Functional Requirements

- A functional requirement defines a system or its component, whereas a non-functional requirement defines the performance attribute of a software system.
- Functional requirements, along with requirement analysis help identify missing requirements, while the advantage of Non-functional requirements is that it helps you to ensure a good user experience and ease of operating the software.
- Functional Requirement is a verb, while Non-Functional Requirement is an attribute
- Types of Non-functional requirements are Scalability, Capacity, Availability, Reliability, Recoverability, Data Integrity, etc., whereas transaction corrections, adjustments, and cancellations, Business Rules, Certification

Business Rules, Certification Requirements, Reporting Requirements, Administrative functions, Authorization levels, Audit Tracking, External Interfaces, Historical Data management, Legal or Regulatory Requirements are various types of functional requirements.



Difference between Functional and Non functional requirements

In this Functional vs Non Functional Requirements tutorial, you will learn:



What is a Functional Requirement?

In software engineering, a **functional requirement** defines a system or its component. It describes the functions a software must perform. A function is nothing but inputs, its behavior, and outputs. It can be a calculation, data manipulation, business process, user interaction, or any other specific functionality which defines what function a system is likely to perform.

Functional requirements in software engineering help you to capture the intended behavior of the system. This behavior may be expressed as functions, services or tasks or which system is required to perform.

What is Non-Functional Requirement?

A **non-functional requirement** defines the quality attribute of a software system.

They represent a set of standards used to judge the specific operation of a system.

Example, how fast does the website load?

A non-functional requirement is essential to ensure the usability and effectiveness of the entire software system. Failing to meet non-functional requirements can result in systems that fail to satisfy user needs.

Non-functional Requirements allows you to impose constraints or restrictions on the design of the system across the various agile backlogs. Example, the site should load in 3 seconds when the number of simultaneous users are > 10000. Description of non-functional requirements is just as critical as a functional requirement.

Example of Functional Requirements

Here, are some examples of functional requirement in software engineering:

- The software automatically validates customers against the ABC Contact Management System
- The Sales system should allow users to record customers sales
- The background color for all windows in the application will be blue and have a hexadecimal RGB color value of 0x0000FF.
- Only Managerial level employees have the right to view revenue data.
- The software system should be integrated with banking API
- The software system should pass [Section 508](#) accessibility requirement.

Examples of Non-functional requirements

Here, are some examples of non-functional requirement in software engineering:

1. Users must change the initially assigned login password immediately after the first successful login. Moreover, the initial should never be reused.
2. Employees never allowed to update their salary information. Such attempt should be reported to the security administrator.
3. Every unsuccessful attempt by a user to access an item of data shall be recorded on an audit trail.
4. A website should be capable enough to handle 20 million users with affecting its performance
5. The software should be portable. So moving from one OS to other OS

Advantages of Functional Requirement

Here, are the pros/advantages of creating a typical functional requirement document-

- Helps you to check whether the application is providing all the functionalities that were mentioned in the functional requirement of that application
- A functional requirement document helps you to define the functionality of a system or one of its subsystems.
- Functional requirements along with requirement analysis help identify missing requirements. They help clearly define the expected system service and behavior.
- Errors caught in the Functional requirement gathering stage are the cheapest to fix.
- Support user goals, tasks, or activities for easy project management