Functional & Non-Functional Requirements

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Module Teacher: Nayeema Rahman

Functional Requirements

- 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.

Example of Functional Requirements

- The software automatically validates customers against the ABC Contact Management System
- The Sales system should allow users to record customers sales
- Only Managerial level employees have the right to view revenue data.
- The software system should be integrated with banking API

Advantages of Functional Requirement

- Helps 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

- Functional requirement can be expressed in Use Case form or user story as they exhibit externally visible functional behavior.

Non-Functional Requirements

- 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.

Examples of Non-Functional Requirements

- A website should be capable enough to handle 20 million users with affecting its performance

- Users must change the initially assigned login password immediately after the first successful login. Moreover, the initial should never be reused.

- Every unsuccessful attempt by a user to access an item of data shall be recorded on an audit trail.

- Employees never allowed to update their salary information. Such attempt should be reported to the security administrator.

Advantages of Non-Functional Requirement

- The nonfunctional requirements ensure the software system follow legal and compliance rules.

- They ensure the reliability, availability, and performance of the software system

- They ensure good user experience and ease of operating the software.

- They help in formulating security policy of the software system.

Difference between Functional & Non-Functional Requirements

Parameters	Functional Requirement	Non-Functional Requirement
What it is	Verb	Attributes
Requirement	It is mandatory	It is non-mandatory
Capturing type	It is captured in use case.	It is captured as a quality attribute.
End-result	Product feature	Product properties
Capturing	Easy to capture	Hard to capture
Objective	Helps you verify the functionality of the software.	Helps you to verify the performance of the software.
Area of focus	Focus on user requirement	Concentrates on the user's expectation.
Documentation	Describe what the product does	Describes how the product works
Type of Testing	Functional Testing like System, Integration, End to End, API testing, etc.	Non-Functional Testing like Performance, Stress, Usability, Security testing, etc.
Test Execution	Test Execution is done before non-functional testing.	After the functional testing
Product Info	Product Features	Product Properties