**P P SAVANI UNIVERSITY**
**ACADEMIC YEAR-2025-26**

# TUTORIAL - 6

ON

## SOFTWARE ENGINEERING(SSCS3010)

## TITLE: Classifying Requirements into Functional and Non-Functional Requirements

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY (BSC-IT)**


**SUBMITTED TO:**

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**SUBMITTED BY:**

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**Enrollment: 23SS02IT161**

**BSCIT5B-Batch 2023-26**


**Max. Marks: 50**
**Marks Obtained:**

**Faculty Signature: _____**


**INSTITUTE OF COMPUTER SCIENCE AND APPLICATIONS**
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Subject Name: SOFTWARE ENGINEERING
Subject Code: SSCS3010

**TUTORIAL-6** **Date:25/07/2025**

**Aim**: **Classifying Requirements into Functional and Non-Functional Requirements**

## What are Requirements in Software Engineering?

Requirements describe what a system **should do** (functional) and **how it should behave or perform** (non-functional).

- **Functional Requirements (FR):** Define what the system must do.
- **Non-Functional Requirements (NFR):** Define how the system should perform or the quality attributes.

## 1. Functional Requirements (FR)

These are the **specific functions, features, or behaviors** of the system.

- They describe **services** the system provides to users.
- Usually written as:
  - "The system shall …" or "The system should allow …"

**Examples:**
✔ The system shall allow users to **log in** using a username and password.
✔ The system shall **generate a monthly sales report** in PDF format.
✔ The system shall **send email notifications** after a successful purchase.

## 2. Non-Functional Requirements (NFR)

These describe the **quality attributes**, **performance criteria**, or **constraints**.

- Not about what the system does, but how well it performs the functions.
- Examples: **performance, reliability, usability, security, scalability**.

**Examples:**
✔ The system should respond to any user request **within 2 seconds**. (Performance)
✔ The system should be **available 99.9% of the time**. (Availability)
✔ The system should support **at least 10,000 concurrent users**. (Scalability)
✔ The system should encrypt all user data using **AES-256**. (Security)

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# Example Scenario for Students: Online Food Delivery App

Imagine you are developing an **Online Food Ordering System** like Zomato or Swiggy.

**Functional Requirements:**

- Users should be able to **register and log in**.
- The system shall allow users to **search restaurants by location or cuisine**.
- The system shall allow users to **add food items to a cart and place orders**.
- The system shall **send confirmation SMS** after payment.

**Non-Functional Requirements:**

- The app should **load the home page within 3 seconds**. (Performance)
- The system should support **50,000 users simultaneously**. (Scalability)
- Payment transactions must be **secure and encrypted**. (Security)
- The system should work on **Android and iOS platforms**. (Portability)

## Activity for Students:

**Task: Q:** Identify whether the following are Functional or Non-Functional requirements:

1. **The system shall allow users to reset their password via email.**
- functional requirements
- It describes a specific **feature/functionality** the system must provide.
2. **The response time for login should not exceed 1.5 seconds.'**
- Non-Functional Requirement
- This is about **performance**, not the feature itself.
3. **The app should support multiple languages like English, Hindi, and Spanish.**
- Non-Functional Requirement (NFR)
- This refers to **usability and internationalization**, a **quality attribute**.
4. **The system shall display the user's order history.**

- Functional Requirement (FR)
- It defines a **specific action/behavior** the system must perform.