



# Use cases in Requirements Engineering

## Audience

- Functional and business analysts
- Project managers
- Systems engineers
- Development engineers
- Quality managers (QA managers)
- Methodology managers

## Course Delivery Method

An interactive and highly practical format is used, encouraging student participation, so that they reflect on the theoretical concepts and learn to apply them effectively in their daily work.

Theory and practice alternate, combining theoretical concepts with a large number of practical exercises developed individually and in groups. The teacher will review the various solutions proposed by the students to identify errors and areas for improvement. Active audience participation is encouraged.

## Pre-requisites

None.

## Schedule and time

The course will be conducted in 1 session of 6 hours.

## Description

This course examines the role of the use case technique in Requirements Engineering. The basics of the technique are explained: use cases, actors, use case diagrams. These concepts are put into the context of the requirements process and it is described how they can be used to improve communication between analysts and users.

The use case technique was developed in the 1980s in the context of Software Engineering . The use case diagram is one of the diagrams in UML and SysML , the UML extension for system modeling. It is versatile and easy to interpret, making it increasingly used not only in the context of software modeling, but in systems engineering in general, to represent the functionality of a system and its relations with the outside world .

Moreover, the description of use cases is a technique to describe functional requirements. Although there is no established standard for writing the content of use cases, yet there is a set of recommendations and best practices to ensure that the application of the technique is effective and meets the objective of facilitating communication between participants in the requirements process.

## Objectives

- Identify actors and use cases in a given system.
- Represent them in a use case diagram.
- Understand relations and differences between actors, users and stakeholders.
- Apply use case diagram to represent system scope.
- Apply use cases as a description of business and system functional requirements.
- Apply the scenarios technique to describe use cases.

## Agenda

### ■ Introduction: what are use cases?

As an introduction to the course, a general view of its objectives and contents is presented. Definitions of the basic concepts in the use case technique are introduced. It is explained how use cases are put into the context of requirement processes and the possibilities they offer. Lastly, advantages and drawbacks of this technique in this context are presented.

### ■ Use case diagrams and system scope

In this section it is defined what we mean by system scope and its importance in the context of Requirements Engineering. The concept “actor” is analyzed in relation with other related concepts such as user or stakeholder. Characteristics and graphical notation of use case diagrams are described and, lastly, how this diagram can be used as a graphical representation of the system scope.

### ■ How to write use cases: first steps

In this section, guidelines to identify the correct use cases are presented. General characteristics that should be included in the description of use cases are enumerated.

### ■ How to write complete and correct use cases: scenarios

The use of scenarios as detailed description of use cases is analyzed. It is explained which are the characteristics they must have in order to be correct and complete.