# Use-Case Foundation

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To get to the heart of what a system must do, focus on who
or what will use it, and then look at what the system must do
for them to help them achieve their goals.

A *use case* is all the ways of using a system
to achieve a goal of a particular user.

Core Concepts

1. A system of interest
2. A primary actor with a goal
3. A set of scenarios (there will be several)
4. A use case to collect those scenarios.
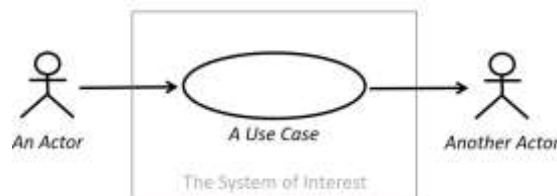
A use case – A use case is all the ways of using a system to achieve a particular goal for a particular user.

Notes:
- This includes all the successful, challenged and failure scenarios.
- It may be described textually or visually.
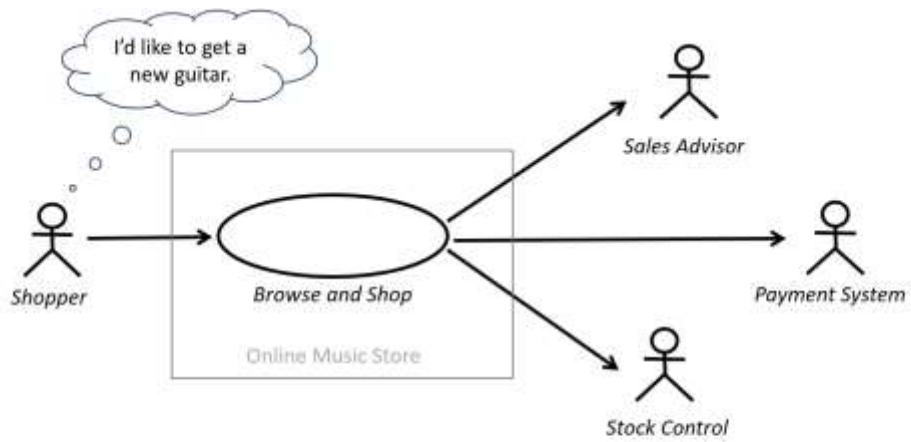- It is independent of implementation, technology, and platform.

The System of Interest – The system used to achieve their goal.

An Actor – "Actor" is intended to cover anything with behavior. It can be a person, an organization, a piece of software, or any combination.
An actor identifies a role played when interacting with the system. A use case might involve many actors: The actor that initiates a use case is known as the "primary actor" and the actors called upon by the system are known as "supporting actors".

The Goal – The reason that the user will use the system and the value that they will receive when successfully using the system.
A simple example:

Primary Actor	The System of Interest	Supporting Actors
In this case a shopper with the goal of selecting and purchasing a product.	In this case an on-line portal providing advice on all things musical. One of this system's use cases is 'Browse and Shop'	Other Actors that can be involved in the successful completion of the use case. These can be other systems or other people. In this case the system of interest needs to interact with a Stock Control System, a Payment System, and for specialist, high value products a Sales Advisor.

Underlying Principles

1. Use Cases apply to systems of all types and sizes: businesses, IT systems, physical systems or any combinations thereof.

2. Use cases help you understand the big picture: the system's purpose and how it will be used.

3. Use cases focus on value: the users' goals and how best to achieve them.

4. Stakeholder involvement is essential: bring all the involved parties together to establish the intent and scope of the system.

5. A use case tells the whole story, as a story, from the initial event to the realization of the value it provides or the eventual failure if it can't be met. It includes how to handle any problems and alternatives that may occur on the way

6. Use cases trigger conversations: while discussing the possible scenarios, you and your co-writers will think of missing steps and missing extensions. These conversations help you find situations that often get overlooked

7. Prioritize readability: the goal is to communicate the big picture to everyone involved, generating comments, spotting gaps, and getting their buy-in.

8. The amount of detail and the format used will vary to match your circumstances: start with a sketch of the sequence of events, and add detail as and when needed.

9. A use case can be implemented in stages: develop and put into place some key scenarios of a use case early to capture value and feedback, add less used or less critical scenarios over time strategically.

A Sample Use Case

The use case is presented as a basic scenario and known set of extensions, each describing a path to value.

Basic Scenario / Main Success Scenario	Extensions
1. Step 1 – The use case starts when… 2. Step 2 3. Step 3 . . . N. Step N The use case ends.	Alt1 – Something that can go wrong that needs to be handled Alt 2 – Something optional that should be provided Alt 3 – A special case that needs to be handled differently . . . Alt N

Scenario - a complete sequence of steps through the whole use case. This is described as a simple sequence of steps, each of which involves the system and / or one of the actors doing something.

The Basic Scenario – The normal, happy path to value often referred to as the 'main success scenario', 'basic flow' or the 'happy path'.

Extensions – A list of all the special cases, alternative paths, optional steps, and errors that need to be handled. Extensions are also referred to as "alternate flows".

The key aspect of a use case is its structure: the way it identifies the basic scenario and extensions – this acts as a map of how the system will be used.

The basic scenario and extensions can be described simply as a bulleted list of steps for the basic scenario and the names of the extensions. Or it can be elaborated to fully describe what should happen:
- at each step in the basic scenario,
- at each step of each extension,
- at which step the start of an extension will diverge from the path of the basic scenario,
- at which step of the basic scenario will the end of an extension return to the path of the basic scenario.

The basic scenario and extensions can be described in text, as above, or in some graphical form.

What is important is the accuracy of the basic scenario and its extensions and not how detailed you write out the steps and extensions.

A simple example:

Primary Actor: Shopper	**Browse and shop**: Help the shopper to find the most suitable product to meet their needs and help them to purchase it.
Basic Scenario The use case starts when a Shopper indicates they'd like to find a product 1. Browse Products 2. Select Products for Purchase 3. Provide Payment Details 4. Provide Delivery Details 5. Confirm Purchase The use case ends.	**Extensions** Alt1 – Keyword search for products Alt 2 – No products selected Alt 3 – Invalid payment details Alt 4 – Payment system unavailable Alt 5 – Retrieve stored payment and delivery details Alt 6 Invalid delivery details Alt 7 – Product out of stock Alt 8 – Stock control system unavailable Alt 9 – No purchase confirmation Alt 10 – Quit shopping with no purchase Alt 11 – Shopper stops responding Alt 12 – Shopper needs expert advice

Note – If you look closely you might find issues and problems, missing steps and missing extensions, with this use case. This is deliberate. This is exactly the sort of conversation that we want the use-case to start.