

Use case diagram

Use-case diagram is mainly used in **requirements analysis** and system understanding. It is used to show:

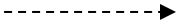
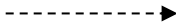
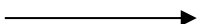
- **Who** interacts with the system (Actors)
- **What** functionalities the system provides (Use Cases)
- **How** actors interact with these functions (relationships)

Use-case diagram describe the main functions (Use cases) that the system needs to perform of a system and identify the interactions between the system and its external environment, represented by actors. These actors can be people, organizations, machines, or other external systems.

Use case notations :

The four 4 components of use case diagram are :

- system,
- actors,
- use cases,
- relationships (include, extend, inheritance)

Type	Shape	Meaning / Description
Actor	Stick figure 	A person, system, or device that interacts with the system.
Use case	Oval 	Describes a function or goal the system provides.
System	Rectangle 	Represents the system being modelled. All use cases go inside this box; actors stay outside .
Include (uses)	Dashed arrow + «include» 	When one use case <i>always includes</i> another. $A \rightarrow B$ A incomplete without B, B is mandatory not optional
Extends	Dashed arrow + «extend» 	When one use case <i>optionally extends</i> another $A \rightarrow B$ (A is optional)
Generalization (Inheritance)	Solid line + empty triangle 	Used for actors or use cases that share common behavior.