Use case approach

Requirements Elicitation

The Use Case Approach

Ivar Jacobson & others introduced Use Case approach for elicitation & modeling.

Use Case – give functional view

The terms

Use Case

Use Case Scenario   } Often Interchanged

Use Case Diagram   } But they are different

Use Cases are structured outline or template for the description of user requirements modeled in a structured language like English.

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Use case Scenarios are unstructured descriptions of user requirements.

Use case diagrams are graphical representations that

may be decomposed into further levels of abstraction.

Components of Use Case approach

Actor:

An actor or external agent, lies outside the system model, but interacts with it in some way.

Actor ⟶ Person, machine, information System

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- Cockburn distinguishes between Primary and secondary actors.

- A Primary actor is one having a goal requiring the assistance of the system.

- A Secondary actor is one from which System needs assistance.

Use Cases

A use case is initiated by a user with a particular goal in mind, and completes successfully when that goal is satisfied.

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* It describes the sequence of interactions between actors and the system necessary to deliver the services that satisfies the goal.

* Alternate sequence

* System is treated as black box.

Thus

Use Case captures who (actor) does what (interaction) with the system, for what purpose (goal), without dealing with system internals.

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*defines all behavior required of the system, bounding the scope of the system.

Jacobson & others proposed a template for writing Use cases as shown below:

1. Introduction
Describe a quick background of the use case.

2.Actors
List the actors that interact and participate in the use cases.

3.Pre Conditions
Pre conditions that need to be satisfied for the use case to perform.

4. Post Conditions
Define the different states in which we expect the system to be in, after the use case executes.

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5.1 Basic Flow
List the primary events that will occur when this use case is executed.

5.2 Alternative Flows
Any Subsidiary events that can occur in the use case should be separately listed. List each such event as an alternative flow.
A use case can have many alternative flows as required.

6.Special Requirements

Business rules should be listed for basic & information flows as special requirements in the use case narration .These rules will also be used for writing test cases. Both success and failures scenarios should be described.

7.Use Case relationships

For Complex systems it is recommended to document the relationships between use cases. Listing the relationships between use cases also provides a mechanism for traceability

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Use Case Guidelines

1. Identify all users

2. Create a user profile for each category of users including all roles of the users play that are relevant to the system.

3. Create a use case for each goal, following the use case template maintain the same level of abstraction throughout the use case. Steps in higher level use cases may be treated as goals for lower level (i.e. more detailed), sub-use cases.

4. Structure the use case
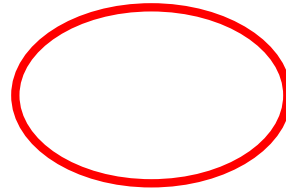
5. Review and validate with users.

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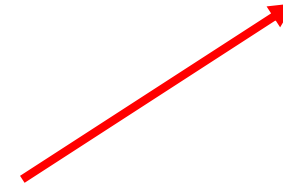
Use case Diagrams

-- represents what happens when actor interacts with a system.

-- captures functional aspect of the system.

Actor

Use Case

Relationship between actors and use case and/or between the use cases.

-- Actors appear outside the rectangle.

--Use cases within rectangle providing functionality.

--Relationship association is a solid line between actor & use cases.

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*Use cases should not be used to capture all the details of the system.

*Only significant aspects of the required functionality

*No design issues

*Use Cases are for "what" the system is , not "how" the system will be designed

* Free of design characteristics

Use case diagram for Result Management System