


UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

# Functional Requirements Documentation: Use Cases

*Software Engineering and Databases Group  
Department of Computer Languages and Systems  
University of Seville  
October 2015*

La traducción de este material docente ha sido financiada mediante la convocatoria 1.10B - Ayudas de innovación y mejora docente, convocatoria 2013-2014, modalidad B del II Plan Propio de Docencia de la Universidad de Sevilla. No ha habido financiación alguna para este proyecto de otros soportes.




UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

Functional Requirements Documentation: Use Cases

- Learning objectives
  - Know the **use cases** technique.
  - Know the **specification process** of use cases.
  - Know the use case **diagrams**.
  - Develop **functional requirements** correctly using use cases.
  - Develop use case diagrams correctly.


1. Use case concept
2. Use cases in the RE process
3. Use case specification
4. Specification process
5. Use case diagrams
6. Actor classification
7. Use case organization



October 2015

Requirements Engineering

1



UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

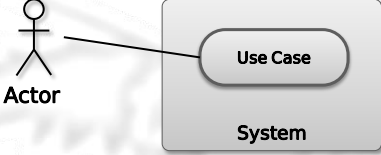
5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

- Use cases describe interactions:
  - **Actors:** people or other systems having some **goal** to achieve (primary actors) or helping other actors to fulfill their goals (secondary actors).
  - **System (under study):** system to be developed or maintained that shall provide some **services** that actors need to accomplish their goals.




The diagram illustrates the relationship between an actor and a use case. On the left, a stick figure labeled 'Actor' is connected by a line to an oval labeled 'Use Case'. This oval is contained within a larger rounded rectangle labeled 'System'.

October 2015

Requirements Engineering

2



UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process


5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

- Example: withdraw money from an ATM
  - **Actors:** the user of the ATM (primary) and the user's bank (secondary).
  - **System:** the ATM.
  - **Actor goal:** getting cash from their bank account.



A photograph showing three people standing at an ATM kiosk. One person is in the foreground, another slightly behind, and a third further back. They are all interacting with the ATMs.

October 2015

Requirements Engineering

3

RE

2

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Example: withdraw money from an ATM

1. The user enters her card in the ATM slot.

2. The ATM requests the PIN to the user.

3. The user enters her PIN.

4. The ATM prompts for the operation to perform.


5. The user selects the “get cash” operation.

6. The ATM prompts for the amount of money.

7. The user enters the amount of money.

8. The ATM requests for amount confirmation.

9. ...



October 2015

Requirements Engineering

4

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

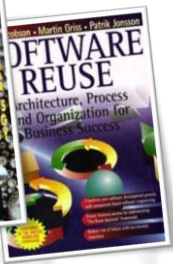


6. Actor classification


7. Use case organization

Functional Requirements Documentation: Use Cases

• Use case origins

– Ivar Jacobson popularized the concept in *Object-oriented software engineering: A use case driven approach* (Addison-Wesley, 1992), but did not set a specific format or a detailed development process.





October 2015

Requirements Engineering

5

RE

3

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Use case origins

– Alistair Cockburn is one of the most relevant authors on use cases. His its book, *Writing Effective Use Cases* (Addison-Wesley, 2001), is one of the most practical texts on writing use cases as sequences of steps in natural language, which is the most used form.

October 2015

Requirements Engineering

6

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Activities in which use cases are used

```
graph TD
    Elicitation[Requirements Elicitation] --> Documentation[Requirements documentation]
    Documentation --> Negotiation[Requirements Negotiation]
    Negotiation --> Elicitation
    Negotiation --> Management[Requirements Management]
    Management --> Negotiation
    Documentation --> Analysis[Requirements Analysis]
    Analysis --> Verification[Requirements Verification]
    Verification --> Validation[Requirements Validation]
    Validation --> Management
    Management --> Validation
    Elicitation -.-> Elicited[Elicited Information]
    Elicited -.-> Documentation
    Documentation -.-> Draft[Requirements [Draft]]
    Draft -.-> Negotiation
    Negotiation -.-> ConflictsSolved[Conflicts [Solved]]
    ConflictsSolved -.-> Elicitation
    Negotiation -.-> ConflictsPending[Conflicts [Pending]]
    ConflictsPending -.-> Verification
    Verification -.-> Analyzed[Requirements [Analyzed]]
    Analyzed -.-> Defects[Defects]
    Defects -.-> Documentation
    Verification -.-> Verified[Requirements [Verified]]
    Verified -.-> Validation
    Validation -.-> Validated[Requirements [Validated]]
    Validated -.-> Management
    Management -.-> Versioned[Requirements [Versioned]]
    Versioned -.-> Elicitation
```

October 2015

Requirements Engineering

7

RE

4

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification


7. Use case organization

Functional Requirements Documentation: Use Cases

• In requirements elicitation ...

- They can be used as an **interaction technique** to focus discussions on the **services** to be provided by the system to be developed or maintained in order to support the **business processes** of the client organization.

How would you like to use the system when ...?



October 2015

Requirements Engineering

8

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams


6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• In requirements documentation ...

- They can be used as an **alternative** technique to **traditional lists of requirements** for the documentation of almost all functional requirements.




October 2015

Requirements Engineering

9

RE

5



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process


5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases


- In requirements validation ...
  - They can be used as the **validation units** together with **UI prototypes**, so that users walk through the use cases using the prototype and validating them.



October 2015

Requirements Engineering

10



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process


5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases


- Common attributes
  - As other requirements, use cases should have at least the following attributes:
    - Identifier, name, version
    - Authors, sources, dependencies (traces)
    - Description
    - Priority (importance, urgency)
    - Comments
  - The **name** of the use case must match the **goal** of the main actor, that is usually who starts the use case.



October 2015

Requirements Engineering

11



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Use case concept
2. Use cases in the RE process
3. Use case specification
4. Specification process
5. Use case diagrams
6. Actor classification
7. Use case organization


Functional Requirements Documentation: Use Cases

- Common attributes
  - For the use case **description**, the following **linguistic pattern** can be used:
    - *The system should behave as described in the following use case when <triggering event>.*
  - The **triggering event** is the **business event** that make actors request a specific **service** to the system.

October 2015

Requirements Engineering

12



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Use case concept
2. Use cases in the RE process
3. Use case specification
4. Specification process
5. Use case diagrams
6. Actor classification
7. Use case organization

Functional Requirements Documentation: Use Cases

- Specific attributes
  - **Precondition**
    - Description of the situation in which the system and its environment should be in order to start the use case with some **chances of successful completion**.
  - **Postcondition**
    - Description of the situation in which the system and its environment should be once the use case has been **successfully completed**.

October 2015

Requirements Engineering

13



UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Specific attributes

- Ordinary sequence
  - Sequence of interactions between actors and the system that leads to the successful completion of the case use.
  - The primary actor usually starts the sequence of steps, requesting some service to the system.
  - Then, interactions between actors and the system, in both senses, are intertwined.
  - The sequence usually ends with the system notifying everything was right.
- Exceptions
  - Anomalous situations which may occur during the normal sequence, and its corresponding treatment.

October 2015

Requirements Engineering

14

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases


• Example: withdraw money from ATM

- **Precondition:** the ATM is operational and the user has her card.
- **Postcondition:** the user has obtained the money requested, the user's bank has been notified of the transaction, and the ATM is ready for another operation.
- **Normal sequence:** (already seen)
- **Exceptions:**
  - Unreadable card.
  - Wrong PIN.
  - Impossible connection.
  - Insufficient balance.

October 2015

Requirements Engineering

15



RE

8



UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Level of detail (as needed)

– Summarized: Pre and postconditions are specified as usual but the ordinary sequence is summarized in the description itself.

UC-0001	Publicar una noticia [Resumido]
Versión	1.0 ( 19/07/2005 )
Autores	• Amador Durán Toro
Dependencias	Ninguno
Descripción	El sistema deberá comportarse tal como se describe en el siguiente caso de uso cuando un profesor decida publicar una noticia en el portal. Para ello el profesor introducirá el contenido de la noticia y el portal se encargará de registrarla y publicarla.
Precondición	El profesor se ha identificado correctamente y su sesión está abierta.
Postcondición	La noticia se ha registrado en el portal y aparece en la lista de las últimas noticias.
Comentarios	Ninguno

October 2015

Requirements Engineering

16

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Level of detail (as needed)


– Detailed: the ordinary sequence and its exceptions are specified in detail (step by step).

UC-0002	Publicar una noticia [Detallado]												
Versión	1.0 ( 19/07/2005 )												
Autores	• Amador Durán Toro												
Dependencias	Ninguno												
Descripción	El sistema deberá comportarse tal como se describe en el siguiente caso de uso cuando un profesor decida publicar una noticia en el portal.												
Precondición	El profesor se ha identificado correctamente y su sesión está abierta.												
Secuencia normal	<table><tr><th>Paso</th><th>Acción</th></tr><tr><td>1</td><td>El actor Profesor (ACT-0002) solicita al sistema publicar una noticia</td></tr><tr><td>2</td><td>El sistema muestra el editor de noticias y permite al usuario introducir el título, el contenido y la categoría de la noticia</td></tr><tr><td>3</td><td>El actor Profesor (ACT-0002) edita la nueva noticia</td></tr><tr><td>4</td><td>El actor Profesor (ACT-0002) solicita al sistema que registre y publique la nueva noticia que ya ha terminado de editar</td></tr><tr><td>5</td><td>El sistema informa al usuario de que la noticia ha quedado registrada correctamente</td></tr></table>	Paso	Acción	1	El actor Profesor (ACT-0002) solicita al sistema publicar una noticia	2	El sistema muestra el editor de noticias y permite al usuario introducir el título, el contenido y la categoría de la noticia	3	El actor Profesor (ACT-0002) edita la nueva noticia	4	El actor Profesor (ACT-0002) solicita al sistema que registre y publique la nueva noticia que ya ha terminado de editar	5	El sistema informa al usuario de que la noticia ha quedado registrada correctamente
Paso	Acción												
1	El actor Profesor (ACT-0002) solicita al sistema publicar una noticia												
2	El sistema muestra el editor de noticias y permite al usuario introducir el título, el contenido y la categoría de la noticia												
3	El actor Profesor (ACT-0002) edita la nueva noticia												
4	El actor Profesor (ACT-0002) solicita al sistema que registre y publique la nueva noticia que ya ha terminado de editar												
5	El sistema informa al usuario de que la noticia ha quedado registrada correctamente												
Postcondición	La noticia se ha registrado en el portal y aparece en la lista de las últimas noticias.												
Comentarios	Normalmente, un caso de uso debería tener excepciones que cubran situaciones en las que algo puede ir mal, aunque en este ejemplo no exista ninguna.												

October 2015

Requirements Engineering

17



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Level of detail (as needed)


- **Classic:** the service to be provided by the system to the users is specified in free text as a classic functional requirement.

FRQ-0001	Publicación de noticias [clásico]
Versión	1.0 ( 19/07/2005 )
Autores	• Amador Durán Toro
Dependencias	Ninguno
Descripción	El sistema deberá permitir a los profesores registrados en el sistema publicar noticias mediante un editor de noticias. Una vez finalizada la edición, el sistema registrará la noticia y la publicará dentro de la lista de últimas noticias.
Comentarios	Ninguno

October 2015

Requirements Engineering

18



UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• At detailed level, a use case step can be...

- **Conditional:** its realization depends on a condition on the state of the system or the environment.
- **Actor action:** the step describes the action of an actor, which may be an interaction with the system (request of a service, data provision, confirmation of an action, ...) or another actor.
- **System action:** the step describes a system action such as requesting information, showing information, validating information, ...

October 2015

Requirements Engineering

19

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• At detailed level, a use case step can be...

- **Realization of another use case:** the step consists on the realization of another case of use, which may be by ...
  - **Inclusion:** if the realization of another use case is **unconditional**, i.e. the step that indicates the realization of another use case is unconditional.
  - **Extension:** if the realization of another use case depends on a particular condition, the **extension condition**.

```
graph LR; PayCash([Pay cash]) -.->|<<extend>>| BuyItems([Buy items]); PayCard([Pay by Card]) -.->|<<extend>>| BuyItems
```

October 2015

Requirements Engineering

20

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Use case inclusion/extension

- Inclusions / extensions should only be used as a mechanism to **avoid redundancies**.
- When a **subsequence of common steps** is identified in several use cases and is relevant enough, it can be extracted and considered as an **abstract** use case to be included/extend by others.
- A use case is considered **abstract** because it cannot be realized by itself, it can only be realized as part of other use cases.

October 2015

Requirements Engineering

21

RE

11

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Step exceptions should specify...

– The **exception condition**: it indicates that an exceptional situation has happened.

– The **associated action**: it describes the response to the exceptional situation.

– The **exception termination**: it indicates whether, after performing the associated action, the use case can either **continue** or is **cancelled** returning the system to the state before the use case was initiated.

October 2015

Requirements Engineering

22

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Exception example: withdraw money from ATM

– **Condition**: the credit card, inserted into the card slot, cannot be read by the ATM.

– **Action**: the system ejects the card, informs the user that the card cannot be read, and requests the user to remove the card from the ATM slot.

– **Termination**: the use case is cancelled.

October 2015

Requirements Engineering

23

RE

12

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

- Other specific attributes
  - **Performance**: maximum time that the system can take to perform the action in a step or in an exception. Especially relevant in critical systems\*.
  - **Frequency of use**: estimation of how often a particular use case will be performed. It is important for identifying **critical use cases** (the most realized use cases and with bigger impact on the system).
  - **Simultaneous realizations**: number of instances of the use case that the system should be capable of performing simultaneously without degrading its performance.

\* Systems whose failure may cause loss of human lives and/or economic losses.

October 2015

Requirements Engineering

24

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

- Specification Process (recommended)

Use Case Specification Process

October 2015

Requirements Engineering

25

RE

13

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification


7. Use case organization

Functional Requirements Documentation: Use Cases

• Use case diagrams

– They are only an **index**, not the content of the use cases, which must be specified textually and cannot be deduced from the diagrams.


– They only allow to express the names of the use cases, which actors participate in each use case, and the inclusion and extension relationships.



Actor

Use Case UC-999

System



October 2015

Requirements Engineering

26

UNIVERSIDAD DE SEVILLA

Escuela Técnica Superior de Ingeniería Informática

Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization


Functional Requirements Documentation: Use Cases

• Use case diagrams

– Actors are represented as **stickmen**.

– The system is represented as a **box** that contains the use cases but not the actors.


– Use cases are represented as **ellipses** with the name of the use case inside (and an ID if used).



Actor

Use Case UC-999

System



October 2015

Requirements Engineering

27

RE

14

Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• Use case diagram example

Indicates that *Register new reader* extends *Register loan*

Indicates participation of an actor in the use case

System scope

Book Loan Management System

October 2015

Requirements Engineering

28

Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

• If several actors can perform the same use cases...

Actor A can participate in X, Y, and Z use cases.

Actor B can participate in Y, Z, and W use cases.

October 2015

Requirements Engineering

29



Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization

Functional Requirements Documentation: Use Cases

- ...the model can be simplified through a hierarchy of actors

Actor G is a generalization of A and B actors. G can participate in the common use cases: Y and Z.

Actor A is an specialization of the G actor. A can participate in all the use cases in which G participates and also in X.

Actor B is an specialization of the G actor. B can participate in all the use cases in which G participates and also in W.

October 2015

Requirements Engineering

30

Escuela Técnica Superior de Ingeniería Informática  
Departamento de Lenguajes y Sistemas Informáticos

1. Use case concept

2. Use cases in the RE process

3. Use case specification

4. Specification process

5. Use case diagrams

6. Actor classification

7. Use case organization


Functional Requirements Documentation: Use Cases

- Subsystems organization
  - Use cases can be organized in **subsystems** to ease the **understanding** of requirements documentation.
  - Each subsystem should contains a **set of cohesive** use cases.

October 2015

Requirements Engineering

31




UNIVERSIDAD DE SEVILLA  
Escuela Técnica Superior  
de Ingeniería Informática  
Departamento de Lenguajes  
y Sistemas Informáticos

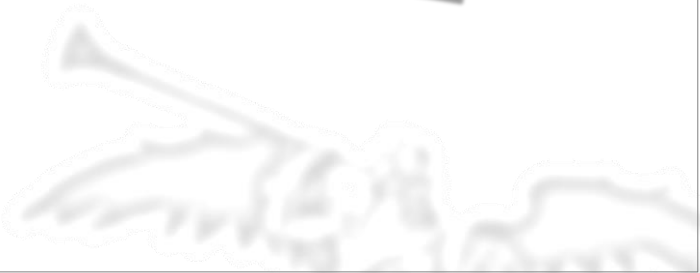
1. Use case concept
2. Use cases in the RE process
3. Use case specification
4. Specification process
5. Use case diagrams
6. Actor classification
7. Use case organization

Functional Requirements Documentation: Use Cases

- Comments, suggestions, ...



Amador Durán Toro  
[amador@us.es](mailto:amador@us.es)  
Department of Computer Languages and Systems  
E.T.S. Computer Engineering, University of Seville, Spain



October 2015

Requirements Engineering

32