

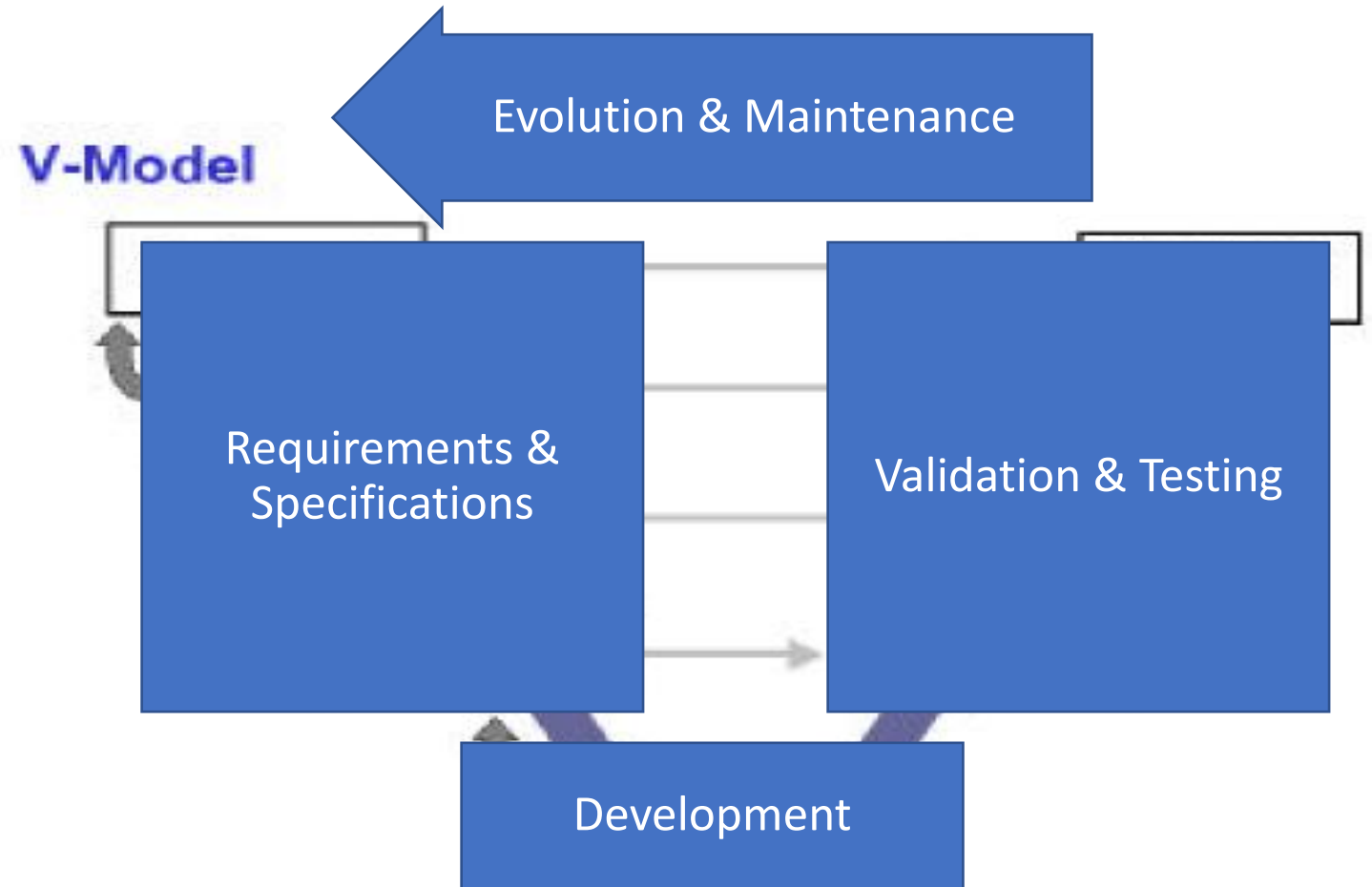
Software Engineering COMP1035

Lecture 03

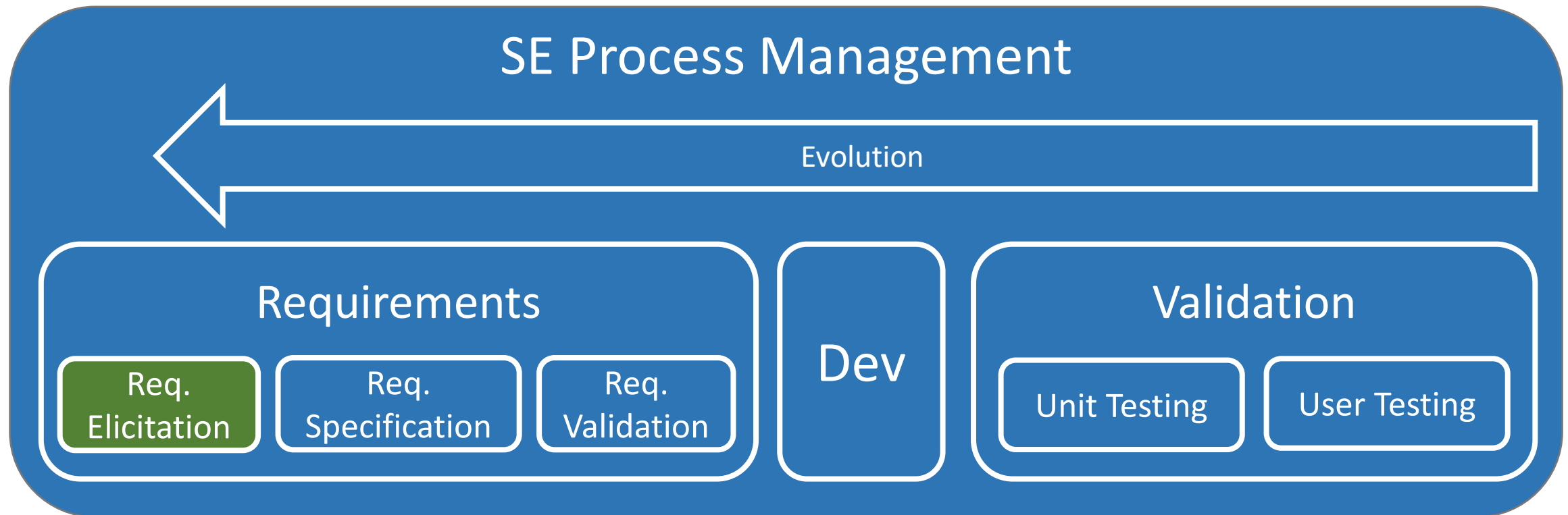
Requirements Elicitation



Keeping Track of SE Module



Keeping Track of SE Module



Preparing Documents for Stakeholders

- Once the analysis of stakeholder requirements is finalized, it is crucial to **compile relevant documents for discussion with stakeholders**. These may include:
 - Use case diagram
 - Personas
 - Scenarios
 - User stories
- These documents aid in enhancing stakeholders' comprehension of scenarios and potential issues.

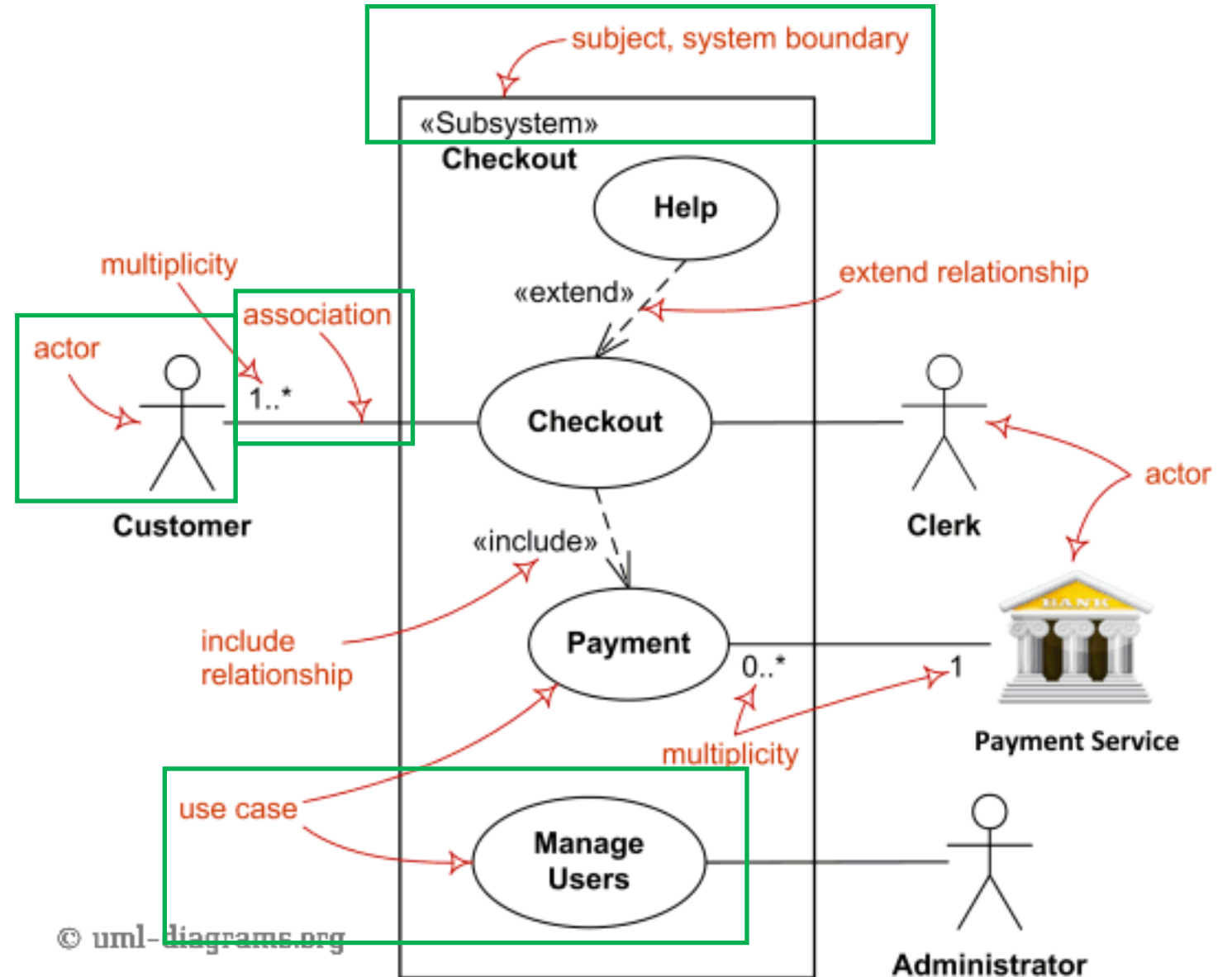




Use Case Diagram

Use Case Diagram

- A use case diagram is a **graphical representation** of a relationship between an **actor** (a user, application, or system) and a **solution** (use case).
 - To elaborate the tasks that each Stakeholder will do.
 - They represent the people who use the system and the tasks they must perform.
 - Call the people “actors”.



Use Case Diagram

- **Without** system boundary

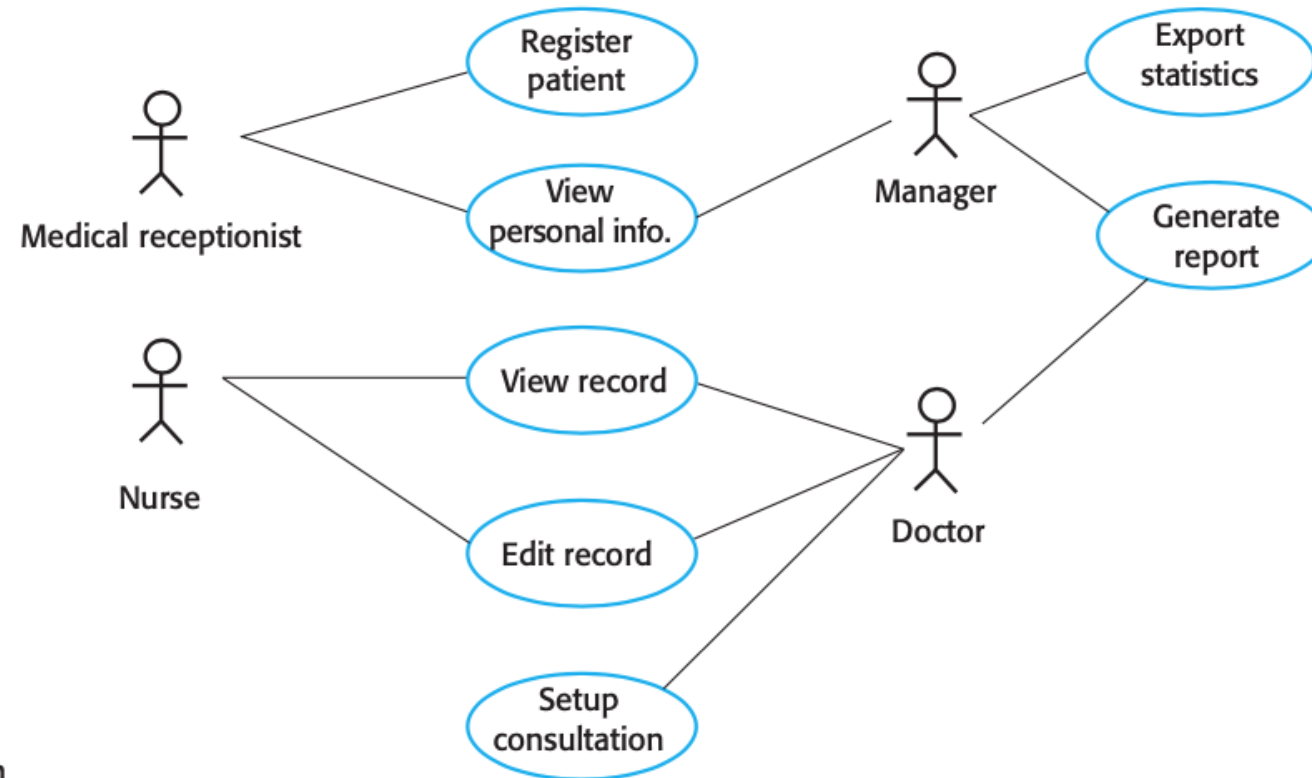


Figure 4.15 Use cases for the Mentcare system

Use Case Diagram

- **With** system boundary

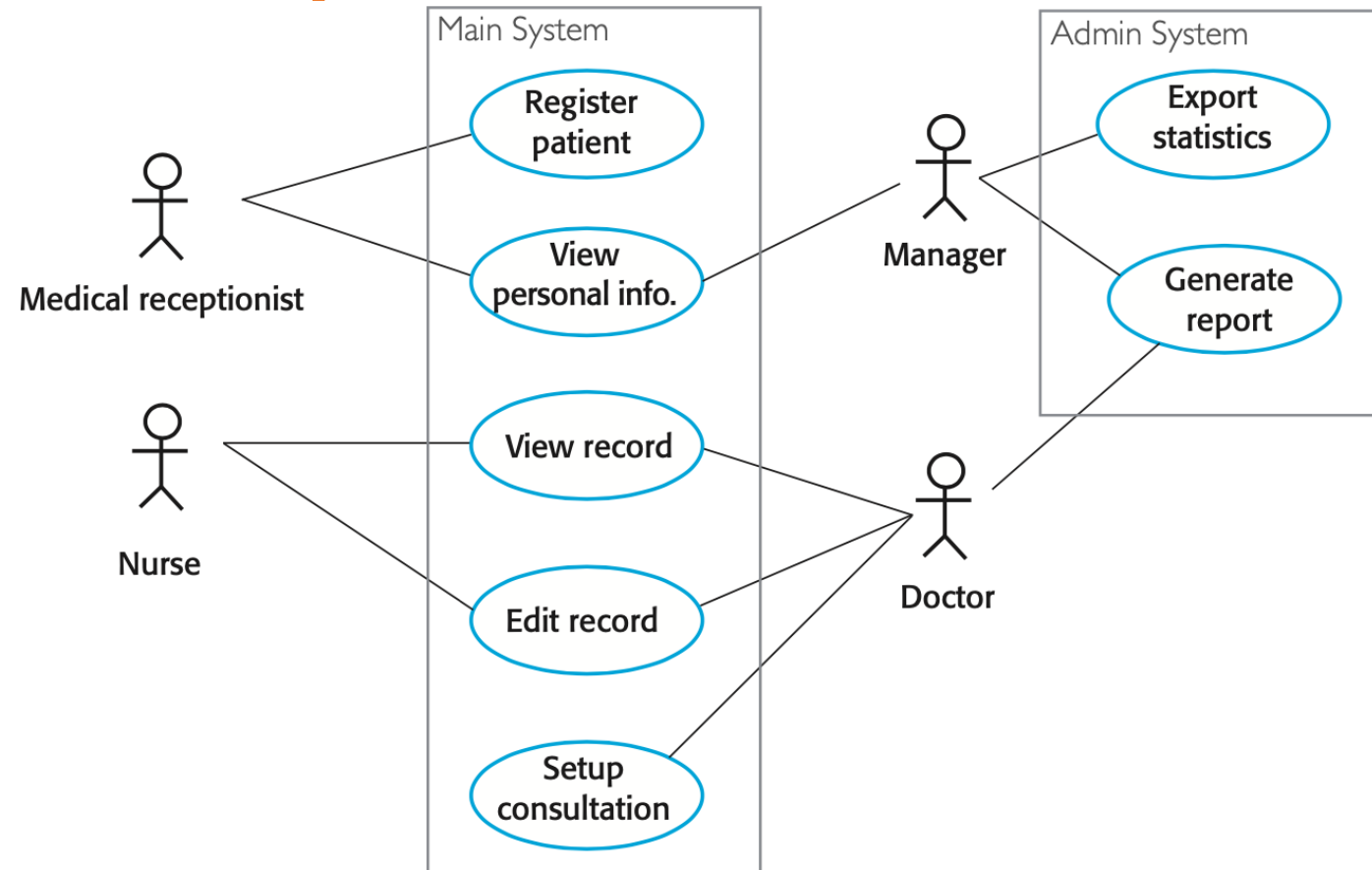
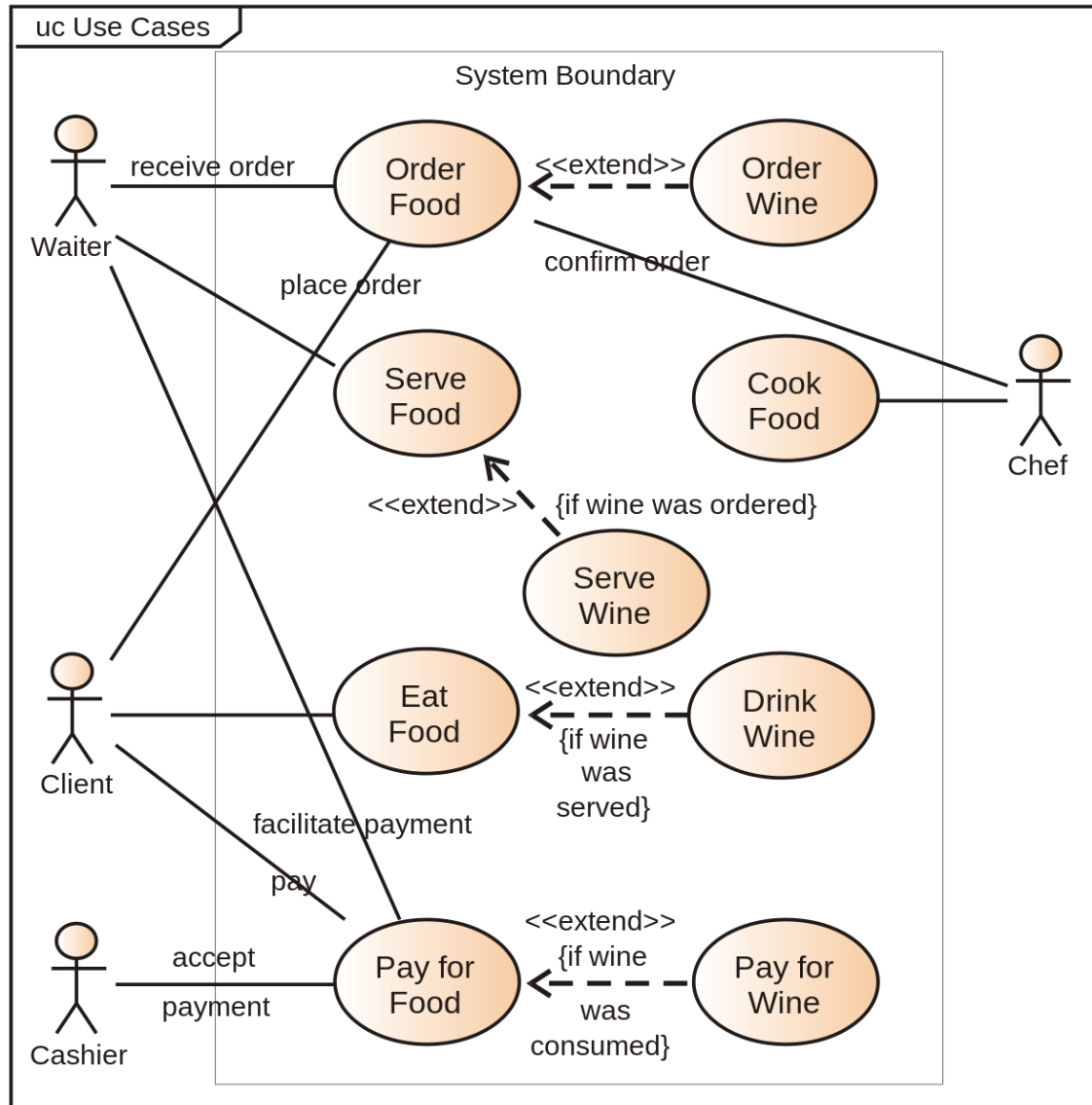


Figure 4.15 Use cases for the MHC-PMS

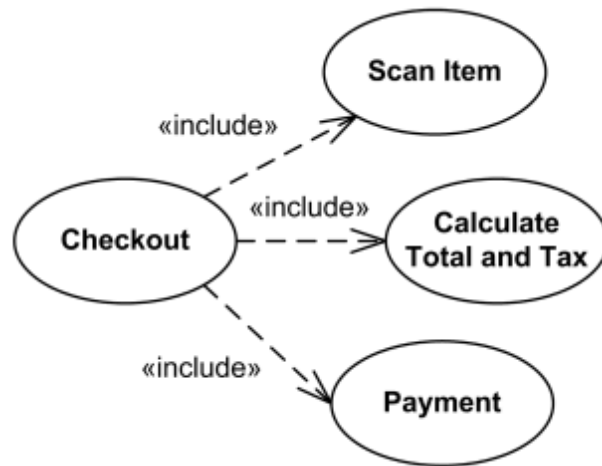


Use Case Diagram

- A use case can be an extension of a task.
 - (That should have done first)
- Some tasks may necessarily include other tasks.
 - (That can be done separately)
- A use case is commonly written in the format of “Verb” +/- “Noun”

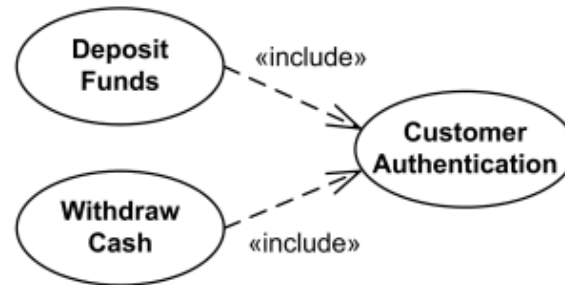
<<extend>> and <<include>> in Use Case Diagram

<<include>> represents Needed Actions

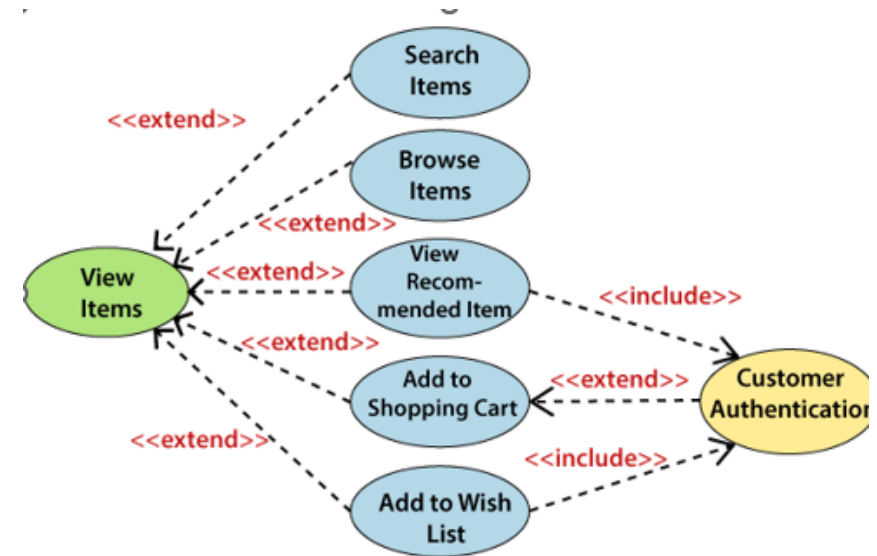


A Checkout use case involves/includes the use cases of Scan Item, Calculate Total and Tax, and Payment.

Both Deposit Funds and Withdraw Cash use cases involve/include Customer Authentication.



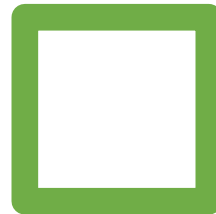
<<extend>> represents Part-of (Optional) Actions



Search items, Browse Items, View Recommended Item, Add to Shopping Cart, Add to Wish List use cases are part-of (extended) View Items use case.



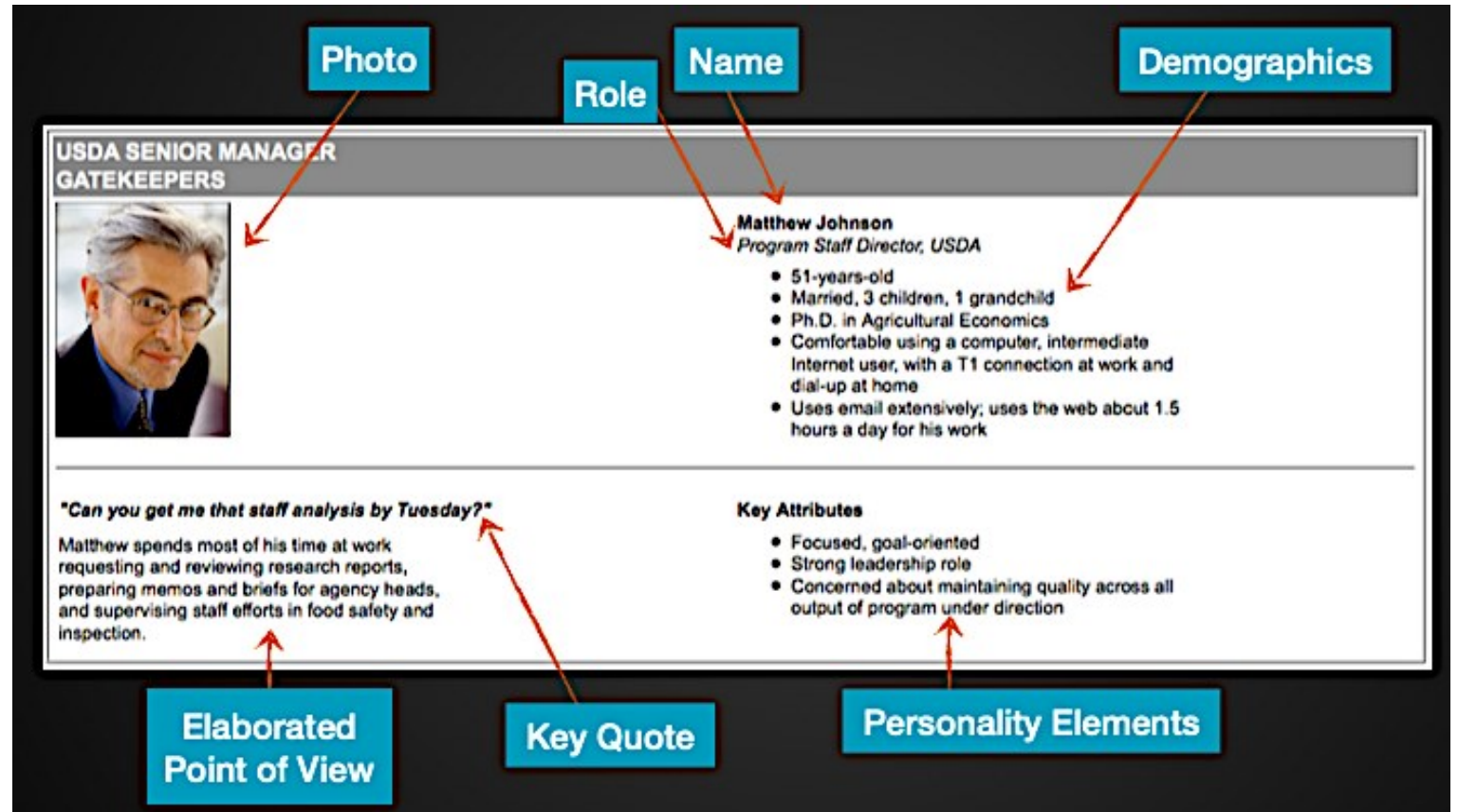
Persona



Persona

- Represents a real **type of user** from your stakeholders.
- Personas are **fictional representations** of various user types associated with a service, product, website, or brand.
- These personas are designed through research and observations of real individuals, aiding designers in comprehending users' needs, experiences, behaviors, and objectives.
- The aim of **personas are to differentiate stakeholders clearly**.
 - **Identify**: motivations, expectations, goals, knowledge.
 - **Usage**: Help you to put yourself in the shoes of ...
 - **Ideally**: try to have a small number – all one page at most.

Sample of A Persona





"I am looking for a co-working space with a lively environment and well-designed interiors to incorporate 12-15 members"

Leonard Grey



25 Yrs



New York City



Data Analyst

Bio

His job demands traveling and meeting with new clients at different locations. He is looking to switch to a professional working environment with like-minded people. When he is not working he enjoys playing foosball & crossword.

Goals

- Pay per usage
- Company Registration
- Dedicated storage space
- Virtual Office

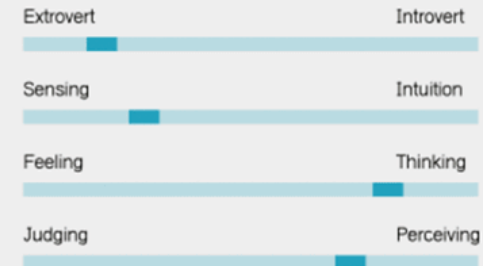
Frustrations

- Parking at extra cost
- Location proximity
- Chaotic Environment
- Accommodation needed in business trips

Motivations

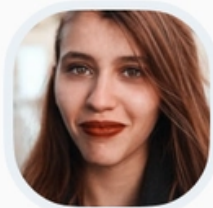


Personality



Technology





Alice Girard

UX Designer

If you equip people with the right tools, they will build the most extraordinary things.

Personal

27 C. Science
 Paris Student
 Female Single

Professional

UX Designer @ Guillet.io
 74,000 - 80,000

Cooperative

Kind

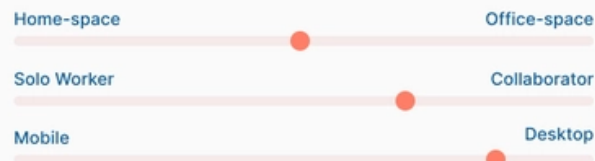
Creative

Smart

Reliable

Organized

User environment



Alice works from home, but sometimes she commute to co-working space, where she has the opportunity to share ideas with other people. Since her job is remote now, she became quite handy with collaboration tools like Figma, Miro, Zeplin etc.

Psychographics



Alice enjoys trying out different software because she thinks IT industry is changing constantly and it's important to always be up to date. She loves open-source projects and often contributes to them, but hates when they overnight disable certain tool features and allow it only on paid plan. Subscribing to such tools is ok with her as long as the company business policy is transparent with known future.

User end goals

- Create delicious projects with ease together with her co-workers.
- Creating herself challenges by learning new tools and mastering them.
- Become more proficient with her work, so that she can do more with less.
- Save time on switching too often between different tools and workflows.

Scenario

While commuting to work, i can check on mobile app comments and notes on projects im currently working on. Since i use design tools both at home and at my co-working space, i find it convenient that these tools are platform-agnostic. Since everything is cloud-based, i don't have to worry about uploading my work or backuping the night before, when i work from home. Teaching is great form of learning, and being early-adopter gives me opportunity to share knowledge with my co-workers, and create bigger circle of people using the tool.

Tools



CUSTOMER PERSONA

"Nothing makes me happier than the smiling faces of my children after work."
- Julia Y.



Julia Yvonne

Receptionist



Age: 32



Children: Two



Employer: Chicago Hospital



Annual Income: \$32,000

Personal Traits

Patience 90%▼

Flexibility ▼40%

Problem-solving ▼70%

Bio

Julia Yvonne is 32 and works as a receptionist in a Chicago hospital. She is married and lives with her husband and two children, a six-year-old boy and an eight-year-old daughter.

Frustrations

- Working on weekends
- Low income
- Dirty house

Needs

- > Julia wants to spend quality time with her husband and children.
- > She wishes to spend more time with her children at soccer game.

Free Time

Usually, Julia does not have any free time. Her average free time to herself is 30 to 40 minutes. Sometimes she browse the internet.

General Overview Design

How to design a Buyer Persona

#

Follow the instructions: Just follow the yellow numbers in order.

What is the Buyer Persona

The Persona technique, is a tool for the synthesis of the research of the users consuming a product or service. It is a description of the pattern representing a group of users that helps the organization to understand its customers


1

NAME & PHOTO

Select a proper name for the person who represents this profile. Look for a photo that matches the profile you are describing and replace the box below with this one.

Javier

Photo



2

Describe his/her habits, actions, customs and behaviors. What individual characteristics and elements can be grouped representing your target user? Identify personal and professional data that will help identify the pattern. They don't have to be the ones in the example - replace them

AGE: 43

STUDIES: Engineer

EXPERIENCE: 18 years

INCOME: 40,000/year

LOCATION: Migrated to Madrid but wanting to return home

3

Write a story that synthesizes the described behavior of the Person.

Character Synthesis

Javier has been working as a programmer in a consulting firm almost since he started working. He has family commitments and can't afford to "undertake" but would love to do something related to technology...

4

HABITS & BEHAVIORS

Investigate their actions, habits and behaviors

Collects books from gurus

5

MOTIVATIONS

Identify their motivations, and concerns

Being on the cutting edge of new technologies

6

FRUSTATIONS

What frustrates or limits him?

I can't find a true leader in any book

7

CHALLENGES

What are your needs, problems or challenges?

Learning to "sell" and sell myself

8

OBJECTIVES

Try to understand their main needs and main tasks

To be able to give me whims that I can't afford today

9

INDICATORS

Select the variables that reflect the identified patterns and are important to explain the value proposition, and places People in a qualitative line between a plus and a minus.

Ability to pay

Resilience

Purchase impulse

Tenacity

10

Create a phrase that identifies or summarizes the profile

Quote

I want to change my professional activity

Persona

- Not a report or real people from the client company.
- Choose a generic representative name/photo/etc.
- Make 2 or 3 that demonstrate **key user types**.
- It might be that several stakeholders can be represented by one persona, e.g., lecturers / module convenors / supervisors.
- It might be that one stakeholder type – needs several personas, e.g., regular gamers, casual gamers, high-spenders.

Persona

- "Externalisation"
 - SE mistakes are often from "what was not said and not documented".
- At design time: Would "Jim" use this?
 - Stops designers designing for themselves.
- Prioritisation of requirements.
 - Asking: Does this design satisfy all 3 personas?
- Developing scenarios!

Scenarios

Scenarios

- Explanation of how the system can be **utilised for specific tasks**, presented in a **structured format** rather than a narrative.
- The stories serve as a high-level overview of system usage, effectively illustrating the overall concept.
- Scenarios typically **include specific details** such as inputs and outputs, allowing for more detailed development of individual components.

“envision and document typical and significant user activities.”

- John Carroll, Five Reasons for Scenario-Based Design

Scenarios

- Must **define a setting** or context.
 - Might come from a technology tour (for example).
 - The environment, the things in it, etc.
- Must define one or more **actors or users**.
 - Perhaps a persona.
- Must define **goals or objectives**.
 - Perhaps from a task analysis or user story.
- Description of what can go wrong and how resulting problems can be handled.

Scenarios

- Must **describe a plot**.
 - As a sequence of events (when the scenario starts and ends).
 - Perhaps from a task analysis or activity diagram.
- **The plot describes how a user, in a context, achieves a goal.**
- Scenarios are written **text descriptions**.
 - Describing current events or other activities that might be going on at the same time.
 - OR describing ideal or possible events in design.
- Pick ones that *would benefit* from being “illustrated” with detail.
 - Scenario for student picking the simple modules?
 - Scenario for student trying to do a 70/50, including a language from another department?
 - Scenario for a module convenor, considering unusual enrolment requests?
 - Scenario for a student services representative processing a series of standard requests?

Scenarios Example

- Book recommendations for detail section:
 - The “normal” flow of events for the scenario.
- Book recommendations for notes section:
 - What can go wrong and how to fix.
 - Other activities happening in parallel.
 - What happens after.

Scenario MP3/01	
Title	How does that song go again?
Overview	People: single female, computer literate, works at home Activities: Searching for mp3 tracks Context: Apartment with office/study Technology: Pc
Rationale	An introduction/reasoning for its existence
Detail	Numbered paragraphs in detail describing stage by stage e.g. - P5: She touches the play button and listens. She increases the volume, and the lyrics appear on screen.
Notes	Numbered design issues/questions to be discussed/considered

Scenarios

Example

What	Scenario 1: Check for a module announcement
Why	Practical Goal: Obtain information in any new module announcement.
Where	Environment: Personal computer connected to the internet in student residence.
Who	User: Full-time undergraduate student.
When	Student is registered for module CI216 on studentCentral. The opening page of studentCentral has been loaded in a browser. Module CI216 has a new announcement
How	Enter user name: "PDQ". Enter password: "8bannAna". Indicate: 'CI216 - User Centred Design for Interaction' Receive announcement: "The schedule for this module has changed." View the updated schedule in the module folder." Logout from studentCentral Close the browser

Stories Example

Photo sharing in the classroom

Jack is a primary school teacher in Ullapool (a village in northern Scotland). He has decided that a class project should be focused on the fishing industry in the area, looking at the history, development, and economic impact of fishing. As part of this project, pupils are asked to gather and share reminiscences from relatives, use newspaper archives, and collect old photographs related to fishing and fishing communities in the area. Pupils use an iLearn wiki to gather together fishing stories and SCRAN (a history resources site) to access newspaper archives and photographs. However, Jack also needs a photo-sharing site because he wants pupils to take and comment on each other's photos and to upload scans of old photographs that they may have in their families.

Jack sends an email to a primary school teachers' group, which he is a member of, to see if anyone can recommend an appropriate system. Two teachers reply, and both suggest that he use KidsTakePics, a photo-sharing site that allows teachers to check and moderate content. As KidsTakePics is not integrated with the iLearn authentication service, he sets up a teacher and a class account. He uses the iLearn setup service to add KidsTakePics to the services seen by the pupils in his class so that when they log in, they can immediately use the system to upload photos from their mobile devices and class computers.

Stories to Scenarios

Uploading photos to KidsTakePics

Initial assumption: A user or a group of users have one or more digital photographs to be uploaded to the picture-sharing site. These photos are saved on either a tablet or a laptop computer. They have successfully logged on to KidsTakePics.

Normal: The user chooses to upload photos and is prompted to select the photos to be uploaded on the computer and to select the project name under which the photos will be stored. Users should also be given the option of inputting keywords that should be associated with each uploaded photo. Uploaded photos are named by creating a conjunction of the user name with the filename of the photo on the local computer.

On completion of the upload, the system automatically sends an email to the project moderator, asking them to check new content, and generates an on-screen message to the user that this checking has been done.

What can go wrong: No moderator is associated with the selected project. An email is automatically generated to the school administrator asking them to nominate a project moderator. Users should be informed of a possible delay in making their photos visible.

Photos with the same name have already been uploaded by the same user. The user should be asked if he or she wishes to re-upload the photos with the same name, rename the photos, or cancel the upload. If users choose to re-upload the photos, the originals are overwritten. If they choose to rename the photos, a new name is automatically generated by adding a number to the existing filename.

Other activities: The moderator may be logged on to the system and may approve photos as they are uploaded.

System state on completion: User is logged on. The selected photos have been uploaded and assigned a status "awaiting moderation." Photos are visible to the moderator and to the user who uploaded them.

User Stories





User Stories

- A user story is an **informal and broad description of a software feature** narrated from the **viewpoint of the end user**.
- Its objective is to **clarify how a software feature will deliver value to the customer**.
- You have a list of actors – with ‘representations’ as personas.
- You have use cases – functions they will do.
- Now bring them together - and add ‘the why’ to it.

User Stories

user story template

WHO are we building it for? Who is the user?	As a <type of user>
WHAT are we building? What is the intention?	I want <some goal or objective>
WHY are we building it? What is the value for the customer?	So that <benefit/value>

“As a <role>, I want <goal/desire> so that <outcome>”

- Highly common in Agile teams.
 - Fast and lightweight way of documenting requirements.
- A single sentence – to represent single requirement.
 - A **role** (actor/stakeholder etc.).
 - A **goal**/function/action/use case.
 - An effect/**outcome**/motivation – the **WHY** behind the **WHAT**.

User Stories Example



User Stories

Pros



Concise and clear.



Very little maintenance.



Creates a clear requirements checklist.



Break project down into chunks.

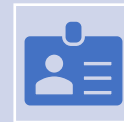


Can rank for importance etc.

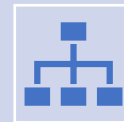
Cons



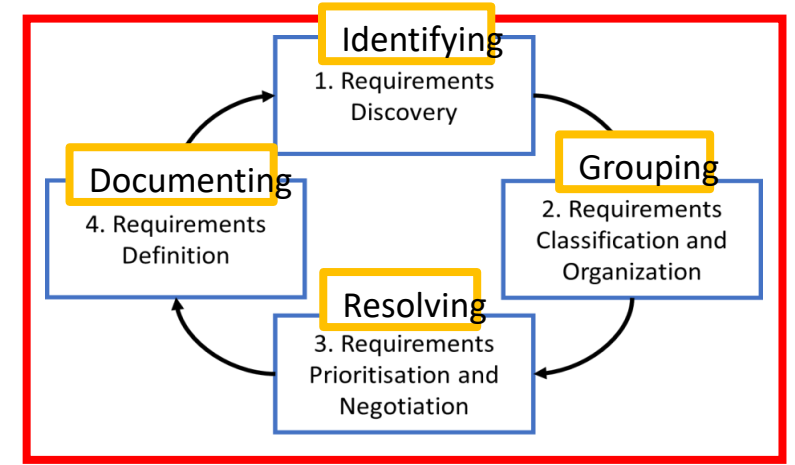
Difficult to use in BIG projects.



Loose detail and formality.



Don't describe process or tasks or context.



- 34

Expected Readings

- Primary, Secondary & Tertiary Stakeholders
 - <https://bizfluent.com/info-8353421-primary-secondary-tertiary-stakeholders.html>
- Personas
 - <https://www.usability.gov/how-to-and-tools/methods/personas.html>
- Use Case Diagrams
 - <http://www.agilemodeling.com/artifacts/useCaseDiagram.htm>

Expected Readings

- User Stories
- 10 Tips for User Stories
- MSDN Use Case Diagrams
- Scenarios Method

THANK

YOU