

Technology
Science
Information
Networks
Computing



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New Media Product Design and Development

Lecture 2. Requirement and Feasibility Analysis

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Part 02

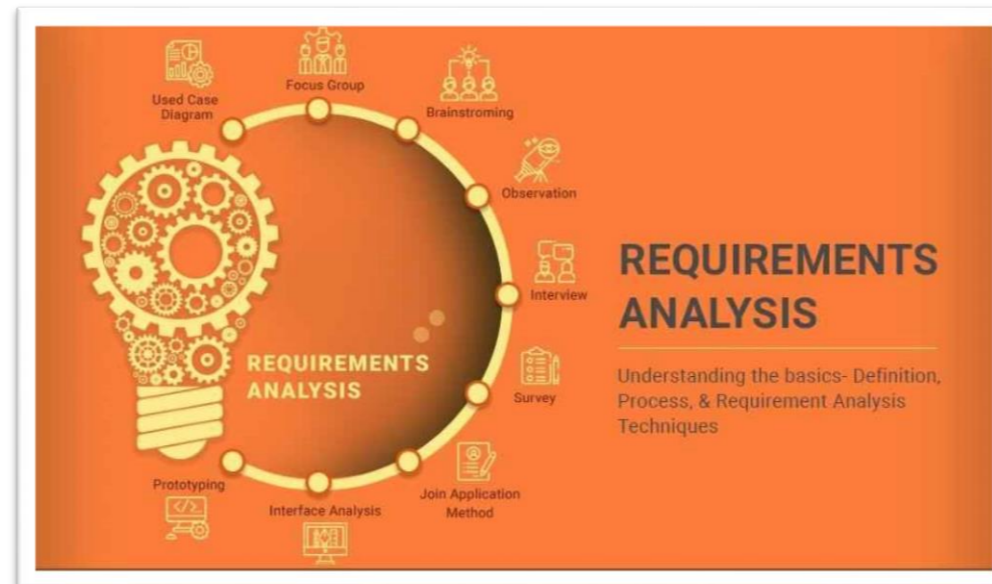
User-centered
requirement analysis

What is requirement analysis?

Requirements analysis (also called requirements engineering)

is the process of determining user expectations for a new or modified product.

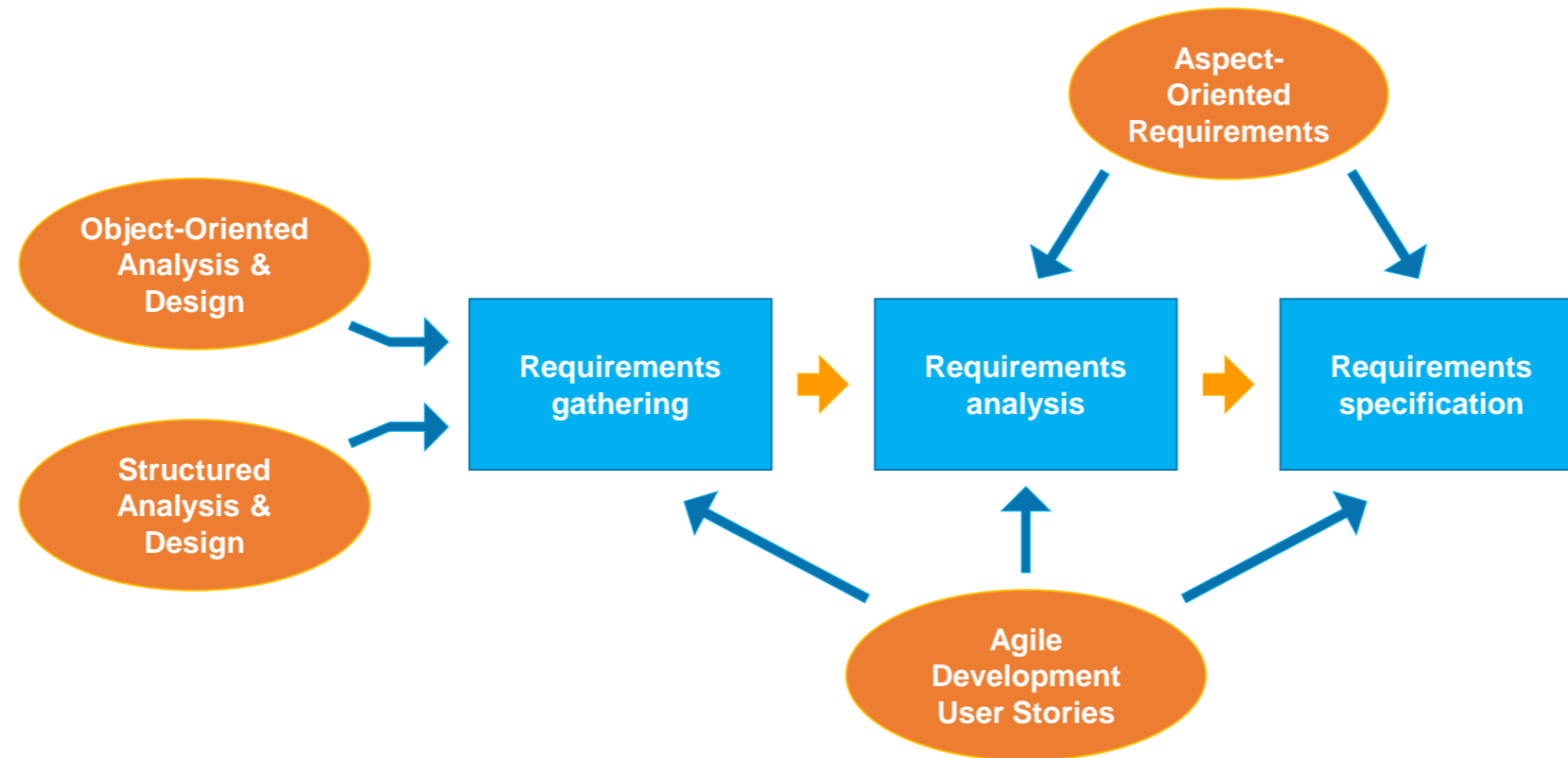
- **Requirements analysis** means to **analyze, document, validate** and **manage** software or system requirements.
- **High-quality requirements** are **documented, actionable, measurable, testable, traceable**, helps to identify business opportunities, and are defined to a facilitate system design.



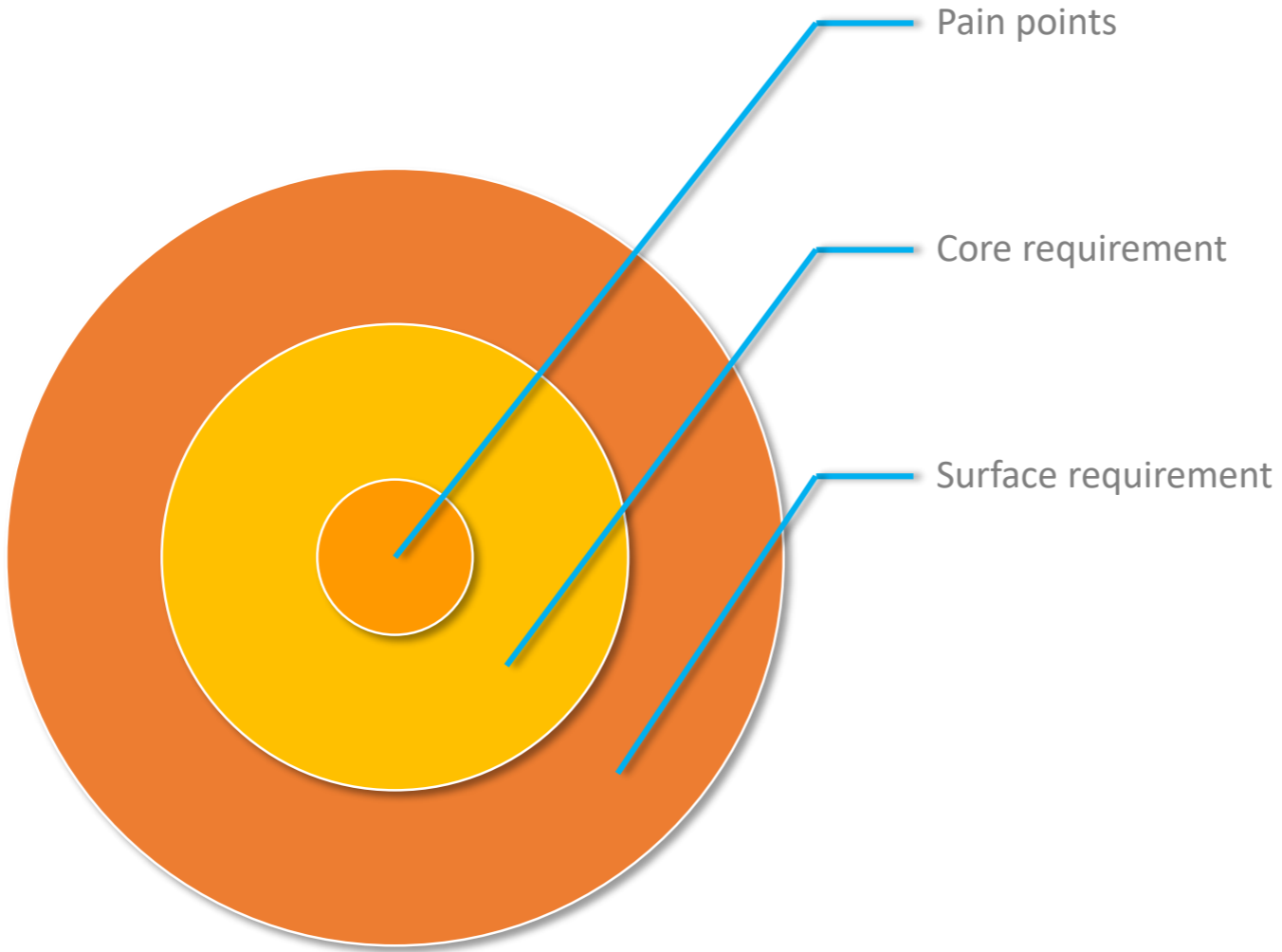
Aspects of requirement analysis



Requirements Process



Core requirement and the pain point



Requirements Engineering Components

01

““ Requirements gathering

- helps the customer to define what is required:
 - what is to be accomplished
 - how the system will fit into the needs of the business
 - how the system will be used on a day-to-day basis

02

““ Requirements analysis

- refining and modifying the gathered requirements

03

““ Requirements specification

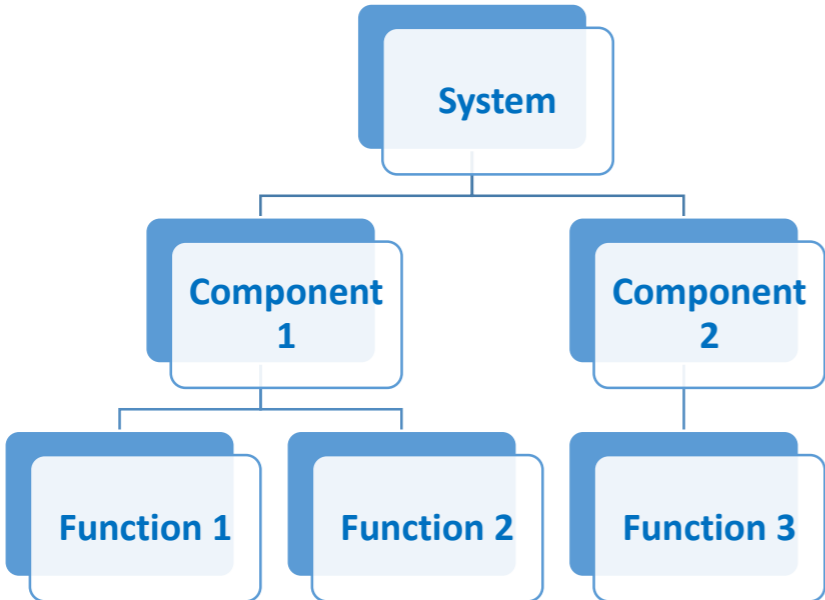
- documenting the system requirements in a semiformal or formal manner to ensure
 - clarity
 - consistency
 - completeness

How to analyze requirements?

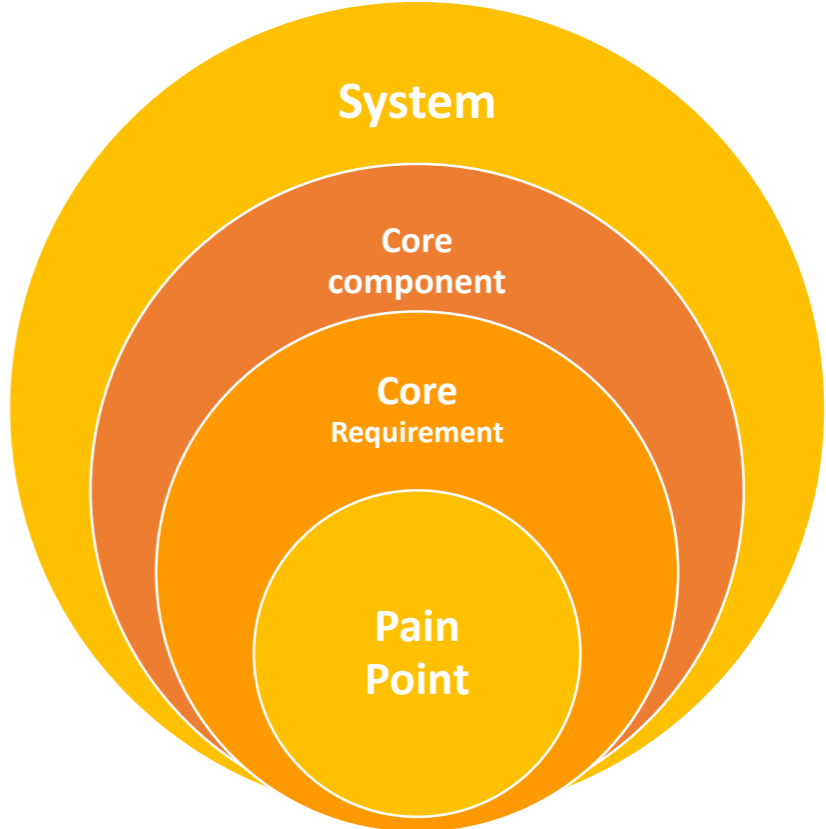


Approaches for requirement analysis

Top-Down



Agile



Requirement change

Requirement change is very normal.

1. Add
2. Delete
3. Update

Reasons of requirement change:

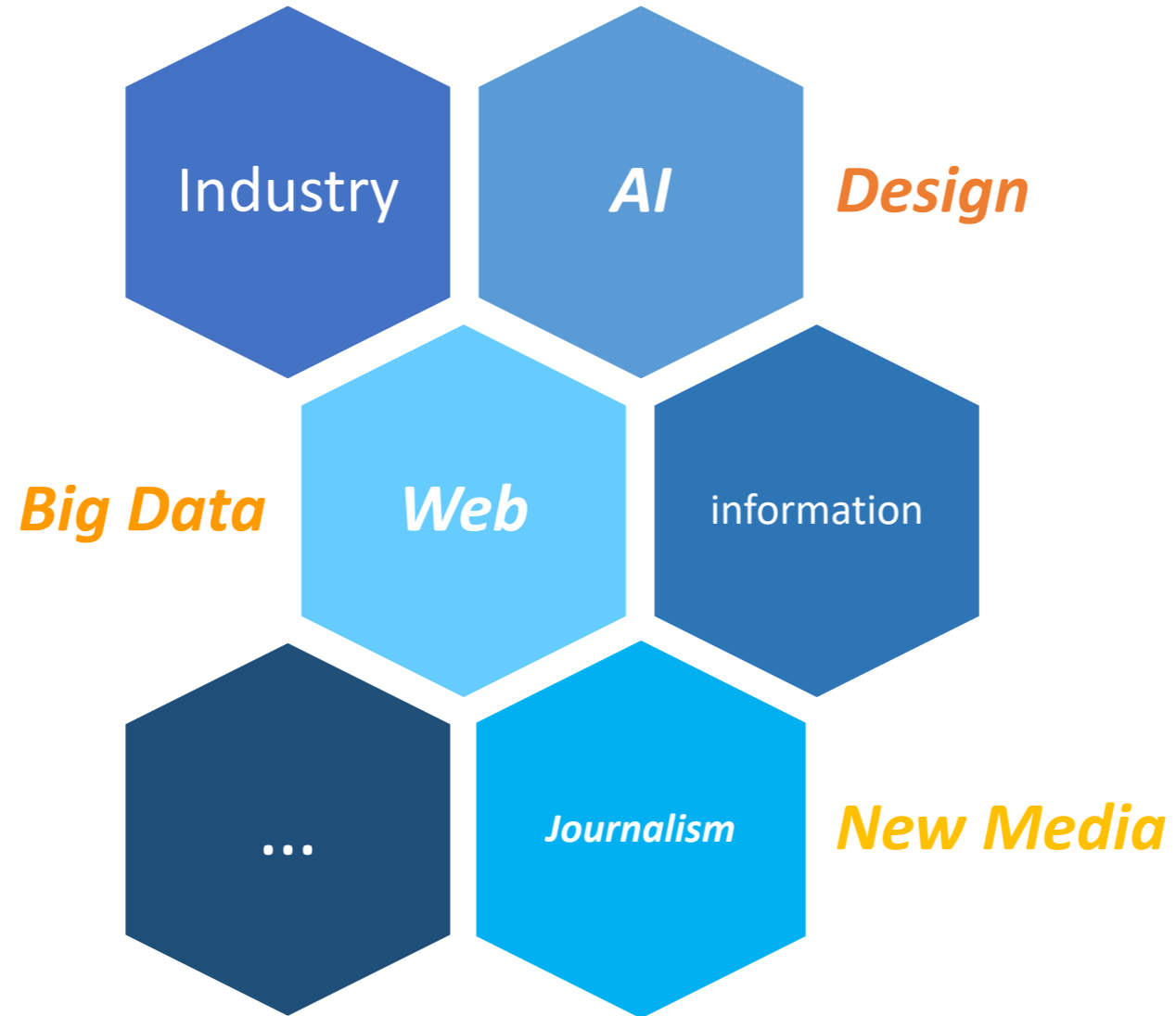
1. Equipment change
2. User change
3. Unclear requirement analysis
4. Unpredictable difficulties
5. Ambition

Approaches:

1. Record the changes
2. Resort the priority of each requirement
3. Update the core requirement



Knowledge preparation



Requirement analysis in GB/T8567

1988

《软件需求说明书》

- 功能
- 性能
- 输入输出
- 数据管理
- 故障处理
- 设备
- 支持软件
- 接口
- 控制

2006

《系统/子系统需求规格说明》(SSS)

《接口需求规格说明》(IRS)

《软件需求规格说明》(SRS)

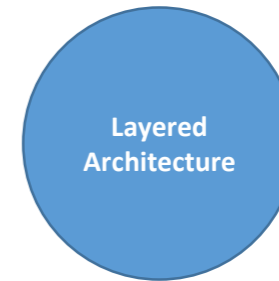
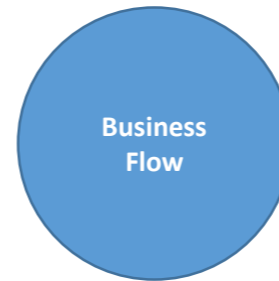
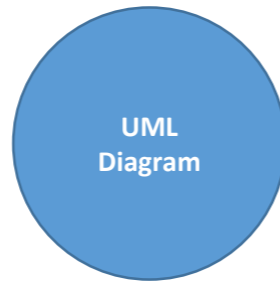
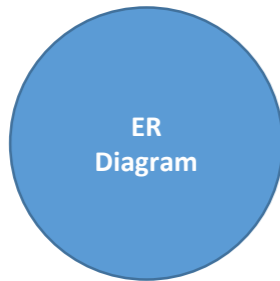
《数据需求说明》(DRD)

Requirements specification

A **System Requirements Specification (SRS)**

(also known as a **Software Requirements Specification**)

is a document or set of documentation that describes the features and behavior of a system or software.



ER diagram

One-to-one relationship (1:1):

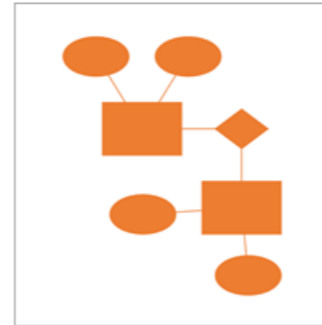
Indicates that one instance of an entity is related only to one instance of another entity. For example, in a database of users in a bank, each user is related to only one account number.

One-to-many relationship (1: M):

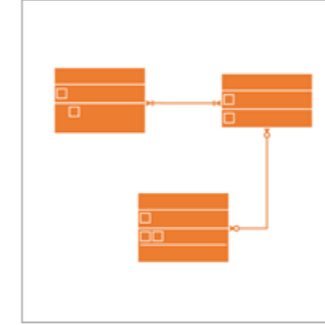
Indicates that one instance of an entity is related to several instances of another entity. For example, one user can have many accounts in different banks.

Many-to-many relationship (M: M):

Indicates that many instances of entities are related to several instances of another entity. For example, many users can have their accounts in many banks.

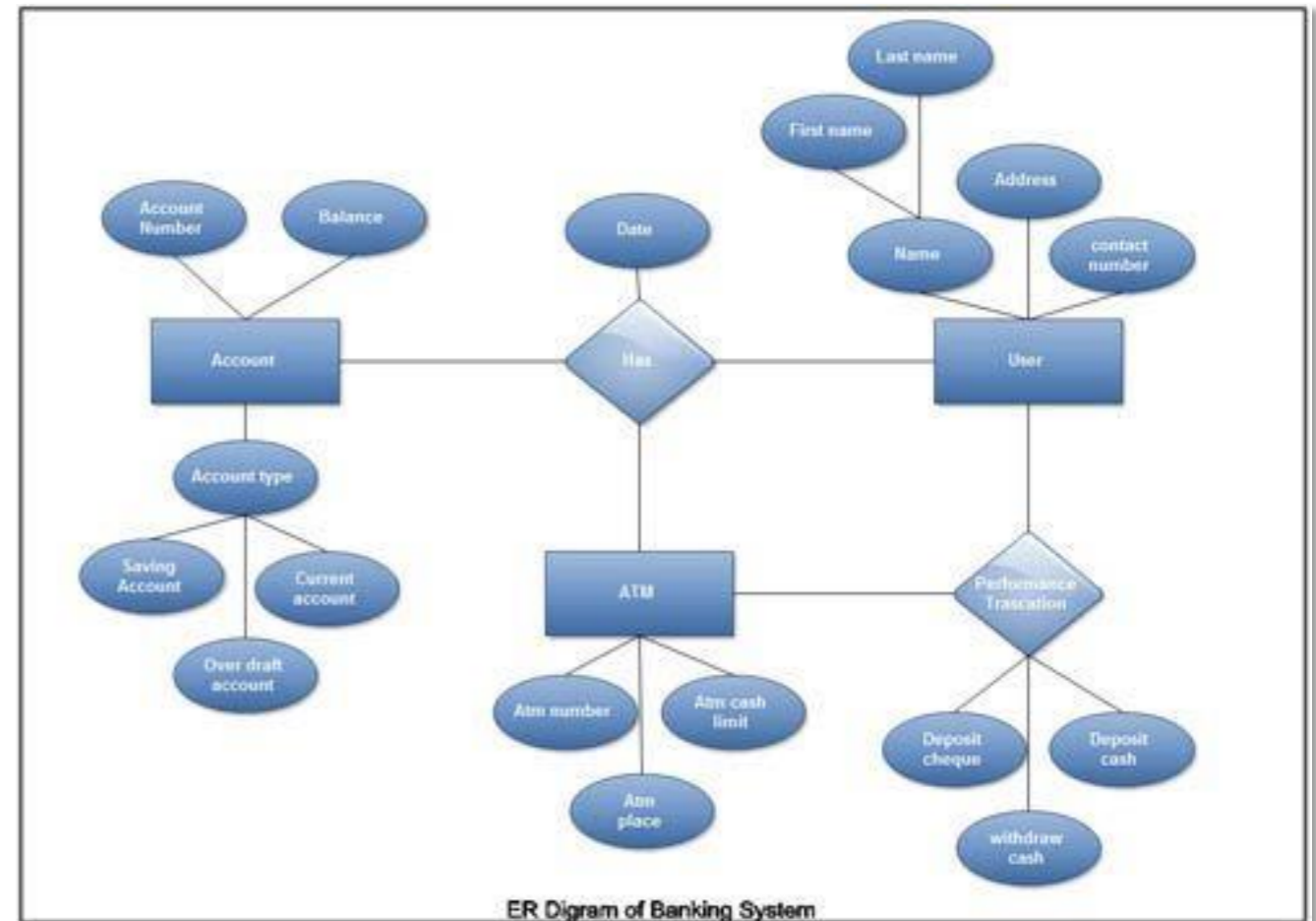


数据库 Chen's 表示法



数据库 Crow's Foot 表...

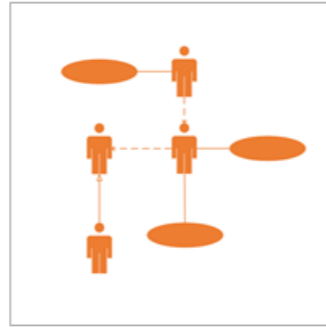
Visio



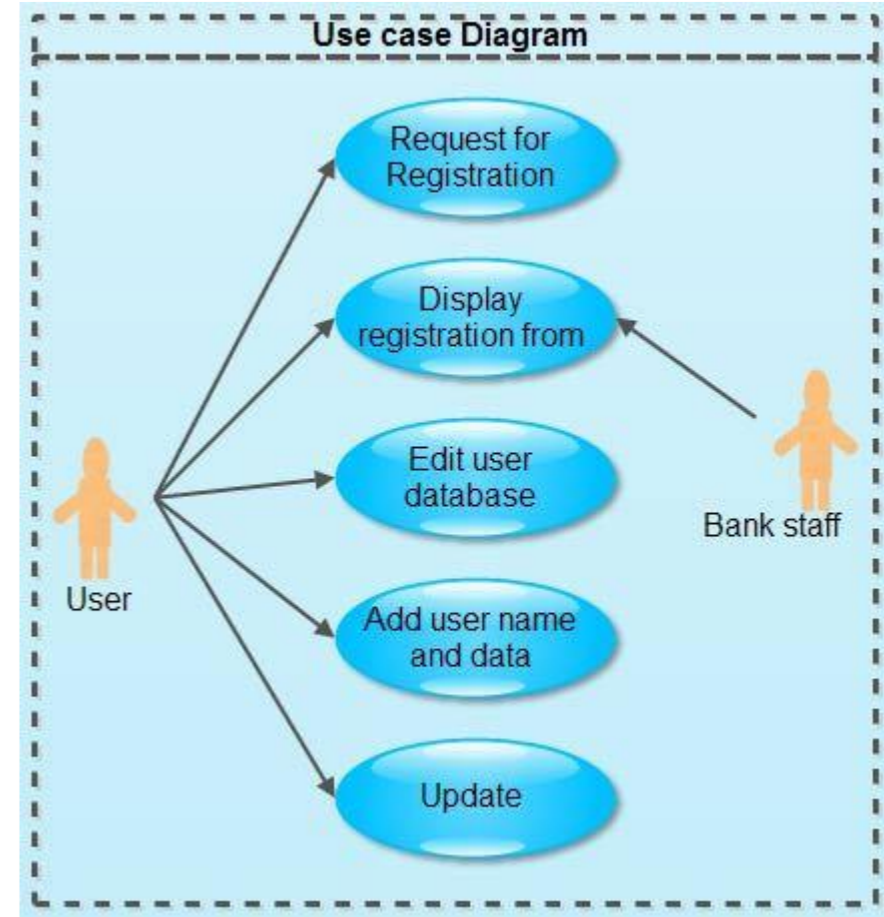
ER Diagram of Banking System

Use case diagram (UML)

Visio



UML 用例图

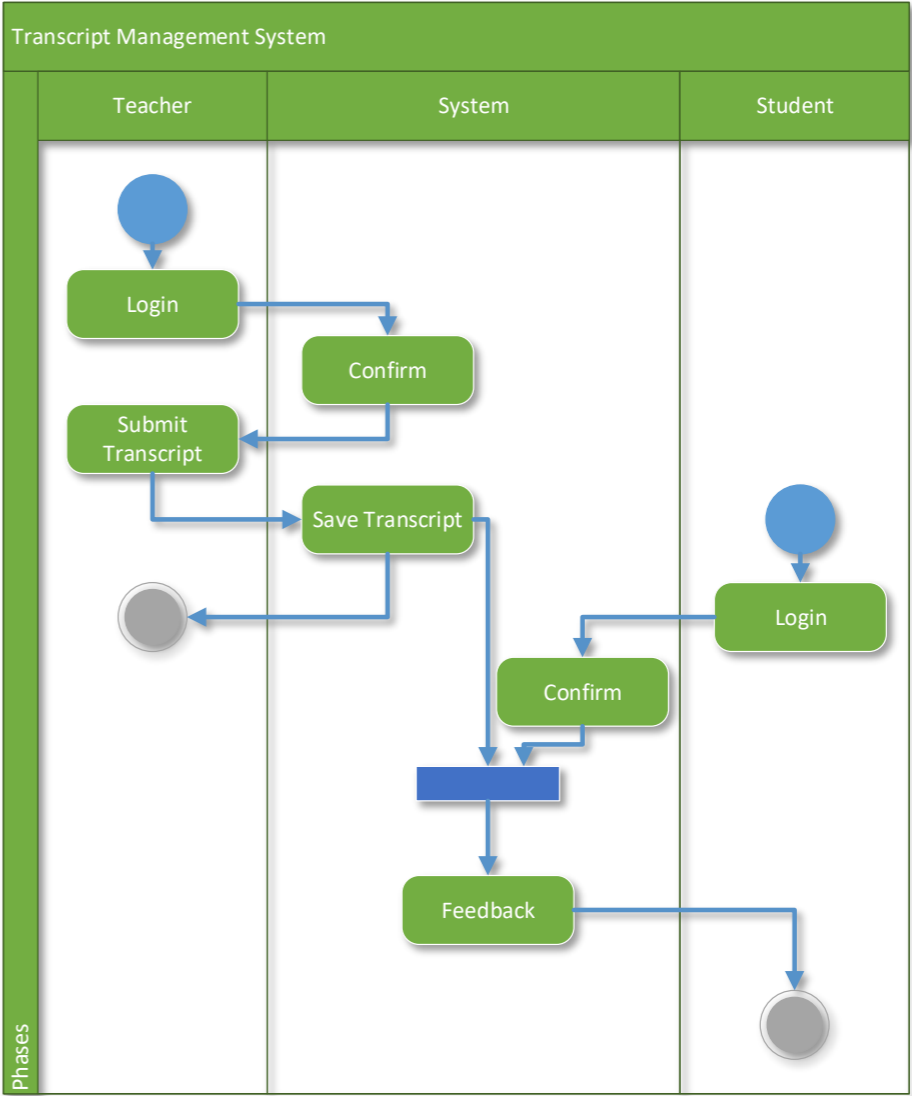


Activity diagram (UML)

Visio

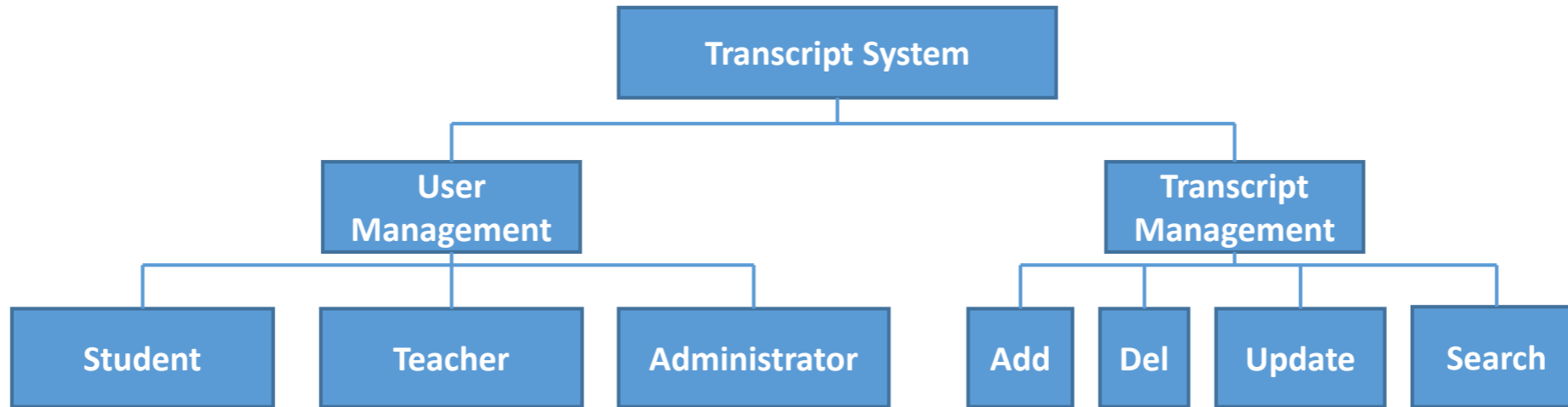


UML 活动图



Layered architecture chart

Visio, Word, PowerPoint



Requirement validation

Have we got the requirements right?

- Objective: to ensure that the SRS reflects the actual requirements accurately and clearly

Requirements Review

- Unclear stated requirements
- Conflicting requirements are not detected during requirements analysis
- Errors in the requirements elicitation and analysis
- Lack of conformance to quality standards.

Requirements Validation Techniques

- Automated consistency analysis: CASE tool
- Prototyping

New Media Product Design and Development

Lecture 2-2. The End

THANK YOU

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