Mansoura University
Faculty of Computers and Information
Department of Information System
First Semester- 2025-2026

Agile Methods

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Lecture 5
Introduction to Requirement Modeling Before Agile

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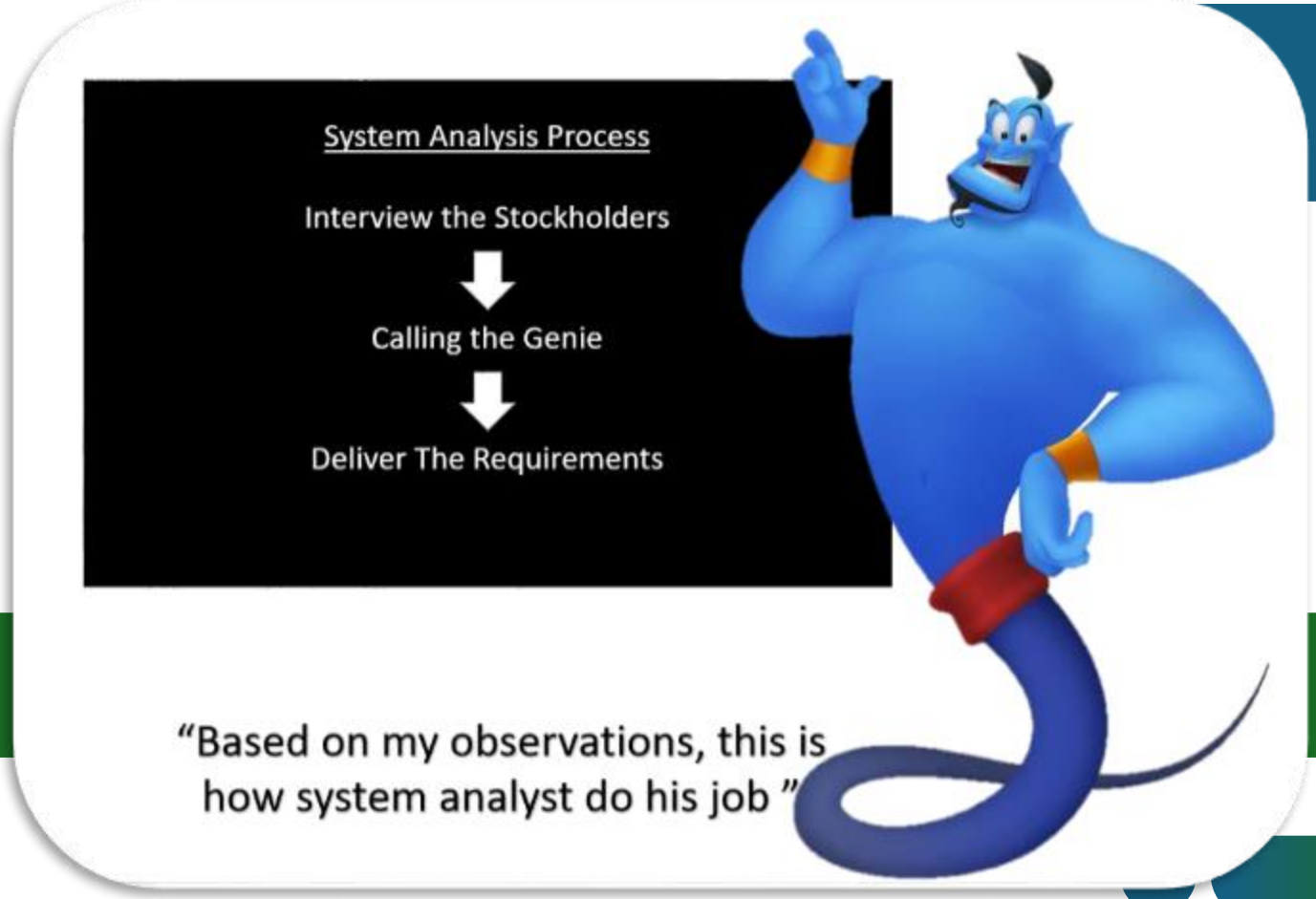
2025

Introduction To Requirement Modeling

- **System Analysis phase overview**
  - Requirement Modeling
  - Data and Process Modeling
  - Object Modeling
  - Development Strategy
- **Joint Application Development**
- **Rapid Application Development**



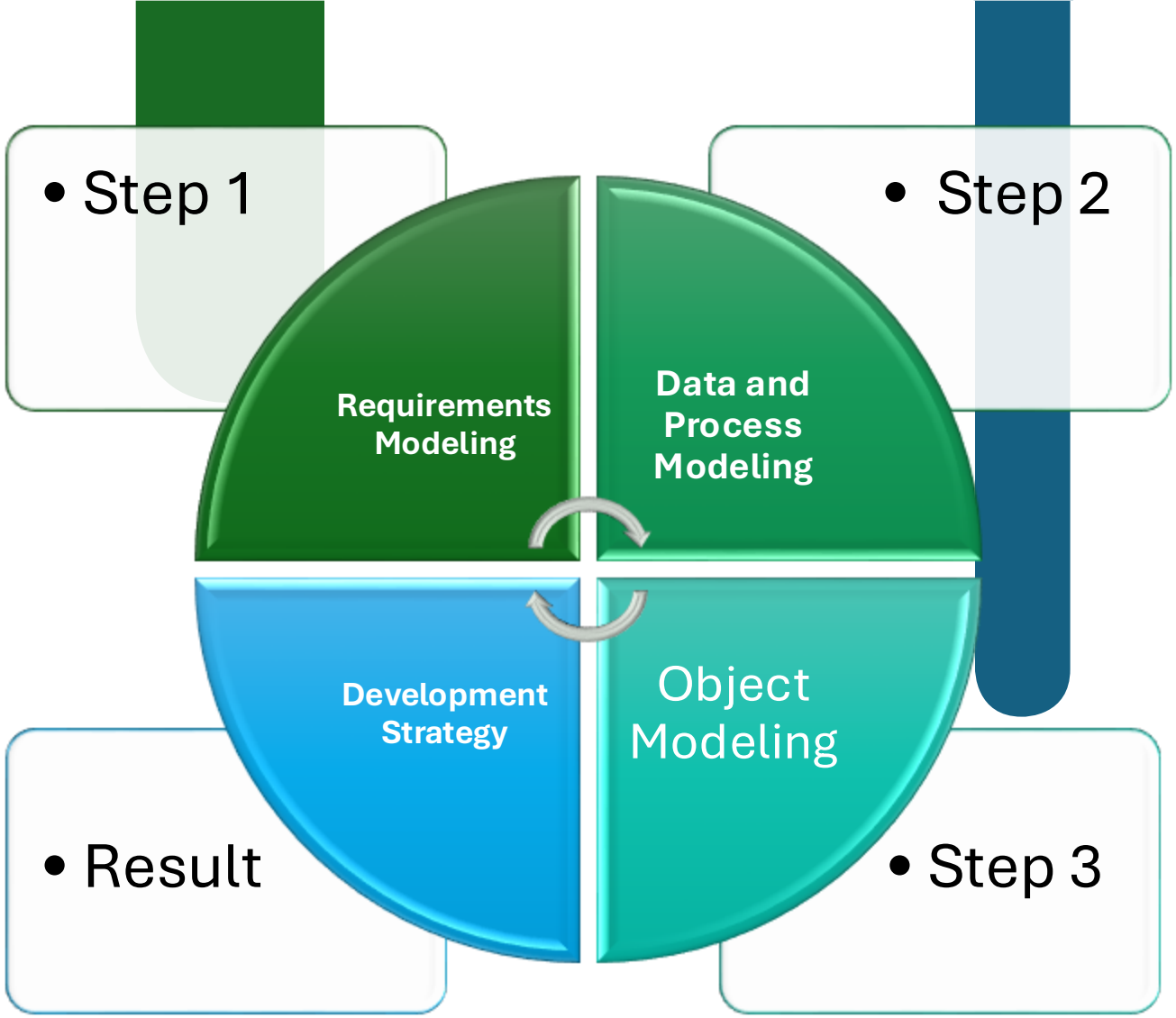
Requirements Modeling

Customers often find it difficult to clearly describe what they want the system to do

When they do list the requirements, the result tends to be an unprioritized set of conflicting capabilities.

System Analysis

It may be tempting to "just do something" to give the appearance of productivity, but a systems project that does not satisfy business requirements serves no useful purpose



SYSTEMS ANALYSIS PHASE OVERVIEW

The overall objective of the systems analysis phase is to understand the proposed project.

build a solid foundation for system development.

The systems analysis phase includes the four main activities:

- Requirements Modeling
- Data and Process Modeling
- Object Modeling
- Development Strategy

Requirement Modeling

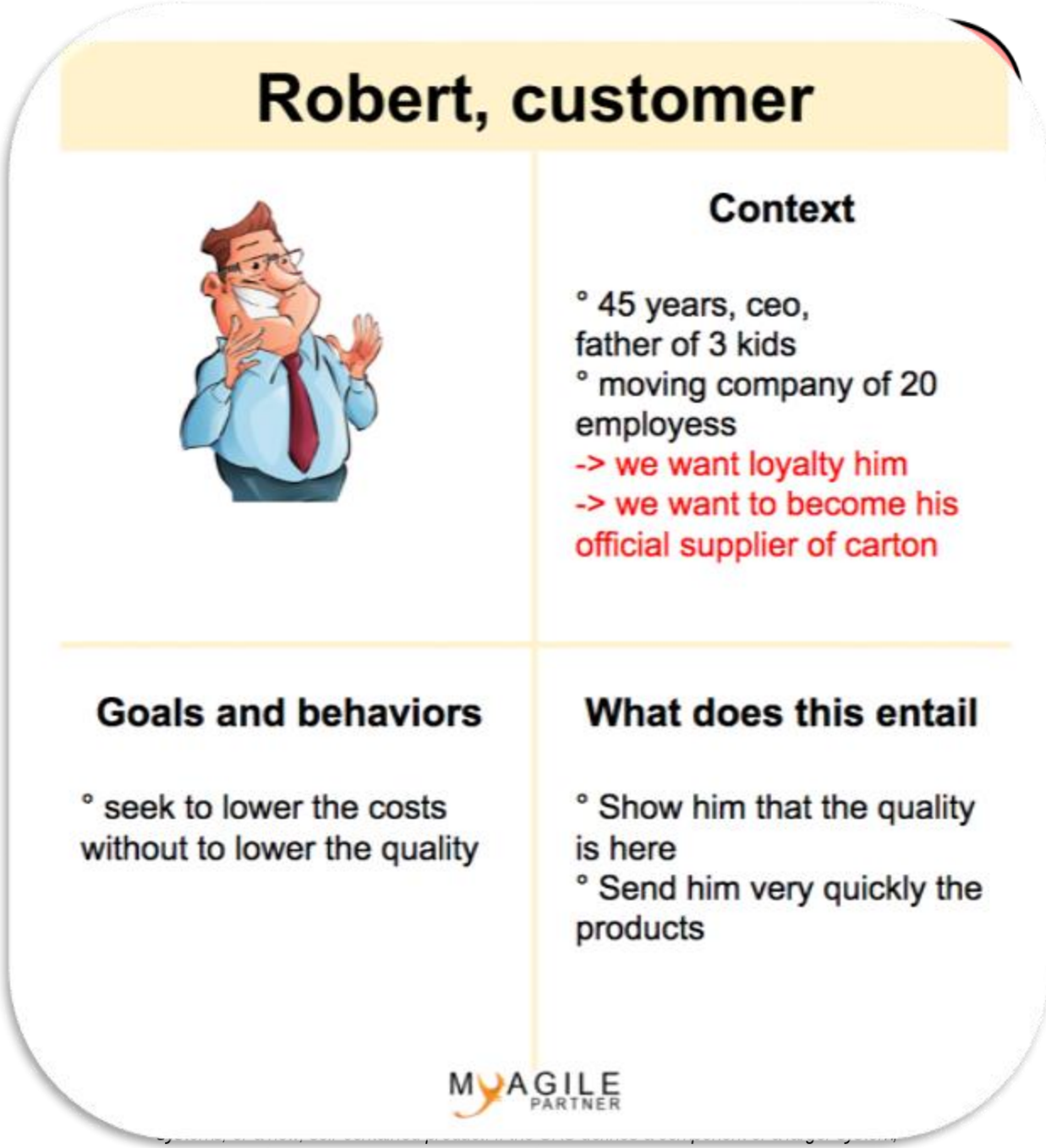
- Practicing fact-finding to describe the current system and identification of the requirements for the new system, such as:

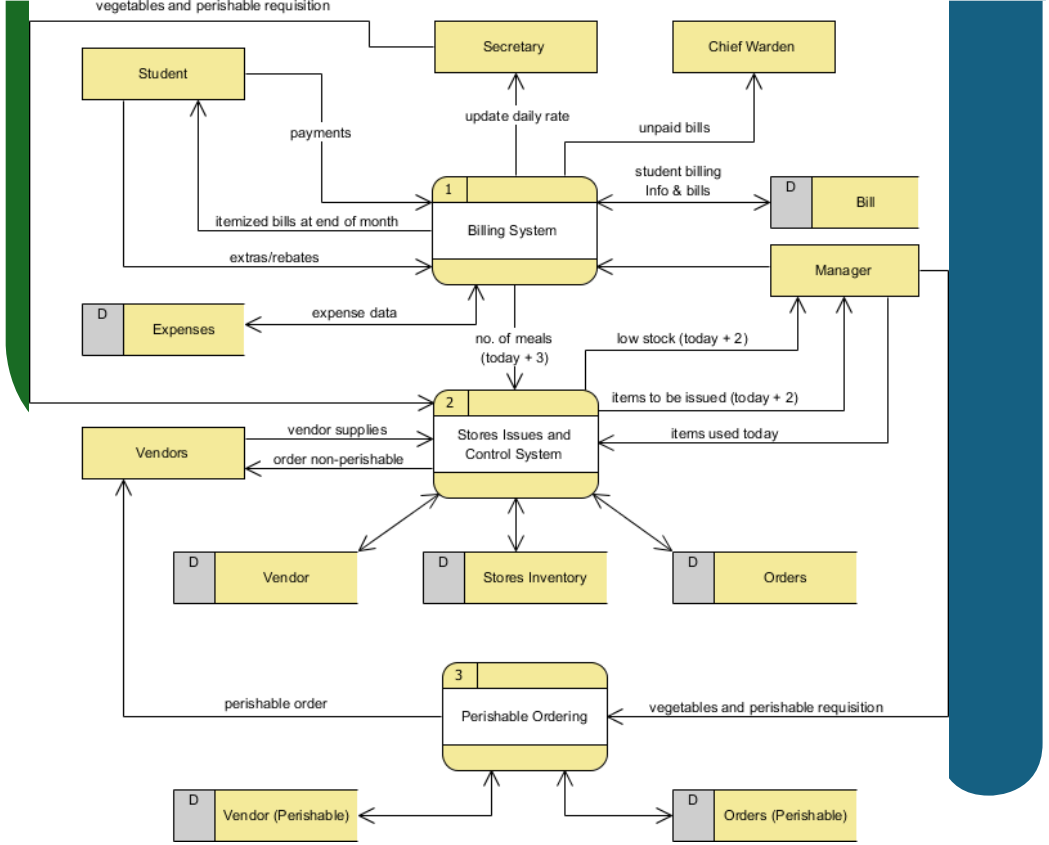
- Outputs
- ınputs
- Processes
- Performance
- security.

Requirements

- The Requirements can represented in 3 ways:

- For **Structured Development**: **Software Requirements Specification** SRS is a document that describes the nature of a project.
- For **Object Oriented development**: **Use Case diagram** and other diagrams.
- For **Agile development**: **Personas and User Stories**.
- The team can also use combinations of them to simplify every problem in the project.



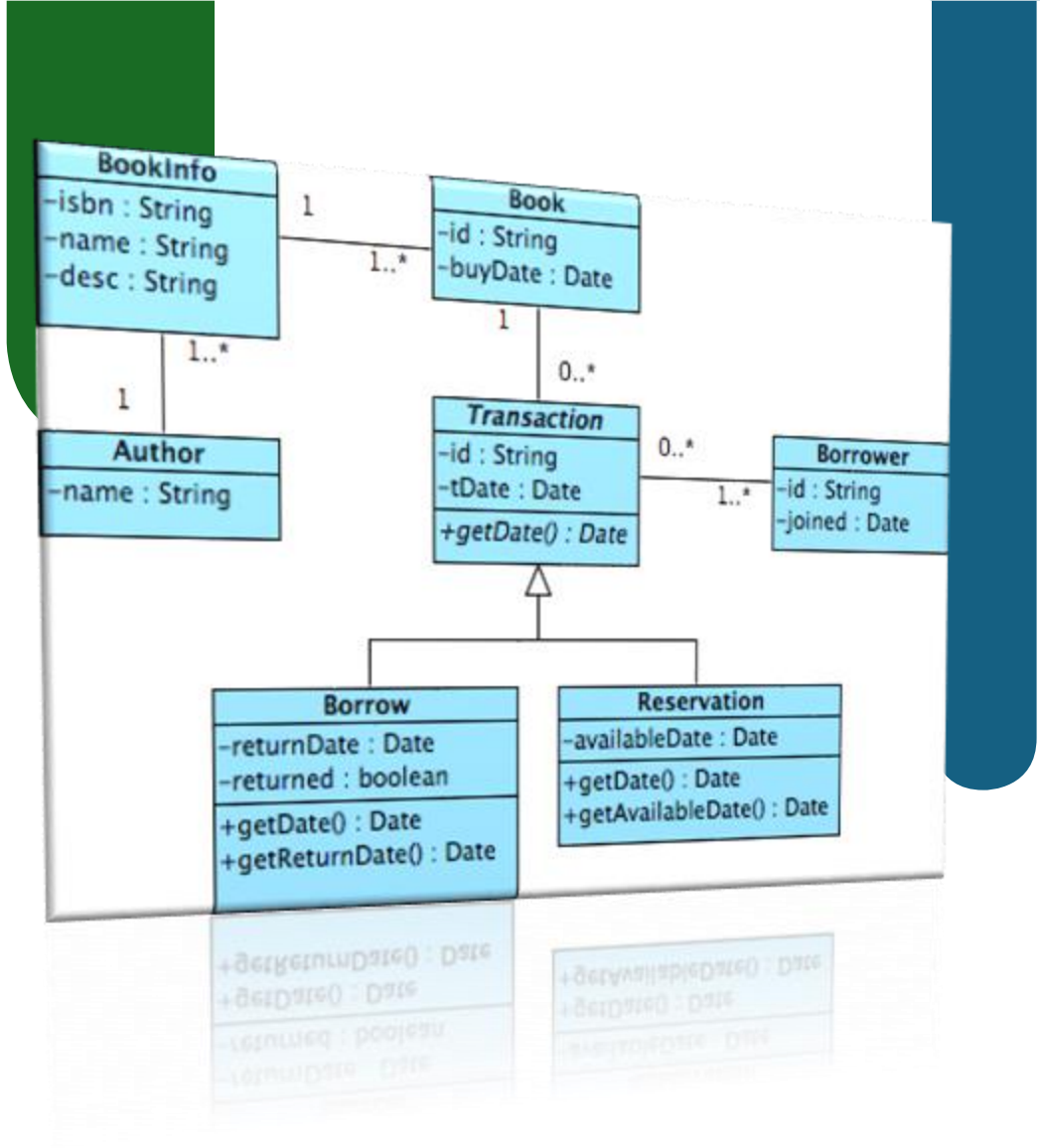


DATA AND PROCESS MODELING

How to represent graphically system data and processes using traditional structured analysis techniques.

Structured analysis identifies the data flowing into a process, the business rules that transform the data, and the resulting output data flow.

DFD Data flow Diagram, is the best tool for such modeling



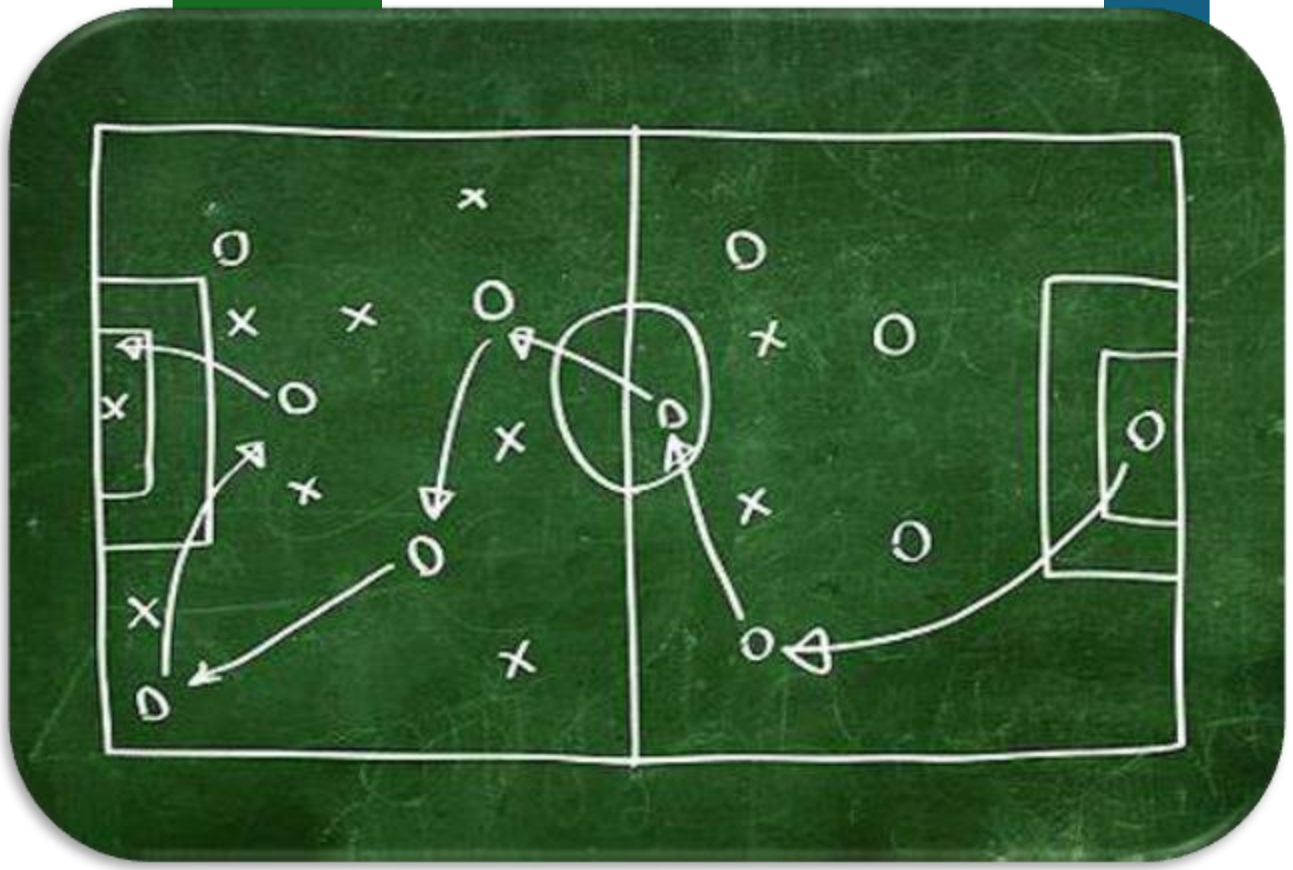
OBJECT MODEING

While structured analysis treats processes and data as separate components.

Object-oriented (O-O) analysis combines data and the processes that act on the data into things called objects.

Analysts often use both modeling(Data & Process + Object modeling) methods to gain as much information as possible.

Class Diagram is the famous tool.



DEVELOPMENT STRATEGIES

Various development options and prepares for the transition to the systems design is something about Make or Buy.

Include software trends and architectures (Microservices, Service Oriented Architecture SOA, Monolithic or traditional software) acquisition and development alternatives, outsourcing, and formally documenting requirements for the new system.

SYSTEMS ANALYSIS SKILLS

A systems analyst needs strong analytical and interpersonal skills to build an accurate model of the new system.

Analytical skills **Enable the analyst to identify a problem, evaluate the key elements, and develop a useful solution.**

Interpersonal skills **Especially valuable to a systems analyst who must work with people at all organizational levels.**

Team-Based Techniques: JAD, RAD, and Agile Methods

System developers view users as partners in the development process. Greater user involvement usually results in better communication, faster development times, and more satisfied users.

JOINT APPLICATION DEVELOPMENT

Joint application development (JAD) is a popular fact-finding technique that brings users into the development process as active participants.

Users have a vital stake in an information system, and they should participate fully in the development process.

successful systems must be user-oriented, and users need to be involved, formally or informally, at every stage of system development.

JAD PARTICIPANTS AND ROLES

JAD PARTICIPANTS	ROLE
JAD project leader	Develops an agenda, acts as a facilitator, and leads the JAD session
Top Management	Provides enterprise-level authorization and support for the project
Managers	Provide department-level support for the project and understanding of how the project must support business functions and requirements
users	Provide operational-level input on current operations, desired changes, input and output requirements, user interface issues, and how the project will support day-to-day tasks.
System Analyst & other IT staff members	Provide technical assistance and resources for JAD team members on issues such as security, backup, hardware, software, and network capability
Recorder	Documents results of JAD sessions and works with systems analysts to build system models and develop CASE tool documentation

JAD Pros and Cons

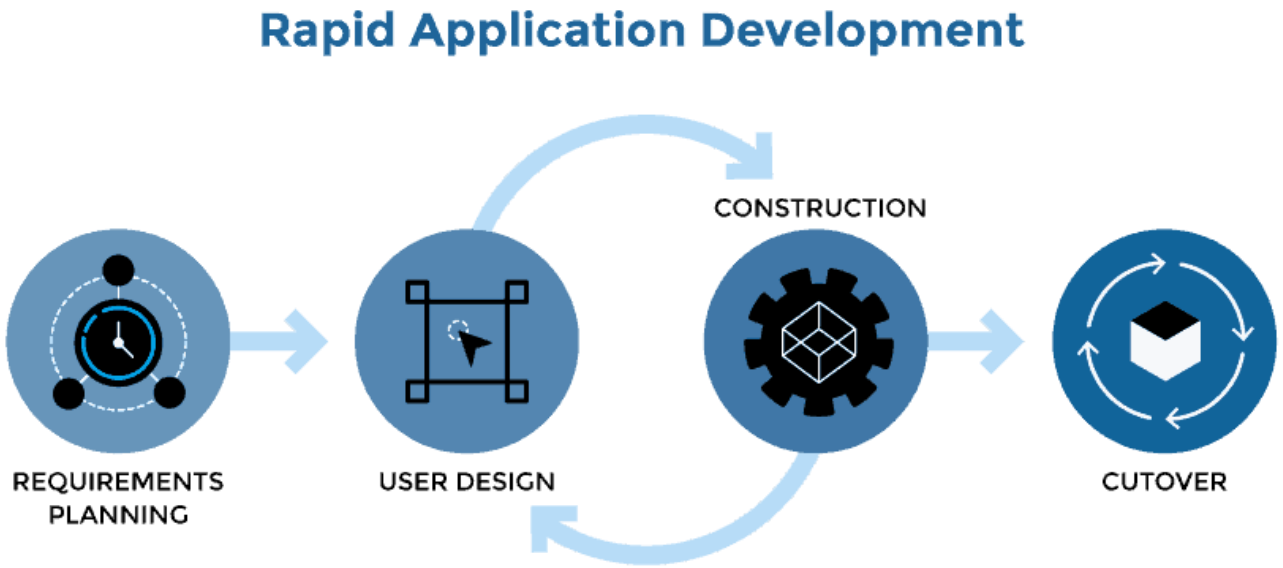
(-) JAD is more expensive and can be cumbersome if the group is too large relative to the size of the project.

(+) JAD allows key users to participate effectively in the requirements modeling process.

(+) JAD can result in a more accurate statement of system requirements, a better understanding of common goals, and a stronger commitment to the success of the new system

Phases Of RAD

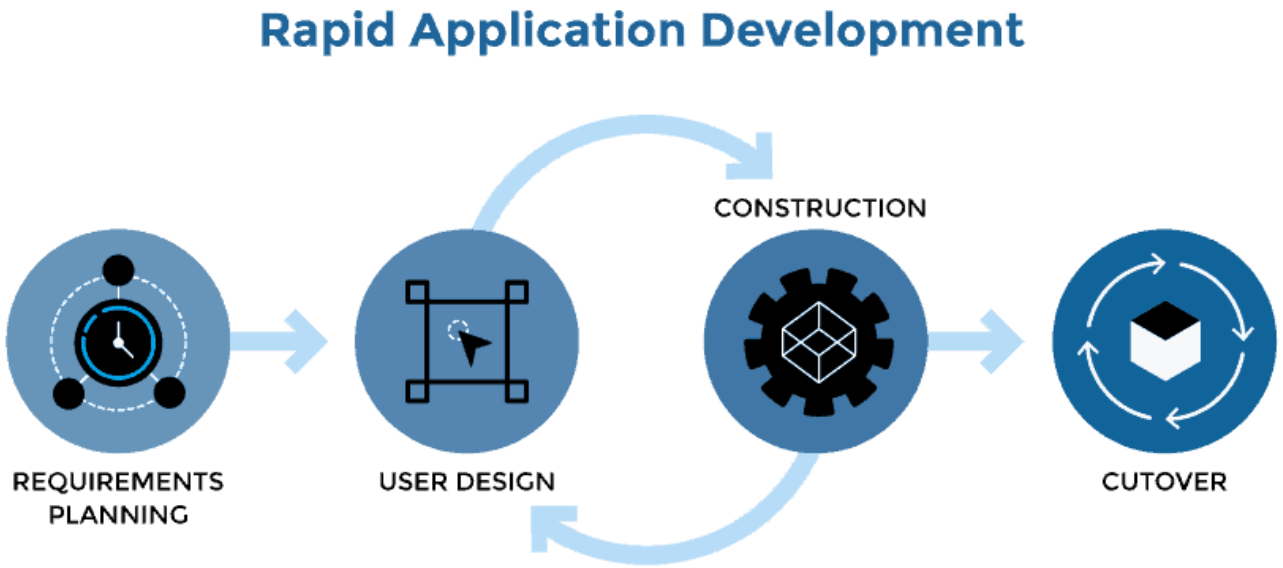
- RAD relies heavily on **prototyping** and user involvement. The RAD process allows users to examine a working model as early as possible
- The project team uses **CASE tools** to build the prototypes and create a continuous stream of documentation.



- Requirement planning
- User Design
- Construction
- Cutover

RAD OBJECTIVES

- To **cut** development time and expense by **involving users in every phase** of systems development. Because it is a continuous process
- It is especially important to **limit the cost** of changes that typically occur in a long, drawn-out development schedule.
- RAD also helps a development team design a system that requires a highly interactive or complex user interface.



RAD Pros and Cons

(+) Systems can be developed more quickly with significant cost savings.

(-) RAD stresses the mechanics of the system itself and does not emphasize the company's strategic business needs. A system might work well in the short term.

THANK YOU!