SYSTEM BASIC CONCEPT

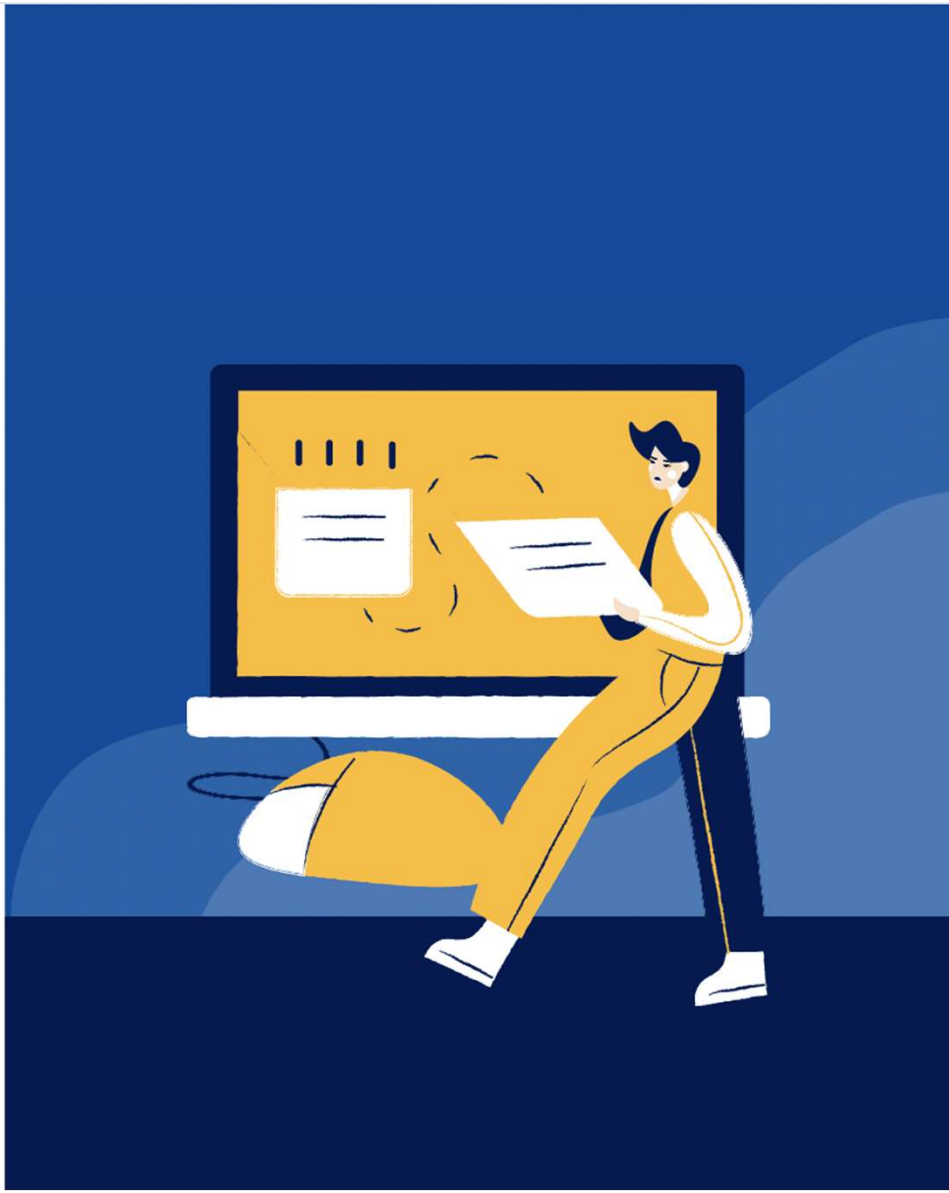
MANAGEMENT INFORMATION SYSTEM

DEPARTMENT of Information Technology

Tim Teaching Sistem Informasi Manajemen 2022

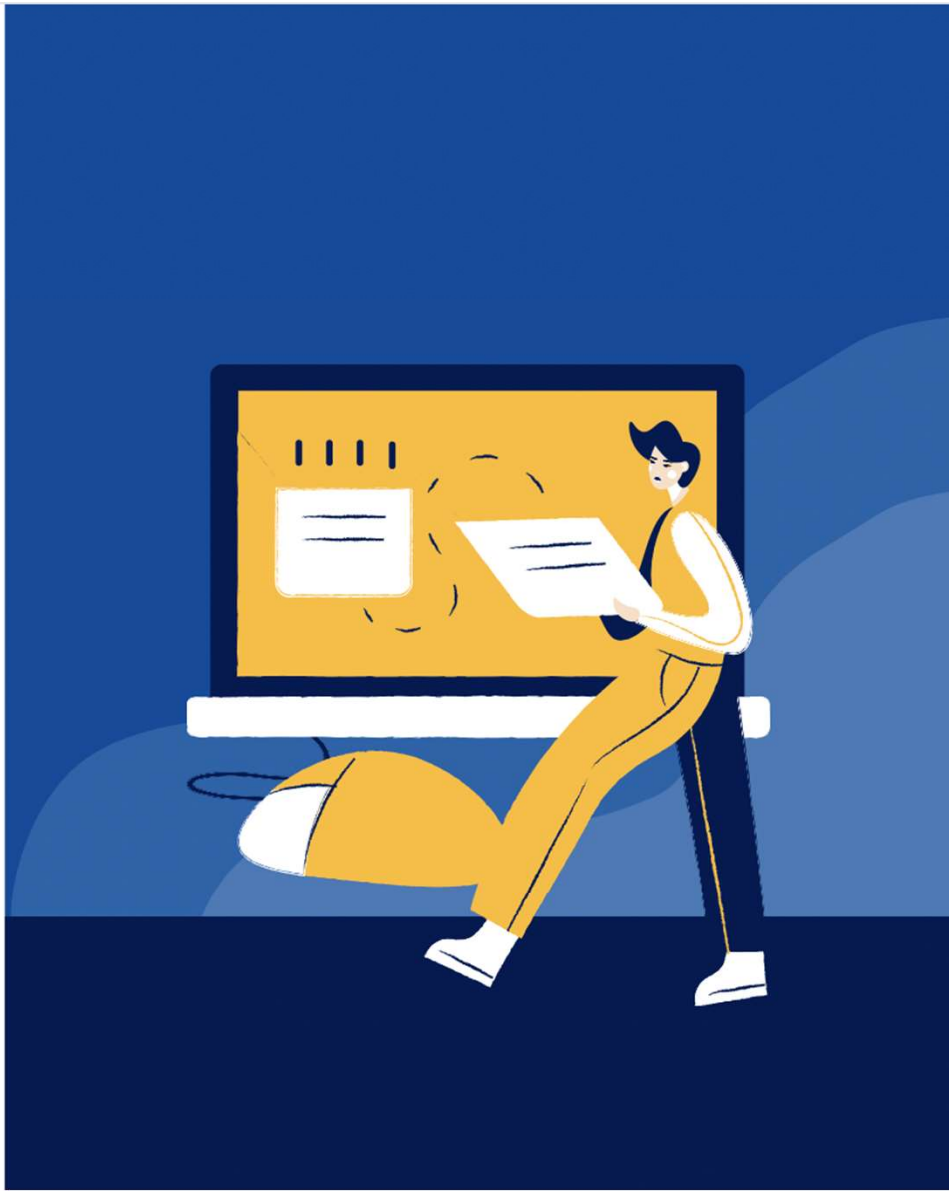
System

- The word system comes from the Greek, namely systema, which means a set of parts or components that are interconnected regularly and constitute a whole.
- The system is a collection of several parts that are related and work together and form a unity to achieve the goals of the system
- The system consists of **structures** and **processes**.



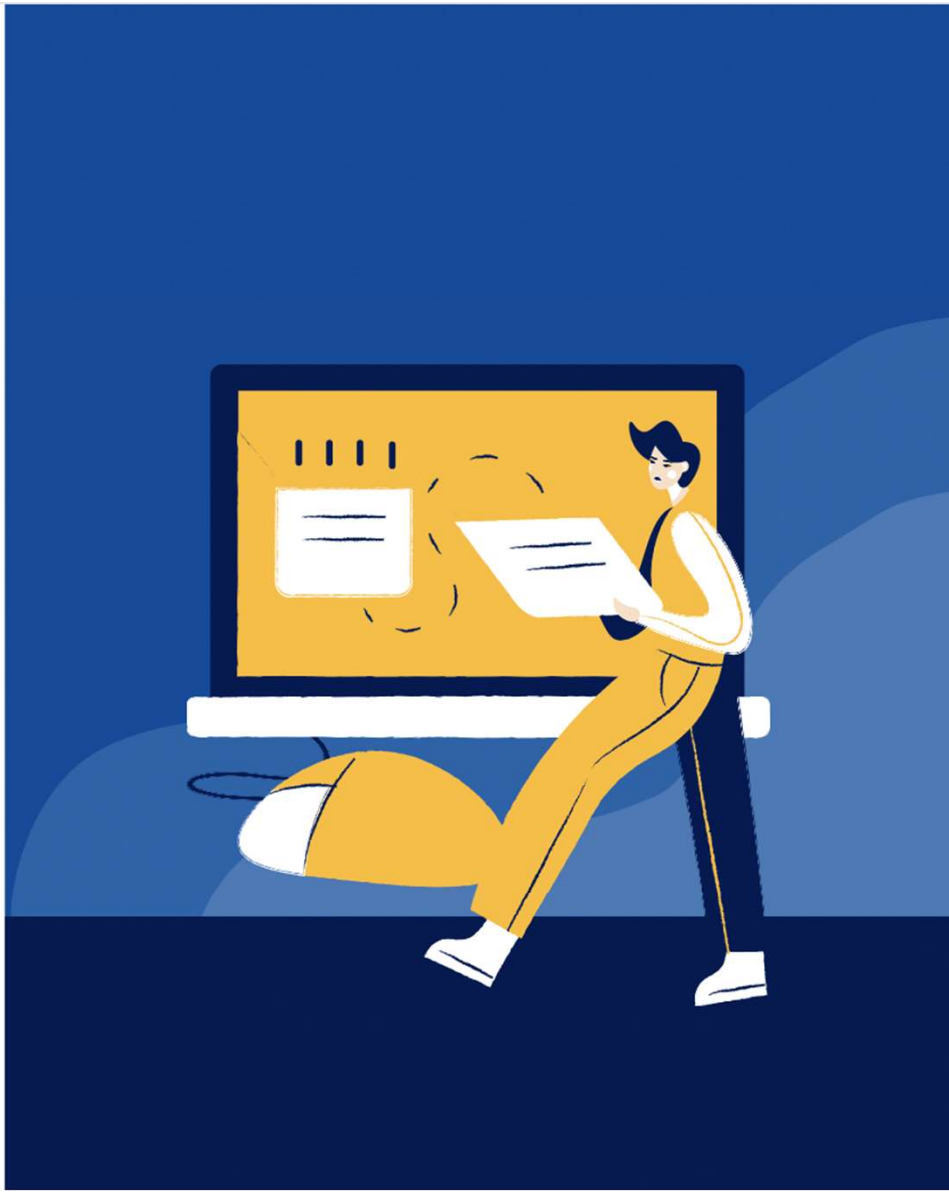
System Concept

- The system is a relationship between one unit and another that is interconnected with one another and cannot be separated and leads to a unity in order to achieve predetermined goals. For example, if one unit in a company is disturbed, the other units will also be disturbed in achieving the goals that have been set.
- A concrete example of a system, namely human organs and computer electronic components that make up a communication system.



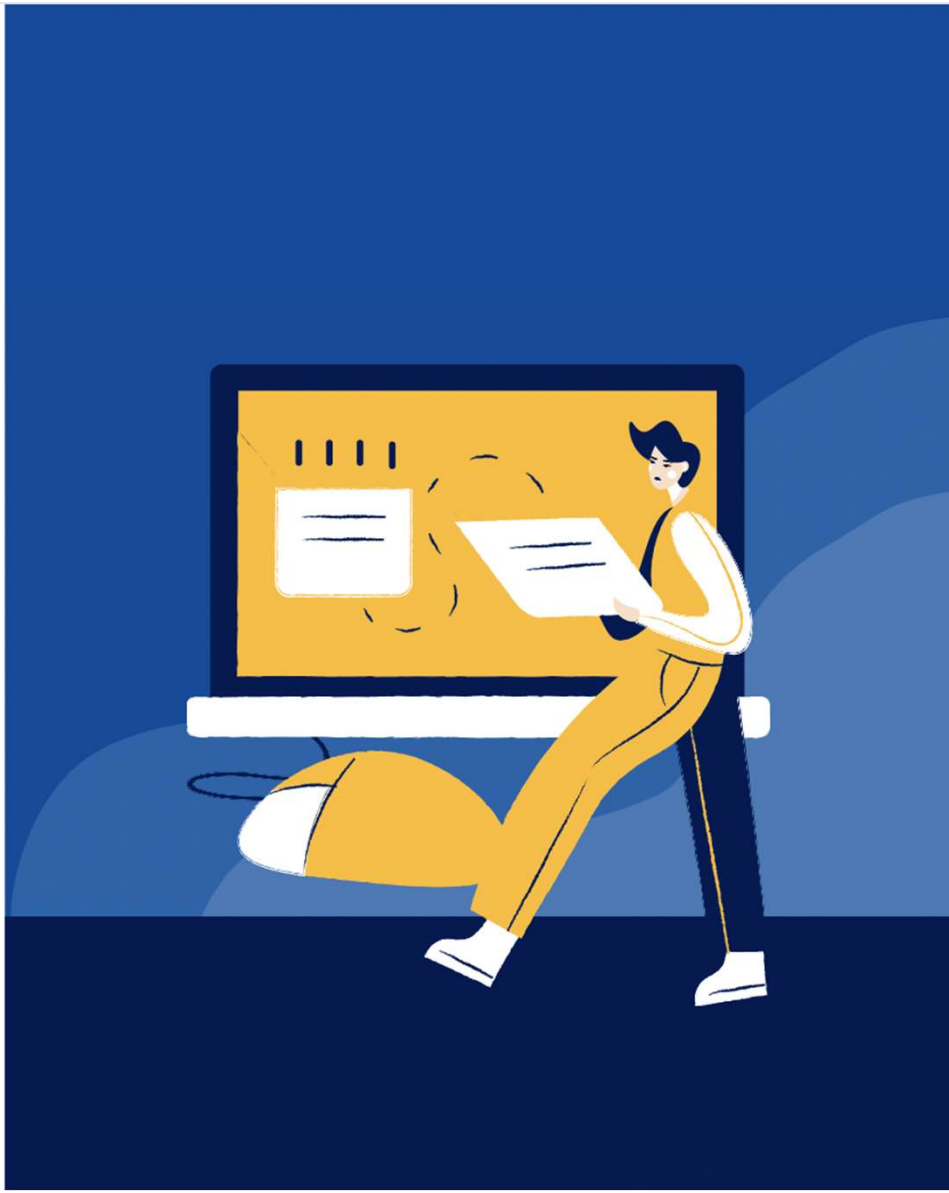
Subsistem

- Each system is part of another larger system and consists of various smaller systems, called subsystems.
- Subsystem is a component or part of a system, can be physical or abstract.
- Example: A car is a system consisting of an engine system, a frame system, and a car body system.



Suprasistem

- Supersystem is a system that has a wider relationship than the system. If a system becomes part of another larger system, the larger system is known as a suprasystem.
- Example of a supersystem: if schools are seen as a system, education is the supersystem; If the company is seen as a system, industry is the supersystem and marketing is the subsystem.

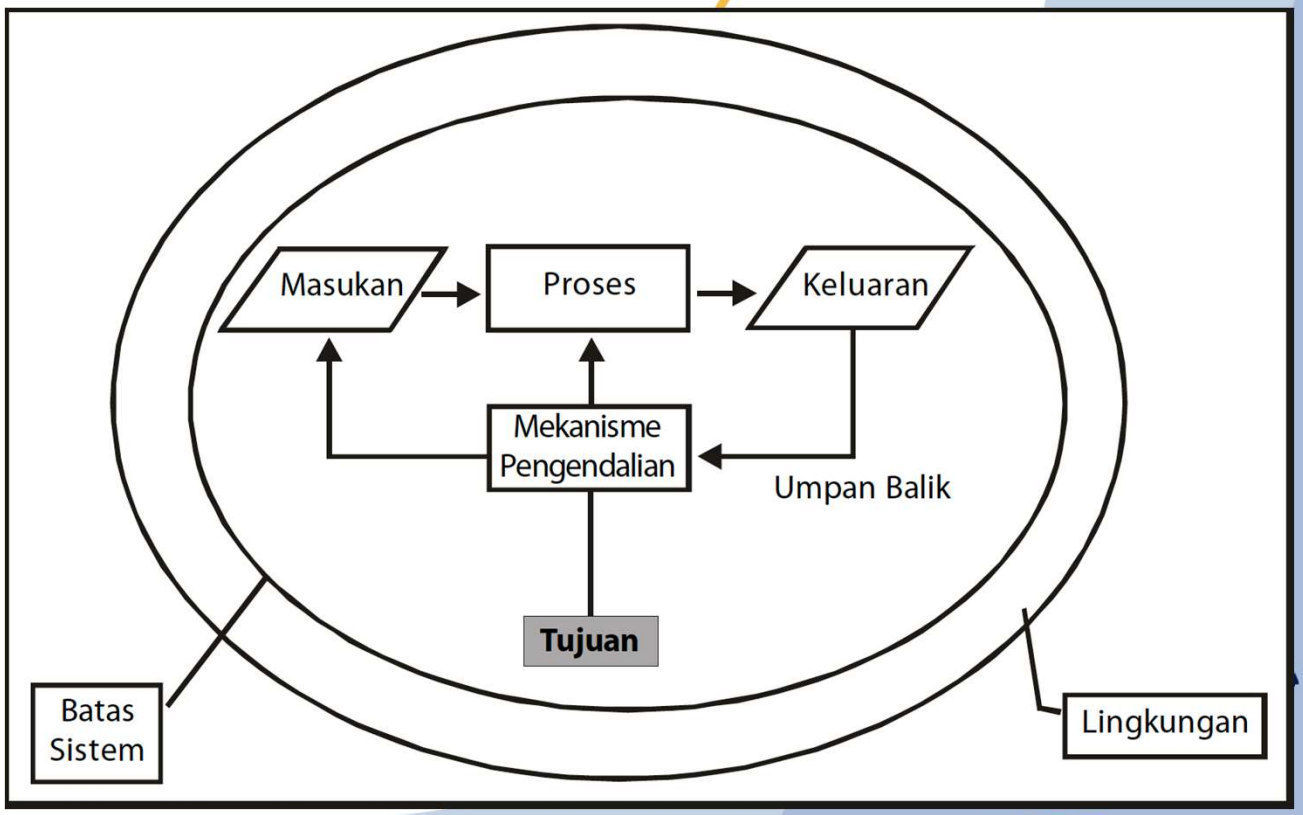


Systems Development Approach

- Prototyping
- Joint Application Design (JAD)
- Structured Analysis and Structures Design
- Object Oriented Analysis and Design (OOAD)

System Characteristics

- Component
- Limit
- Environment
- Interface
- Input
- Processing
- Output
- Goals and goals
- control
- Feedback



System Design

According to Burch and Grundnitski (Jogiyanto, 2005: 196), system design can be defined as drawing, planning, and making sketches or arrangements of several separate elements in a unified whole and functioning.

System design can be interpreted:

- The post-analysis stage of the system development cycle
- Definition of functional requirements
- Preparation of design for implementation
- Describe how a system is formed

System Life Cycle

The system life cycle is an evolutionary process followed in implementing a computer-based information system or subsystem. The system life cycle consists of a series of tasks that closely follow the steps of the systems approach because these tasks follow a regular pattern and are performed on a top-down basis.

System Lifecycle Phase

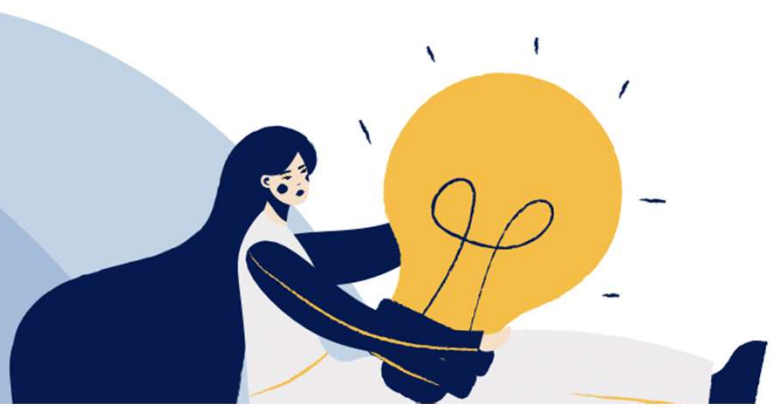
- Recognizing a need
- System development
- System installation
- System operation
- The system becomes obsolete

System Form

Systems based on basic principles are generally divided into:

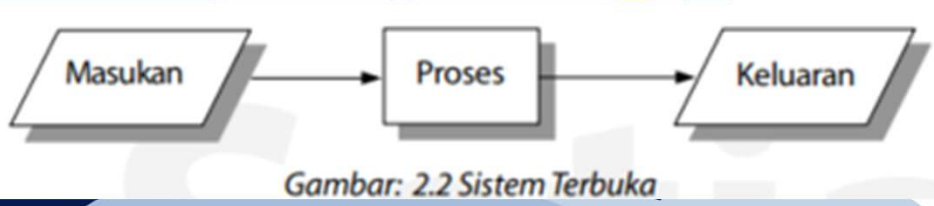
- Specialized system
  - i.e. systems that are difficult to apply to different environments (e.g. biological systems; fish moved ashore)
- Big system
  - i.e. systems where most of the resources are used to carry out daily maintenance (eg dinosaurs as a biological system spent most of their lives eating);
- System as part of another system
  - a system that is part of a larger system and can be divided into smaller systems
- The system develops even though it does not apply to all systems, but almost all systems are always evolving

Jenis Sistem

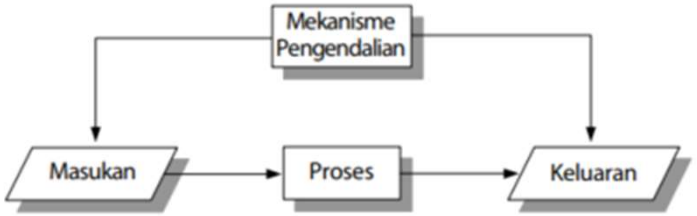


The type of system in general consists of an open system and a closed system.

- An open system is one that lacks goals, mechanical controls, and feedback.
- The closed system is a system that has targets, mechanical control, and feedback.



Gambar: 2.2 Sistem Terbuka



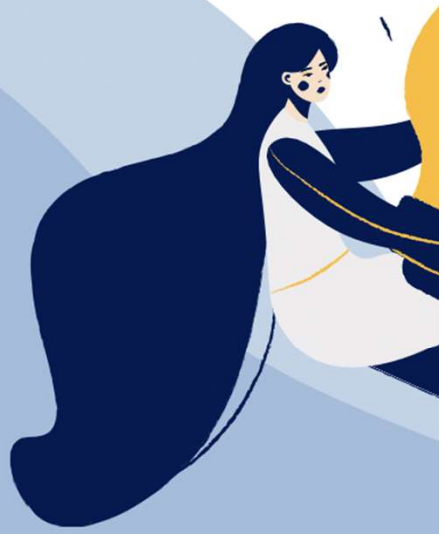
Gambar 2.3 Sistem Tertutup

System Classification

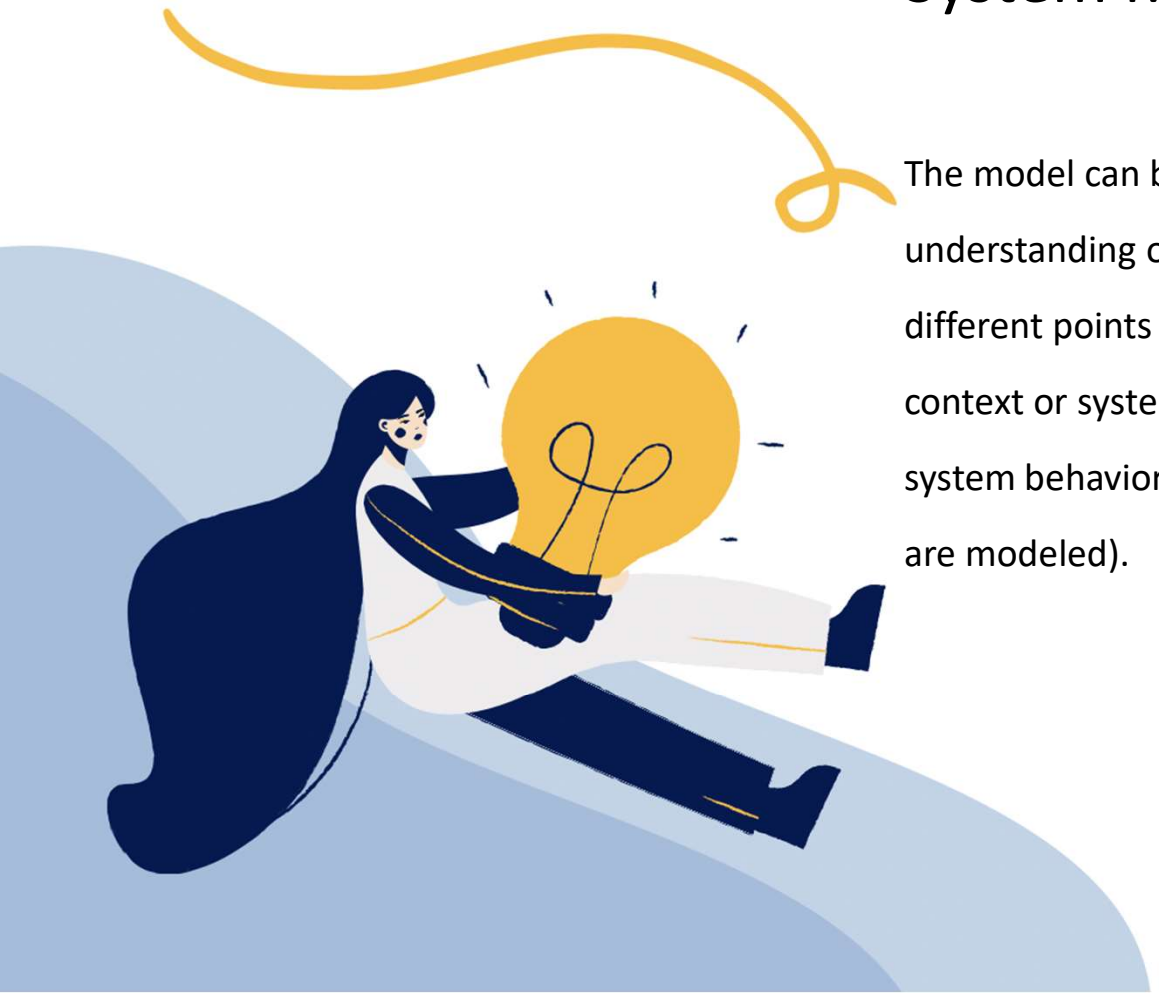
Systems can be classified from several points of view, including the following:

- Systems are classified as abstract systems and physical systems.
- Systems are classified as natural systems and man-made systems.
- Systems are classified as specific systems and indeterminate systems.
- Systems are classified as closed and open systems.

System Actors



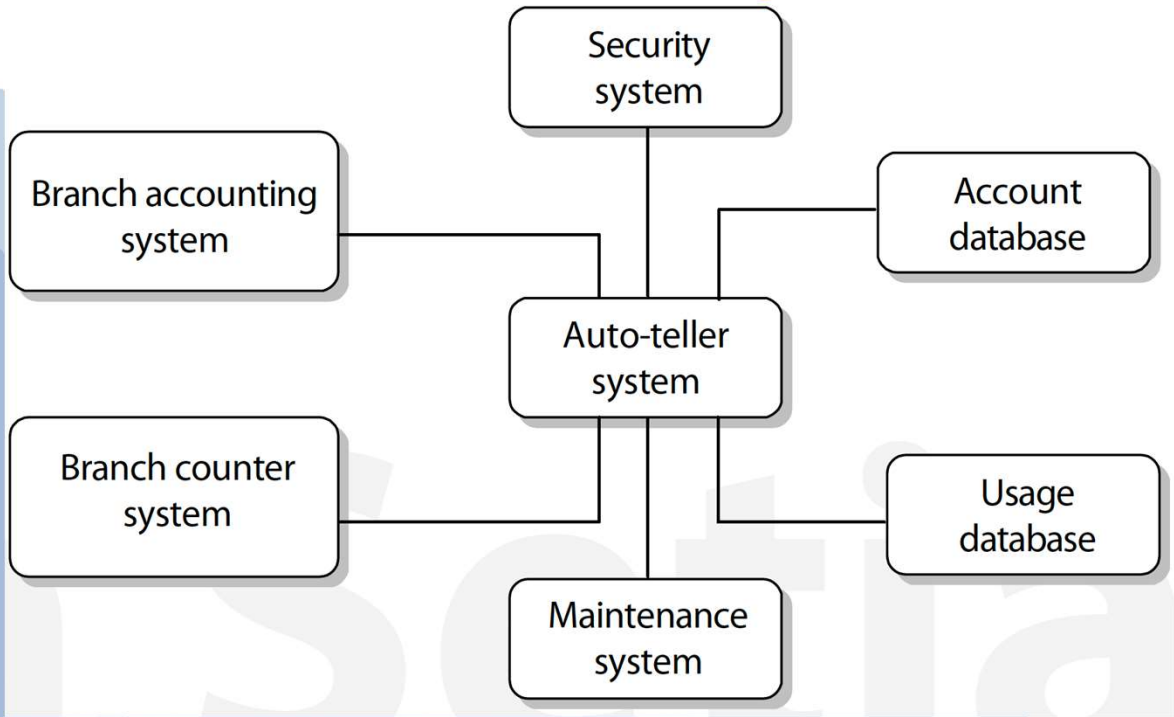
- User
  - In general, there are three types of users, namely operational, supervisory, and executive.
- Management
  - User management is in charge of handling usage when a new system is implemented
  - system management applied in system development
  - general management involved in strategic planning systems and decision support systems
- Examiner
- Systems Analyst: Archaeologist, Innovator, Mediator, Leader
- System designer
- Programmer
- Operations personnel



System Model

The model can be used in the analysis process to develop an understanding of the system. This understanding can be seen from different points of view, namely external point of view (where the context or system environment is modeled), behavioral (where system behavior is modeled), and structural (where data structures are modeled).

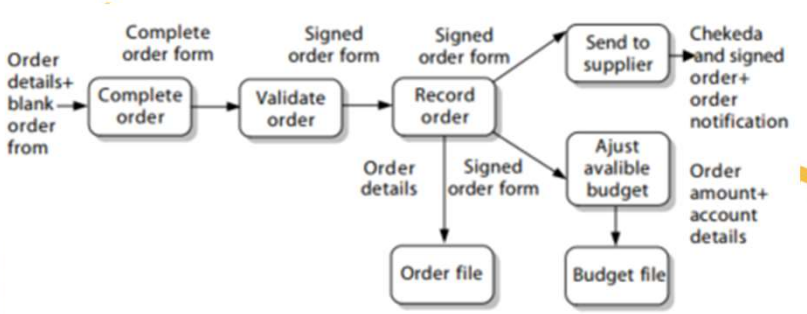
System Model (2)



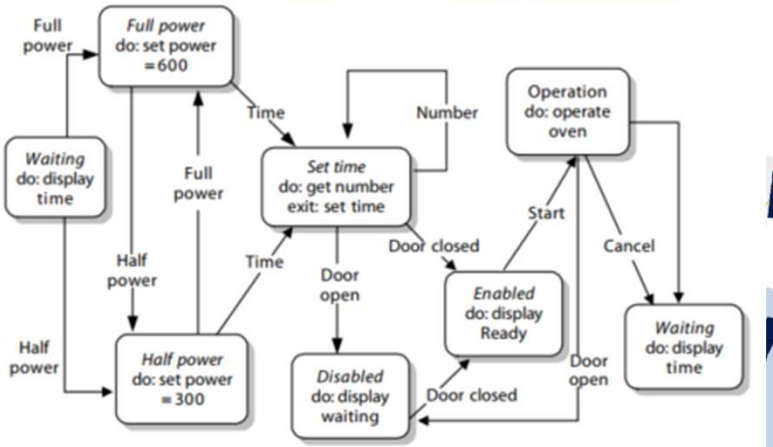
1. Context model

- At an early stage, the requirements elicitation and analysis process should be decided on the system boundaries. This includes working with system stakeholders to differentiate between the system and the environment.
- In addition, it is also necessary to limit costs and time. Once the system boundaries are defined, part of the analysis activity is the definition of the context and its dependence on its environment. This is illustrated in the following figure the information structure covering the auto-teller network at the bank.

System Model (3)



Gambar 2.6 Diagram Aliran Data dari Proses Pemasaran

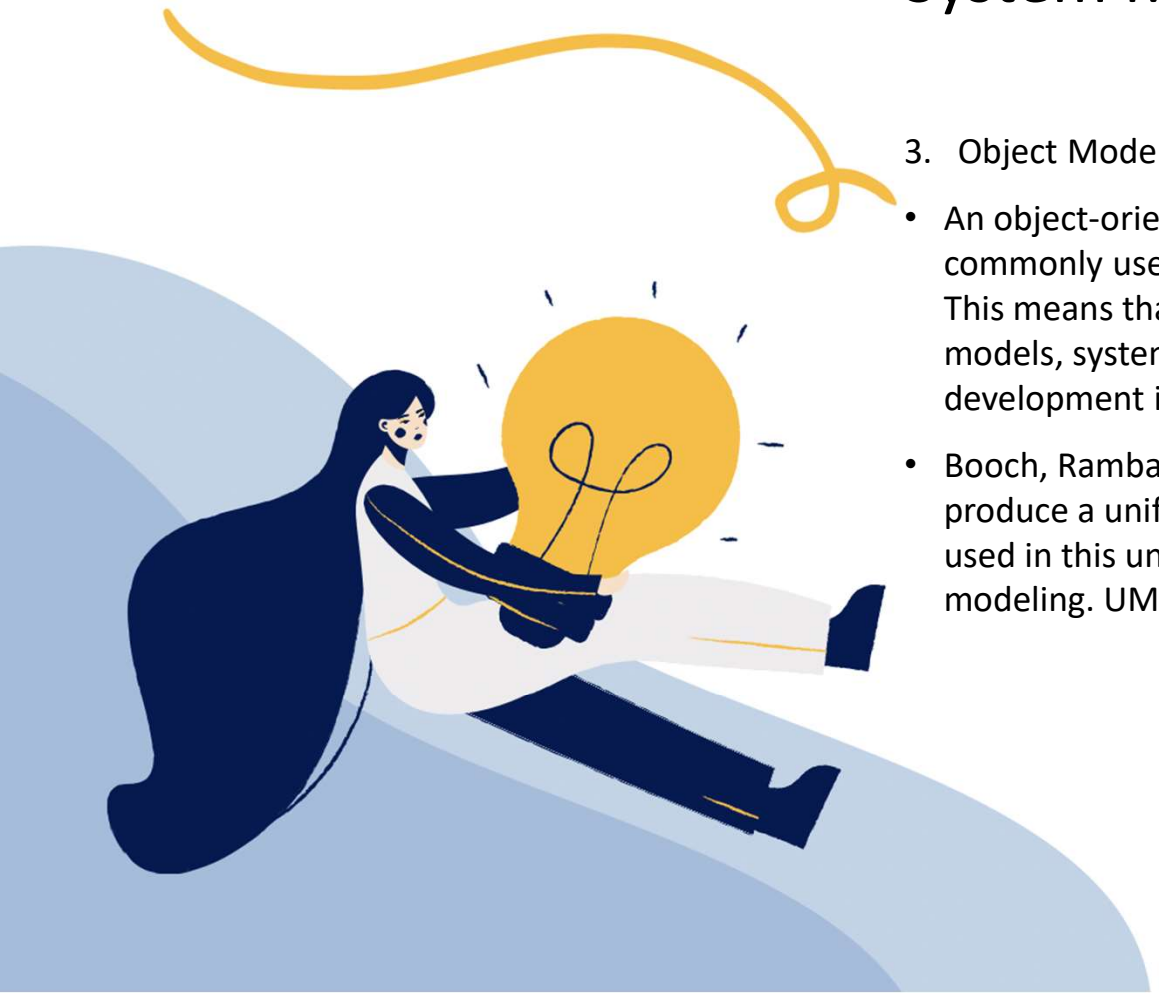


Gambar 2.7 Model State Machine untuk Microwave Sederhana

2. Behavioral Model

- This model is used to describe the overall behavior of the system. There are 2 types of behavior models: data flow models and state machine models.
- Data flow models are an intuitive way to show how data is processed by the system. The notation used in this model represents functional processing. This model is used to show how data flows through a series of processing steps. The processing steps are a function of the software program. The development of the data flow model must use the top down principle.
- State machine models are used to model system behavior in response to internal or external events. This model shows the state of the system and the events that cause the transition from one state to another. This model does not show the flow of data in the system. This model is useful for real time processing because the system is often controlled by stimuli from the system environment.

System Model (3)

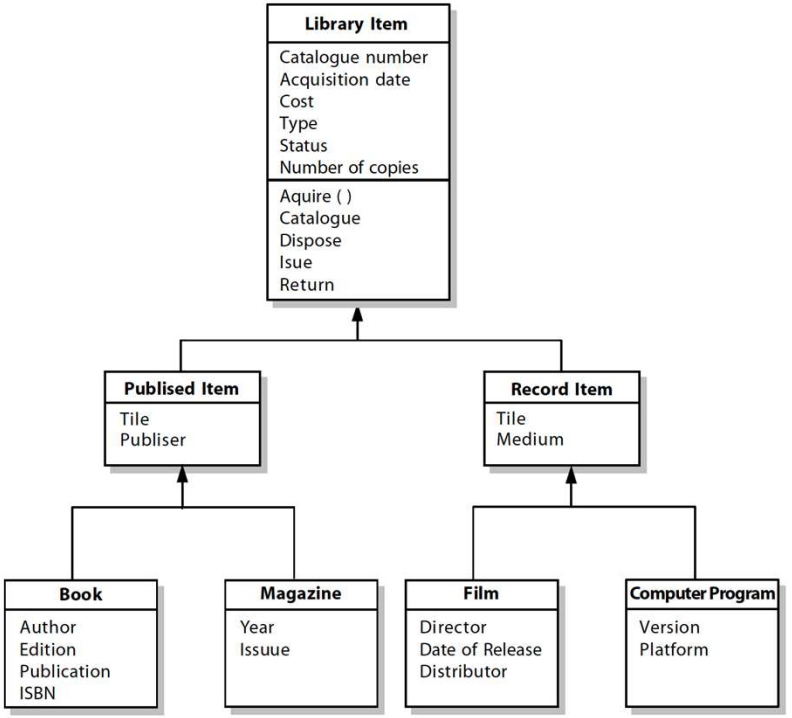


3. Object Model

- An object-oriented approach to all software development is now commonly used, especially for the development of interactive systems. This means that system requirements are carried out using object models, system design is carried out using objects, and system development is carried out in object-oriented programming languages.
- Booch, Rambaugh, and Jacobson integrated their approaches to produce a unified method. The Unifield Modeling Language (UML) used in this unified method becomes an effective standard for object modeling. UML includes notations for various types of system models.

System Model (4)

Class Hierarchy for Library System:



Let’s Discuss