**Lesson 5**

**Objectives**

* Data Models
* Enterprise Data Modeling
* Information System Architecture
* System Development Life Cycle (SDLC)
  + Planning
  + Analysis
  + Design
  + Implementation
  + Maintenance

**Data Models**

Graphical systems use to capture the nature and relationship among data. There are different systems exists to model the data: like ER model, relational model, network model, etc.

**Enterprise Data Modeling**

* First step in database development
* Specifies scope and general content
* Overall picture of organizational data at high level of abstraction
  + Entity-relationship diagram
    - Descriptions of entity types
    - Relationships between entities
    - Business rules

**Information System Architecture (ISA)**

A conceptual plan that expresses the desired future structure for the information system in an organization.

ISA consists of:

* Data (Enterprise data model)
* Process (data flow diagrams)
* Data network (topology diagrams)
* People( People management using project management tool like Gantt Chart)
* Events and time (when to processed)
* Reasons for events and rules

**System Development Life Cycle (SDLC)**

The traditional methodology used to develop, maintain and replace information system. The SDLC is a complete set of steps that a team of information systems professionals, including databases designers and programmers, follow in an organization to specify, develop, maintain and replace information systems.

There are following steps in SDLC

* Planning
* Analysis
* Design
* Implementation
* Maintenance

Above steps may overlap in time, they may be conducted in parallel and it is possible to backtrack to previous steps when prior decisions need to be reconsidered. Graphical representation of SDLC is given below.

**Planning**

* To develop a preliminary understanding of a business situation.
* How information system (IS) might help

Output:

A written request to study the possible changes to an existing system or develop a new system.

**Anlysis**

To analyze the business situation thoroughly to

* determine the requirements
* to structure those requirements and
* to select among completing features of system.

Output:

Functional specification for a system that meets user requirements.

**Design**

To structure all requirements.

Output:

Detailed functional specifications of all data, forms, displays, reports, and processing rules.

**Implementation**

To write program, build data files, train users, and test and install new systems.

Output:

Program that work accurately

**Maintenance**

To monitor the operation and usefulness of system, and to repair and enhance the system.

Output:

Periodic audits of the system to demonstrate weather the system is accurate and still meets needs.