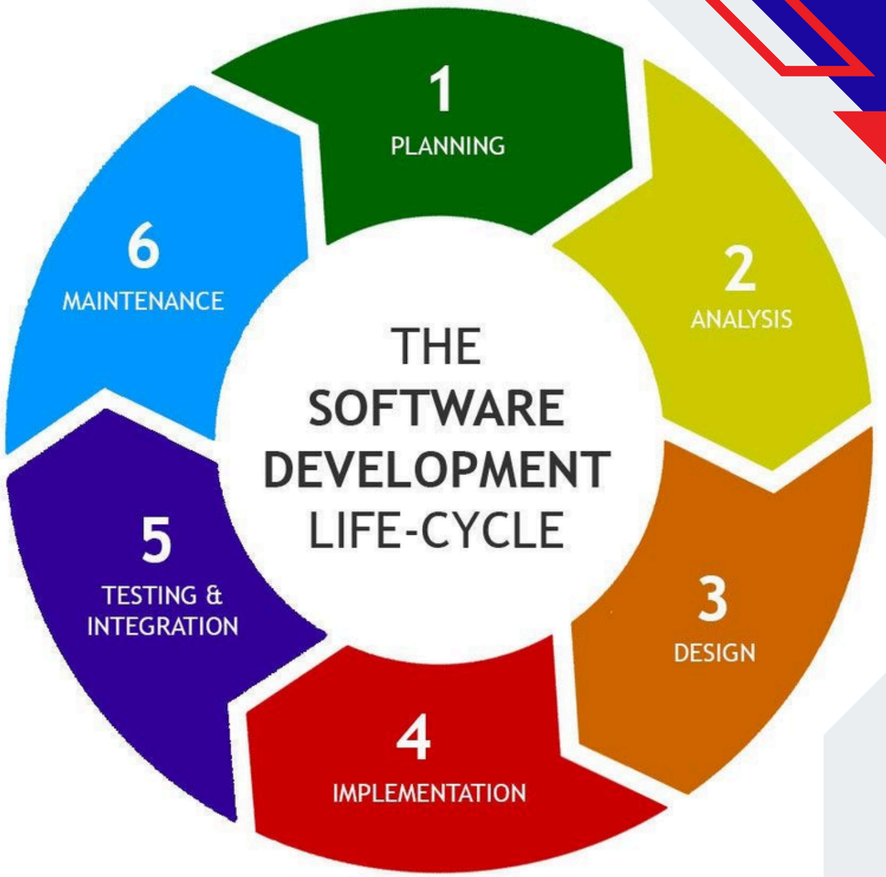
TECHNICAL DEVELOPMENT



SOFTWARE ENGINEERING 2 | CS6300

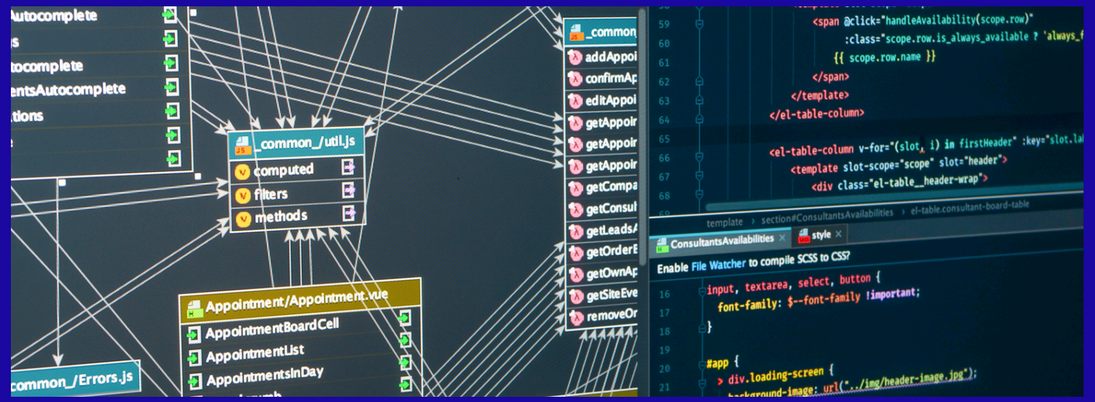
JOHN PAUL M. MANUEL | ACLC COLLEGE OF TAYTAY

ACLC COLLEGE OF TAYTAY
(A Member of AMA Education System)

VERSION 02-250210-2425

WHAT IS TECHNICAL DEVELOPMENT?

It refers to the process of designing, building, testing, and deploying software applications or systems. It involves various stages of the software development lifecycle (SDLC) and includes both front-end and back-end development, database management, cloud computing, security, and system architecture.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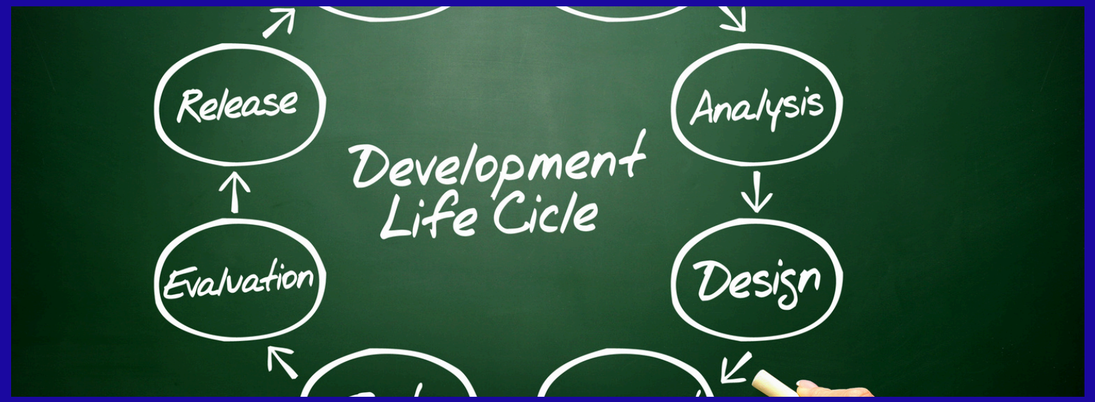
Release
Analysis
Development
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Evaluation
Design

TECHNICAL DEVELOPMENT

STRUCTURED SYSTEMS ANALYSIS AND DESIGN METHOD (SSADM)

is a system development methodology used for analyzing and designing information systems in a structured and systematic way. It was developed in the UK in the 1980s and is mainly used for large-scale software projects.

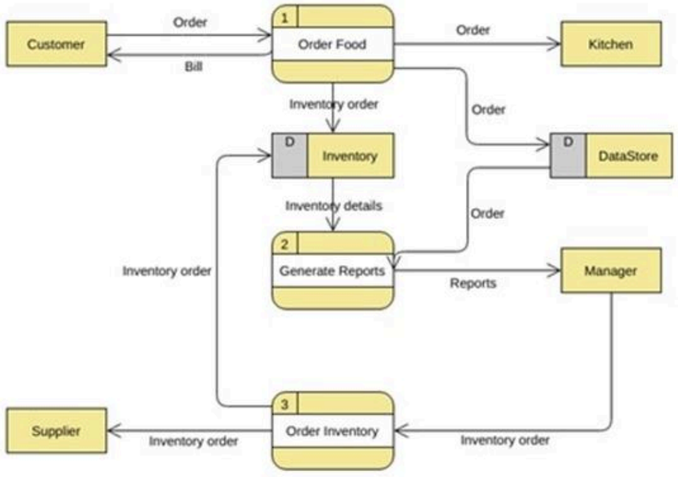
Key Features of SSADM:

1. **Structured Approach** – Uses a step-by-step methodology for system development.
2. **Data-Driven** – Focuses on data modeling and flow rather than just processes.
3. **Graphical Representation** – Uses diagrams to represent system components, making it easier to understand.
4. **Emphasizes Documentation** – Produces detailed documentation at each stage.

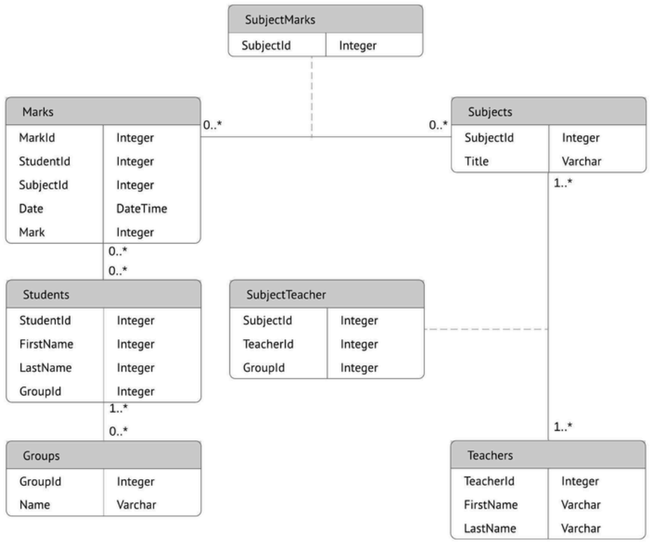
TECHNICAL DEVELOPMENT

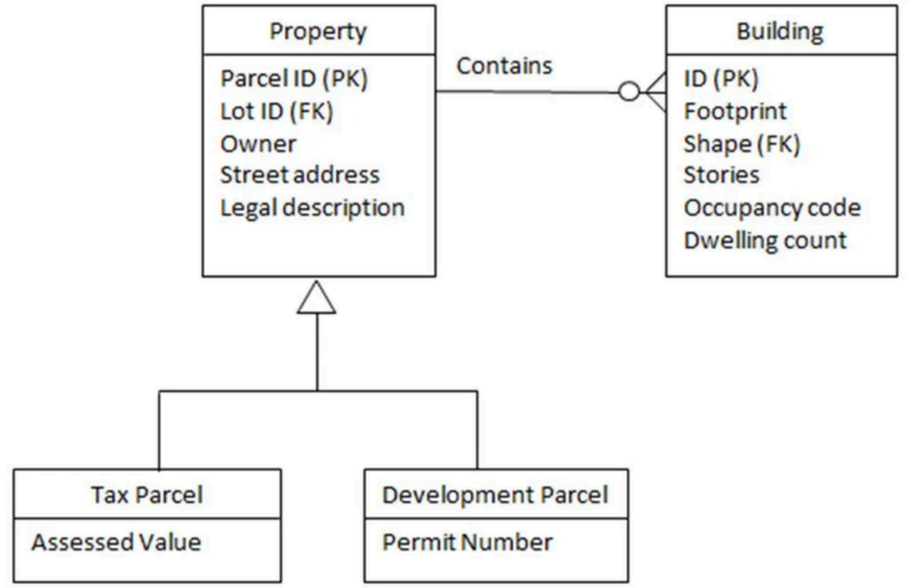
TECHNIQUES USED IN SSADM

- **Data Flow Diagrams (DFDs)** – Shows how data moves through the system.
- **Entity Relationship Diagrams (ERDs)** – Represents database structures.
- **Logical Data Modeling (LDM)** – Defines how data is structured.



Level 1 DFD





TECHNICAL DEVELOPMENT

SSADM STAGES

Stage 0 – Feasibility study

Stage 1 – Investigation of the current environment

Stage 2 – Business system options

Stage 3 – Requirements specification

Stage 4 – Technical system options

Stage 5 – Logical design

Stage 6 – Physical design

TECHNICAL DEVELOPMENT

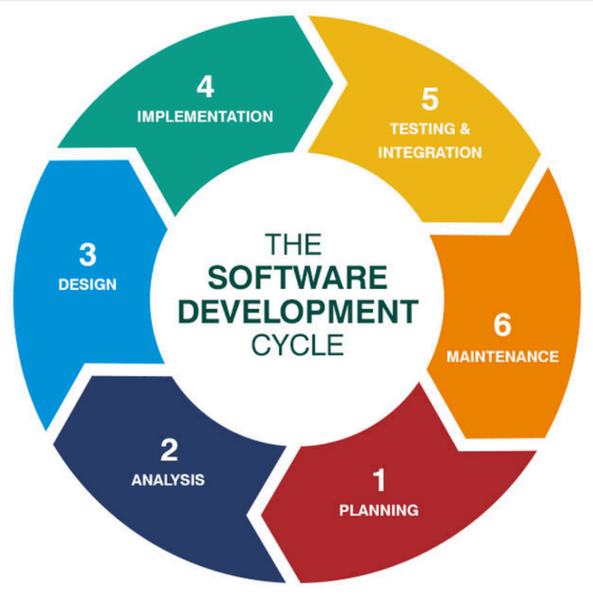
FEASIBILITY STUDY

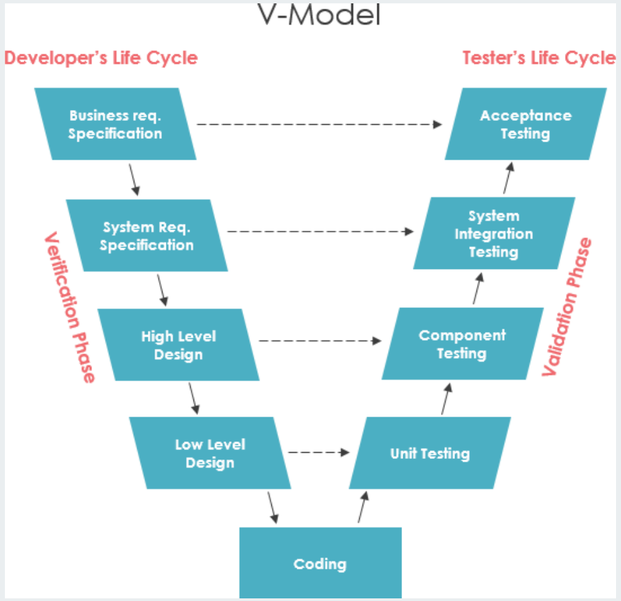
Feasibility studies aim to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the environment, the resources required to carry through, and ultimately the prospects for success.

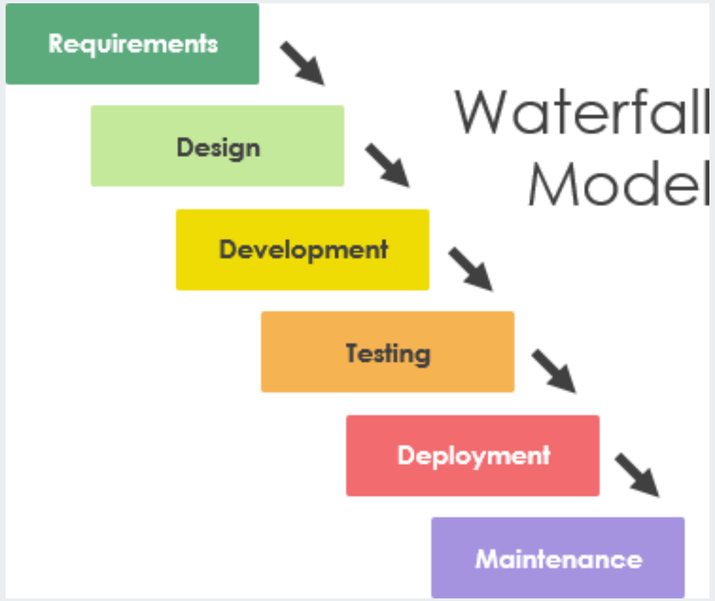
TECHNICAL DEVELOPMENT

SOFTWARE PROCESS

In software engineering, Software Process is a division of software development work with distinct phases (or stages) containing activities with the intent of better planning and management. It is often considered a subset of the systems development life cycle. It is also called the Software Development Life Cycle (SDLC)



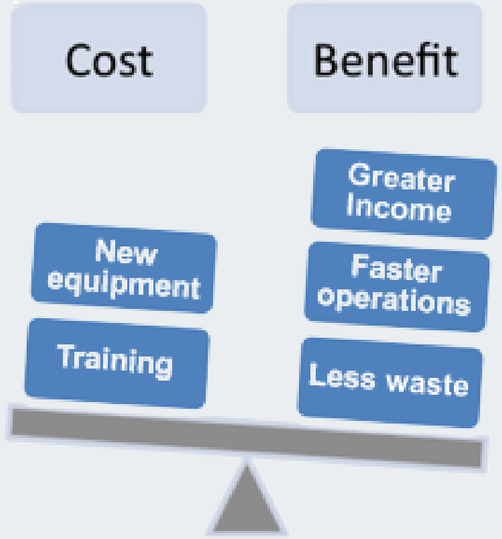




TECHNICAL DEVELOPMENT

COST-BENEFIT ANALYSIS (CBA)

sometimes called benefit cost analysis (BCA), is a systematic approach to estimating the strengths and weaknesses of alternatives that satisfy transactions, activities or functional requirements for a business.



DATA FLOW DIAGRAM

WHAT IS DATA FLOW DIAGRAM (DFD)

A Data Flow Diagram (DFD) is a traditional way to visualize the information flows within a system. A neat and clear DFD can depict a good amount of the system requirements graphically. It can be manual, automated, or a combination of both.

There are two types of Data Flow Diagram (DFD)

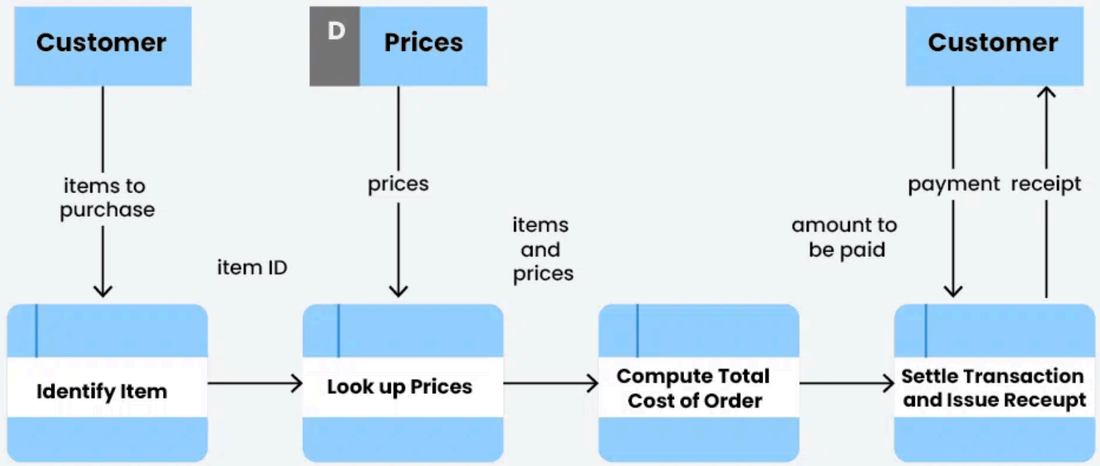
- **Logical DFD** - mainly focuses on the system process. It illustrates how data flows in the system. In the Logical Data Flow Diagram (DFD), we focus on the high-level processes and data flow without delving into the specific implementation details.

- **Physical DFD** - shows how the data flow is actually implemented in the system. In the Physical Data Flow Diagram (DFD), we include additional details such as data storage, data transmission, and specific technology or system components. Physical DFD is more specific and close to implementation.

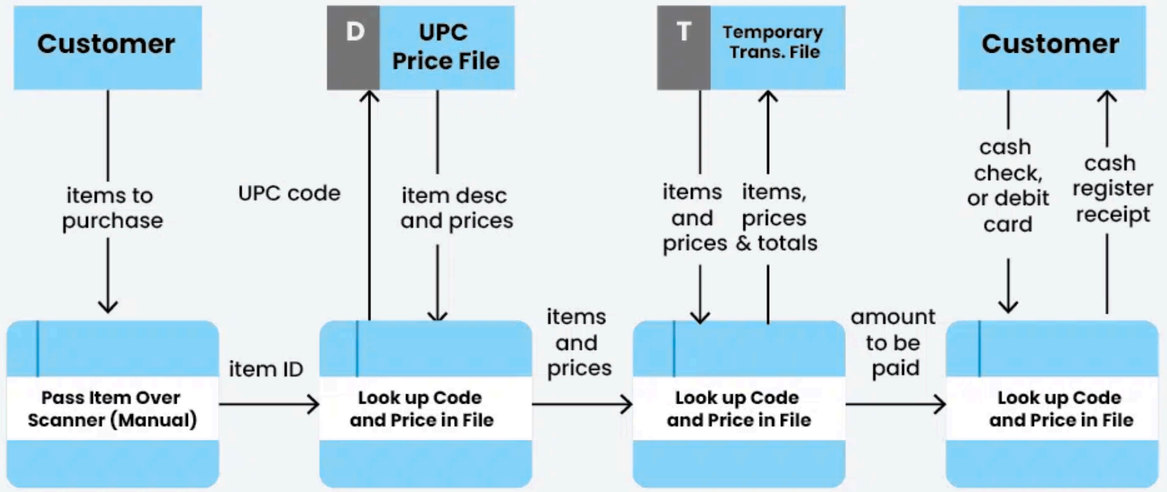
DATA FLOW DIAGRAM

TYPES OF DATA FLOW DIAGRAM

Logical Data Flow Diagram (DFD)



Physical Data Flow Diagram (DFD)



DATA FLOW DIAGRAM

COMPONENTS OF DATA FLOW DIAGRAM

- **External Entity**: External entity also known as Terminator, Actor, is the component of Data flow Diagram (DFD) that stands outside of the system and communicates with the system. It can be, for example, organizations like banks, groups of people like customers or different departments of the same organization, which is not a part of the model system and is an external entity. Modeled systems also communicate with terminator.

- **Process**: Input to output transformation in a system takes place because of process function. The symbols of a process are rectangular with rounded corners, oval, rectangle or a circle. The process is named a short sentence, in one word or a phrase to express its essence

DATA FLOW DIAGRAM

COMPONENTS OF DATA FLOW DIAGRAM

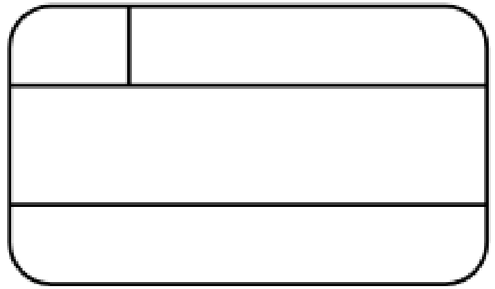
- **Data Flow**: Data flow describes the information transferring between different parts of the systems. The arrow symbol is the symbol of data flow. A relatable name should be given to the flow to determine the information which is being moved. Data flow also represents material along with information that is being moved. Material shifts are modeled in systems that are not merely informative. A given flow should only transfer a single type of information. The direction of flow is represented by the arrow which can also be bi-directional.

- **Warehouse (Data Store)** : The data is stored in the warehouse for later use. Two horizontal lines represent the symbol of the store. The warehouse is simply not restricted to being a data file rather it can be anything like a folder with documents, an optical disc, a filing cabinet. The data warehouse can be viewed independent of its implementation.

DATA FLOW DIAGRAM

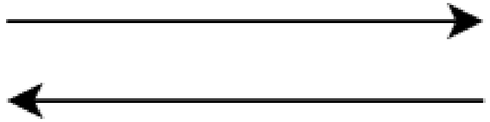
DATA FLOW DIAGRAM METHODS & SYMBOLS

Entity



Process

Data Store



Flow