

"A common mistake that people make when trying to design something completely foolproof is to underestimate the ingenuity of complete fools."
-Douglas Adams



Topics

Database Design

Homework

Page 178: 15-17

Turn in report with all details
Nothing Handwritten

Get together in group and consolidate your findings.

In Class - Page 178: 11-14

The following table structure contains many unsatisfactory components and characteristics. (For example, there are several multivalued attributes, some naming conventions are violated, some attributes are not atomic, and so on.)

Attribute name	Sample value
EMP_CODE	1003
LAST_NAME	Willaker
EDUCATION	HS, BBA, MBA
DEPT_CODE	MKTG
DEPARTMENT	Marketing
DEPT_MANAGER	Jill H. Martin
JOB_CLASS	23
TITLE	Sales agent
DEPENDENTS	Gerald (spouse), Mary (daughter), John (son)
BIRTH_DATE	12/23/65
HIRE_DATE	10/14/94
TRAINING	Level 1, level 2
BASE_SALARY	\$32,255

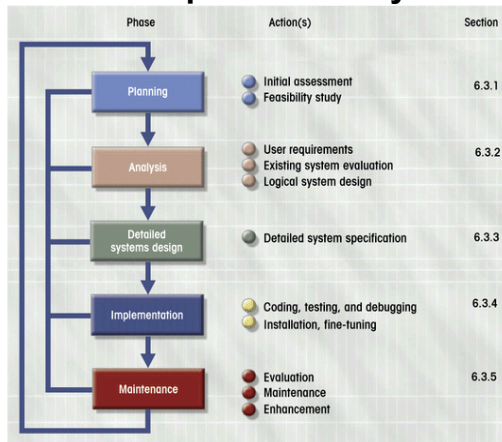
Use a dependency diagram to get to 3NF and create ER and scheme.

Chapter 6 Database Design

What makes a system unsuccessful?

What Makes a System Successful?

System Development Life Cycle



System Development Life Cycle

Front End - User Driven

1. Planning
2. Systems Analysis
3. Detailed Systems Design

<p>System Development Life Cycle</p> <p>Back End - Designer/Technology Driven</p> <p>4. System Implementation</p> <p>5. System Maintenance</p>	<p>System Planning</p> <p>Clear Vision of New System</p> <p>Committee: Management / Users Systems Professionals</p> <p>Develop System Plan Report</p>	<p>System Planning</p> <p>TENLOS Feasibility Factors Technical Feasibility Economic Feasibility Non-Economic Feasibility Legal Feasibility Operational Feasibility Schedule Feasibility</p>
<p>System Analysis Phase Uses the System Plan Report</p> <p>Define the Scope of the System</p> <p>Interview Users</p> <p>Refine Requirements</p> <p>Develop Systems Analysis Report</p>	<p>Systems Design Phase</p> <p>Extension of User Requirements</p> <p>Alternative Designs</p> <p>General Systems Design Report Output/Input Processes/Controls Databases/Technology</p>	<p>System Design Phase</p> <p>Prototyping</p> <p>CASE Tools</p> <p>Detailed Design</p>
<p>Evaluation and Selection</p> <p>Major Checkpoint</p> <p>Value of System</p> <p>Cost / Benefits</p> <p>System Selection</p>	<p>Systems Implementation Phase</p> <p>Software Development Coding, Testing</p> <p>Site preparation</p> <p>Equipment Installations</p> <p>Testing / Training</p>	<p>Systems Implementation Phase</p> <p>Documentation Preparation Systems, Software Operations, User</p> <p>Conversion</p> <p>Post-implementation Review</p>

System Maintenance

Not part of SDLC

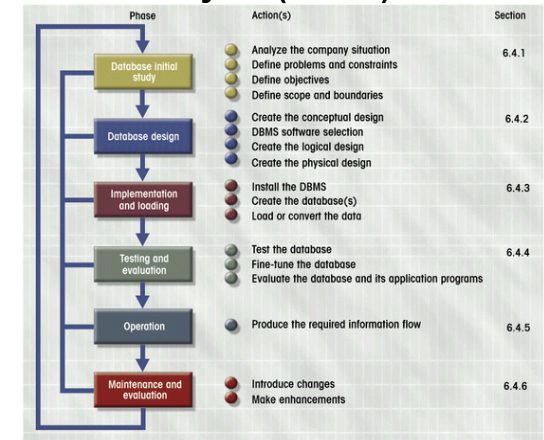
Longest and Costliest

Types of Maintenance

- Bug Fixes, Extensions
- Revisions, New Procedures
- External Forces
- Additional Reports

*Most Systems
Will Require
A
Database*

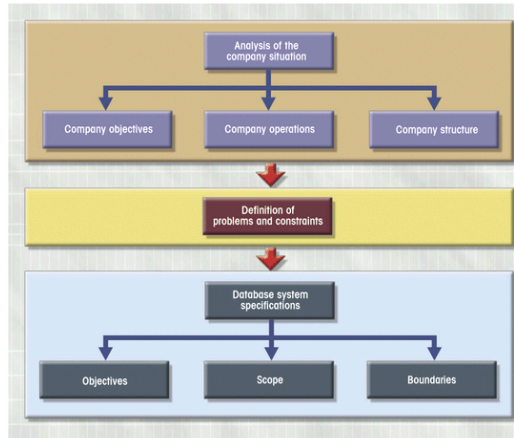
Database Life Cycle (DBLC)



Database Life Cycle (DBLC)

1. DB Initial Study
2. DB Design
3. Implementation and Loading
4. Testing and Evaluation
5. Operation
6. Maintenance and Evolution

Database Initial Study



Database Initial Study

Analyze the Company

Define Problems and Constraints

Define Objectives

Define Scope and Boundaries

Database Design

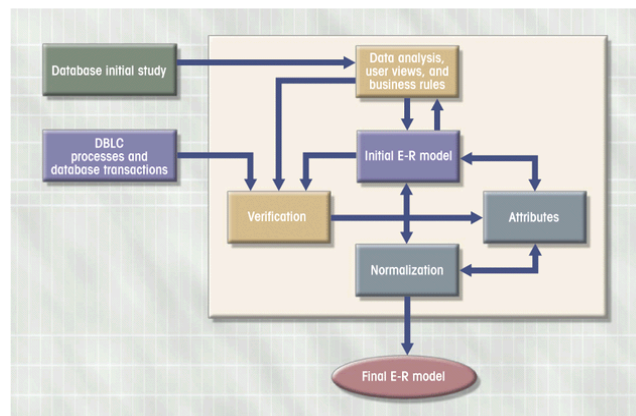
Create Conceptual Design

DBMS Software selection

Create Logical Design

Create Physical Design

ER Diagramming



Implementation and Loading

Install the DBMS

Create the Database

Load or Convert Data

Testing and Evaluation

Test the Database

Fine Tune

Evaluate DB and Programs

Operation

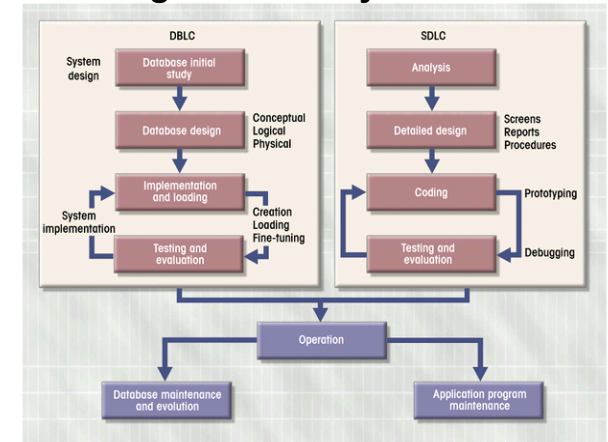
Produce desired information flow

Maintenance and Evolution

Introduce Changes

Make Enhancements

Combining Both Life Cycles



DB Design - Conceptual Design

Data Analysis and Requirements

ER Modeling and Normalization

Data Model Verification

DB Design - Software selection

Cost

Features

Model

Portability

Hardware

DB Design - Logical (Internal) Design

Map Design to Software

DB Design - Physical Design

Determine location and Performance of the System

Implementation - Security

Physical Security

password Security

Access Rights

Audit Trails

Data Encryption

Diskless Workstations

Backup and Recovery

Concurrency Controls

In-class - Page 392: Problem 1 a-f

The ABC Car Service & Repair Centers are owned by the SILENT car dealer; they service and repair only that brand of car. The three ABC Car Service & Repair Centers provide service and repair for the entire state.

Each of the three centers is independently managed and operated, and each is operated by a shop manager, a receptionist, and at least eight mechanics. Each center also maintains a fully stocked parts inventory.

Each center maintains a manual file system in which each car's maintenance history is kept: repairs made, parts used, costs, service dates, owner, and so on. Files are also kept to keep track of inventory, purchasing, billing, employees, and payroll.

You have been contacted by the manager of one of the centers to design and implement a computerized system. Given the preceding information, do the following:

a. Indicate the most appropriate sequence of activities by labeling each of the following steps in the correct order. (For example, if you think that "Load the database" is the appropriate first step, label it "1.")

Problem 1a

- ___ Normalize the conceptual model.
- ___ Obtain a general description of company operations.
- ___ Load the database.
- ___ Create a description of each system process.
- ___ Test the system.
- ___ Draw a data flow diagram and system flow charts.
- ___ Create a conceptual model, using E-R diagrams.
- ___ Create the application programs.
- ___ Interview the mechanics.
- ___ Create the file (table) structures.
- ___ Interview the shop manager.

Group Work

DBLC

DB Initial Study

DB Design

Tables in 3NF

Coming Up

Monday

Chapter B, C - Case Study

Chapters on Website

Tools Due

Wednesday

2nd Exam

Friday

Tool Presentations

End of Lesson