Module 06 - Physical and Data Storage Systems



**Course Outcome**

At the end of this course, students will:

* Understand basic database concepts, including the structure an operation of the relational and non-relational data model, design principles, E-R diagrams, E-R modeling, data warehousing, client/server, and internet database environments
* Apply the concept of a database transaction and related database facilities, including concurrency control, journaling, backup and recovery, and data object locking and protocols.
* Analyze advanced database topics such as distributed database systems, data modeling techniques and the data warehouse.
* Evaluate administration and security issues, and three enterprise database management systems widely used by organizations.
* Create a database management and security plan for a database project.

**Core Concepts**

* Logical and Physical Design
* Define Data Storage Organization
* Define Integrity and Security Measures
* Determine Performance Measures
* Database Design Strategies
* Centralized versus Decentralized Design

**Activities**

* The Muddiest Point
* Concept Test
* Discussion Board
* Hands-On Practice
* Programming Exercise
* Knowledge Check

## Required Reading

Negi, M. (2019). Fundamental of Database Management System. BPB Publications. (ISBN: 9789388176620)

* Chapter 8: Aggregate functions, Subqueries and Users

**Additional**

Manning, A. (2015). Databases for small business: essentials of database management, data analysis, and staff training for entrepreneurs and professionals. Apress. (ISBN: 9781484202784)

Coronel, C., & Morris, S. (2019). Database Systems: Design, Implementation, & Management. Cengage Learning. (ISBN: 9780357687536)

Silberschatz, A., Korth, H. F., & Sudarshan, S. (2019). Database System Concepts (7th Ed.). McGraw-Hill. (ISBN: 9780078022159)

MP06: The Muddiest Point

## **Question 1** (Mandatory) **(4 points)**

After reading the required reading, select only one key topic that you could not clearly understand or found confusing. If you understood everything and nothing needs further clarification, find one topic/concept that you found interesting.

Briefly describe the muddiest point or the most interesting point.

Your instructor will visit the collected topics and explain the muddiest topic(s) in class.

Question 1 options:

|  |
| --- |
| a |

## **Question 2** (Mandatory) **(1 point)**

Which one of the following is divided into five phases of planning, analysis, detailed system design, implementation, and maintenance?

Question 2 options:

1. DBLC
2. Conceptual model
3. SDLC
4. Centralized design

# KC06: Knowledge Check

## **Q1:** What is the definition of Logical Design?

1. It is the process of determining the data access characteristics of the database design process
2. It allows administrators to assign specific access rights for database objects to a user or group of users
3. It translates the software-independent conceptual model into a software-dependent model
4. It is a set of database privileges that could be assigned as a unit to a user or group

## **Q2 -** The --------- is productive when the data component has a relatively small number of objects and procedures.

1. Physical Design
2. Centralized Design
3. Decentralized Design
4. Logical Design

## **Q3 -** Logical and physical design can be carried out in parallel, on a table-by-table basis.

1. True
2. False

## **Q4 -** Which one is a role of clustered tables storage technique?

1. Simplify processing and end-user data access
2. Stores related rows from two related tables in adjacent data blocks
3. Define integrity and security measures
4. Ensuring the uniqueness of data values in a column and to facilitate data lookups

## **Q5 -** Which one is the "Top-down design" in Database Design Strategies:

1. First identifies the data elements (items) and then groups them together in data sets.
2. Starts by identifying the data sets and then defines the data elements for each of those sets.

Bottom of Form

DB06: Discussion Board

 Available on Aug 6, 2022 00:59. **Access restricted before availability starts.**

Must post first.

Subscribe

**Part 1 (Due Wednesday)**

What are the advantages of Physical Design as part of validating the Logical Model against the user requirements?

Please share your idea with the group with a minimum of 250 words.

**Part 2 (Due Sunday)**

To extend the discussion, first review the posts of your classmates. Then choose at least two of your classmates' posts and respond with thoughtful and substantive contributions. Answer any questions from your instructor.

**Rubrics**

* [02U Discussion Board (DB) Rubric](javascript:void(0);)

# CT06: Concept Test

**Part 1 (Due Wednesday)**

Consider the following example:

SELECT P\_CODE, DATE\_FORMAT(P\_INDATE, '%m/%d/%y')

FROM PRODUCT;

SELECT P\_CODE, DATE\_FORMAT(P\_INDATE, '%M %d, %Y')

FROM PRODUCT;

Which MYSQL functions have been used? Justify your answer.

a) SYSDATE

b) Date\_Format

c) TO\_DATE

d) DATEDIFF/DATE-FORMAT

**Part 2 (Due Sunday)**  
Respond to **one** of your classmates by critiquing his or her choice and justification. You are not allowed to select the same classmate if you chose the peer last week. You can convince your peer with your answer if the peer's answer is different from yours. If both have the same answer, you can discuss your justification with your peer to reinforce your answer.

**How a Discussion Forum works:**  To post on the Discussion Forum, click the name of the forum then click on  **Create Thread**. Type a subject "CT06- Your first name and last name" and a message. Then  **Submit**your post.