

Module 03 - Database queries and SQL Operators



Course Outcome

At the end of this course, students will:

- Understand basic database concepts, including the structure and 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

- SQL Queries
- Basic SELECT Queries
- SELECT Statement Options
- Create Database and Table with and without Primary Key
- MYSQL Syntax and commands
- Using Arithmetic Operators
- Working with Comparison Operators

Activities

- The Muddiest Point
- Concept Test
- Discussion Board

- Hands-On Practice
- Programming Exercise
- Knowledge Check
- Team Project Proposal Submission

Required Reading

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

- Chapter 4: Open Source Terminology and Introduction to SQL (Structure Query Language)
- Chapter 10: Database Installation
- Chapter 11: Oracle and MySQL Tools

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)

DB03: Discussion Board

Part 1 (Due Wednesday)

What are the Codd's 12 Relational Database Rules? what are the advantages and disadvantages of the Codd's Rules?

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.

CT03: Concept Test

Part 1 (Due Wednesday)

Which statement will not return a valid result set? Justify your answer

a) SELECT orderid, custid, empid
 FROM Sales.Orders
 WHERE empid > 5
 GROUP BY orderid, custid, empid;

b) SELECT orderid, custid
 FROM Sales.Orders
 WHERE empid > 5
 GROUP BY orderid, custid;

c) SELECT orderid, empid
 FROM Sales.Orders
 WHERE custid > 5
 GROUP BY orderid, empid;

d) SELECT orderid, custid, empid
 FROM Sales.Orders
 WHERE empid > 5
 GROUP BY orderid, custid;

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 "CT03- Your first name and last name" and a message. Then **Submit** your post.

MP03: The Muddiest Point

Q1: 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.

Q2: Which of the following commands is used to query data from tables?

1. ORDER BY
2. WHERE
3. FROM
4. SELECT

KC03: Knowledge Check

Q1: Which one does not belong to the SQL statements' categories?

1. Transaction Control Language (TCL)
2. Data Definition Language (DDL)
3. Annual Technical Support (ATS)
4. Data Control Language (DCL)

Q2: Which one of the following is an example of important DDL commands?

1. CREATE, ALTER, DATA TYPE, FLASHBACK, and DROP
2. DROP, TRUNCATE, RENAME, TCL, CREATE
3. CREATE, ALTER, DROP, RENAME, FLASHBACK, and TRUNCATE
4. SELECT, INSERT, UPDATE, and DELETE

Q3: Which of the following shows the definition of SELECT?

1. Specifies the table(s) from which the data will be retrieved
2. Specifies the attributes to be returned by the query
3. Groups the rows of data into collections based on sharing the same values in one or more attributes
4. Filters the rows of data based on provided criteria

Q4: Which one defines the wildcard character term?

1. It is a symbol that can be used as a general substitute for other characters or commands.
2. It sorts the final query result rows in ascending or descending order based on the values of one or more attributes.
3. It is a symbol that specifies the columns to be retrieved as a column list.
4. Is an attribute within an entity which is implemented as a column in the table.

Q5: What is not true about a correlated subquery?

1. The inner query must only return TRUE or FALSE
2. The outer query must pass a value to the inner query for every row

IS 456 IT Database Systems Management**Programming Exercise 2**

4/13/2021 Developed by Farzin Bahadori

School of Technology & Computing @ City University of Seattle (CityU)

Using Chinook Database: (**Database is available in GitHub repository under db folder**)

Task 1:

Using the Command prompt, create a backup file as a sql text-file, for the albums table, name it as albums.sql. [Use Dump Command]. take a screenshot and submit it.

Task 2:

- Write a SELECT statement that will return the records, and titles columns from the albums table.
- Filter the results to include only the customers from the country Brazil.
- Execute the written statement.

Task 3:

- Write a SELECT statement that will return first and last names, company, address, phone and email address of customers from the Customers table.
- Filter the results to include only customers from the countries Canada and USA.
- Execute the written statement.