# Nepal College of Information Technology

# Balkumari , Lalitpur

## Database Management System

## Lab 3

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**Title: Data Query Language (DQL) Command**

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**Objective:**

      To practice and implement data query language command.

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**Procedure:**

1. DQL Command
   - Is used to query database.
   - Is used to
     - Retrieve information from table
   - Command used is: SELECT

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**SQL Command:**

1. **SELECT**
   - Is used to retrieve information from a table.
   - Is referred as querying a table.
   - Can display either all columns in a table or only specific columns from a table.
   - **WHERE** clause is used with **SELECT** to filter records.
   - Syntax:
     - **Retrieve all rows from table**
       SELECT * FROM <table_name>

- **Retrieve specific columns from table**
  SELECT column1,column2...... FROM <table_name>
- **Elimination of duplicates**
  SELECT DISTINCT column1,........ FROM <table_name>
- **Use of where clause**
  SELECT * FROM <table_name> WHERE <condition>

> **Operators in WHERE Clause**
  - =             Equal
  - <>            Not Equal
  - >             Greater Than
  - <             Less Than
  - >=            Greater Than or Equal
  - <=            Less Than or Equal
  - BETWEEN       Between an inclusive range
  - LIKE          Search for pattern
  - IN            To specify multiple possible values for column

> **SQL AND & OR Operator**
  - AND operator displays a record if both the first condition AND the second condition are true.
  - OR operator displays a record if either the first condition OR the second condition is true.
  - AND & OR operator can also be combined.
  - Syntax:
    - SELECT * FROM <table_name> WHERE <column1>=Value1 AND <column2>=Value2
    - SELECT * FROM <table_name> WHERE <column1>=Value1 OR <column2>=Value2
    - SELECT * FROM <table_name> WHERE <column1>=Value1 AND (<column2>=Value2 OR <column3>=Value3)

> **SQL LIKE Operator**
  - Is used to search for specific pattern in a column.
  - Syntax:
    - ♦ SELECT * FROM <table_name> WHERE <column_name> LIKE *pattern*

- ➢ **SQL Wildcard characters**
  - ▪ Are used to substitute for any other character(s) in a string.
  - ▪ Are used with the SQL LIKE operator.
  - ▪ Wildcards are:
    - • %                              ->substitute for zero or more characters
    - • _                              ->substitute for single character
    - • [charlist]                 ->sets and ranges of characters to match
    - • [^charlist] or [!charlist]   ->matches only characters NOT specified within brackets

- ➢ **SQL IN Operator**
  - ▪ To specify multiple values in a WHERE clause
  - ▪ Syntax:
    - • SELECT * FROM <table_name> WHERE <column_name> IN (value1,value2,……………)

- ➢ **SQL BETWEEN Operator**
  - ▪ To select values within range.
  - ▪ Syntax:
    - • SELECT * FROM <table_name> WHERE <column_name> BETWEEN value1 and value2
  - ▪ *In some databases, BETWEEN selects fields that are between and excluding the test values.*
    *In other databases, BETWEEN selects fields that are between and including the test values.*
    *And in other databases, BETWEEN selects fields between the test values, including the first test value and excluding the last test value.*

- ➢ **SQL ORDER BY Operator**
  - ▪ To sort the result set by one or more columns.
  - ▪ Sorts records in ascending order by default.
  - ▪ Syntax:
    - • SELECT * FROM <table_name> ORDER BY <column_name> ASC | DESC

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LAB EXERCISE:

1. Select all information from employee table.
2. Select employee name and job from employee table.
3. Display all information from employee with country 'germany' and salary greater than 20000
4. Display name, country, job and salary of employee with either job is 'programmer' or 'manager'
5. Display all information from employee with country 'germany' and city either 'munich' or 'berlin'
6. Display all information from employee sorted in descending order.
7. Select all employees with name starting with the letter "j".
8. Select all employees with country ending with the letter "y".
9. Select all employees with country containing pattern "e".
10. Select all employees with country not containing pattern "land".
11. Select all employees with city starting with any character followed by "erlin"
12. Selects all employees with a City starting with "l", followed by any character, followed by "n", followed by any character, followed by "on"
13. Selects all employees with a City starting with "b", "m", or "d"
14. Selects all employees with a City starting with "a", "b", or "c"
15. Selects all employees with a City NOT starting with "b", "m", or "d":
16. Selects all employees with a City of "delhi" or "manchester" use IN operator
17. Selects all employees with a salary BETWEEN 20000 and 35000
18. Selects all employees with a salary BETWEEN 10000 and 40000, but employees with a ID of 1,2, or 3 should not be displayed
19. Selects all employees with city beginning with any of the letter BETWEEN 'b' and 'm'
20. Selects all employees with city beginning with any of the letter NOT BETWEEN 'b' and 'm'

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