

Lecture (5)

"Introduction to Data Base"

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Introduction to SQL for Beginners



Introduction to SQL

What is SQL?

SQL stands for Structured Query Language and is used to manage and manipulate relational databases. It allows users to perform various tasks such as retrieving data, inserting new data, updating existing data, and deleting data.

Why is SQL important?

SQL is a widely used language in the tech industry and is essential for anyone working with databases. It allows users to efficiently manage and analyze large amounts of data, which is crucial for many businesses and organizations.



Introduction to SQL

Understanding the basics of SQL

Exploring the foundational concepts of SQL



Database and Tables

Understanding the structure of databases and tables in SQL



Queries and Statements

Learning to write SQL queries and statements to interact with databases



Data Manipulation

Performing operations like inserting, updating, and deleting data in SQL



Data Retrieval

Retrieving specific data from databases using SQL SELECT statements

Basic SQL Commands

SELECT

The SELECT statement is used to retrieve data from a database table. It is the most commonly used SQL command.

INSERT

The INSERT statement is used to add new rows of data to a table.

UPDATE

The UPDATE statement is used to modify existing data in a table.

DELETE

The DELETE statement is used to remove rows of data from a table.

Basic SQL Commands

Filtering Data

WHERE Clause

The WHERE clause is used to filter data based on a specified condition. It is commonly used with the SELECT statement to retrieve specific rows from a table.

Comparison Operators

SQL provides a variety of comparison operators to use in the WHERE clause, such as =, <>, >, <, >=, and <=. These operators are used to compare values in a column to a specified value or expression.

Basic SQL Commands

Sorting Data

ORDER BY

The ORDER BY clause is used to sort the result set in ascending or descending order based on one or more columns. For example, the following query sorts the 'employees' table by 'last_name' in ascending order:

```
SELECT * FROM employees  
ORDER BY last_name ASC;
```

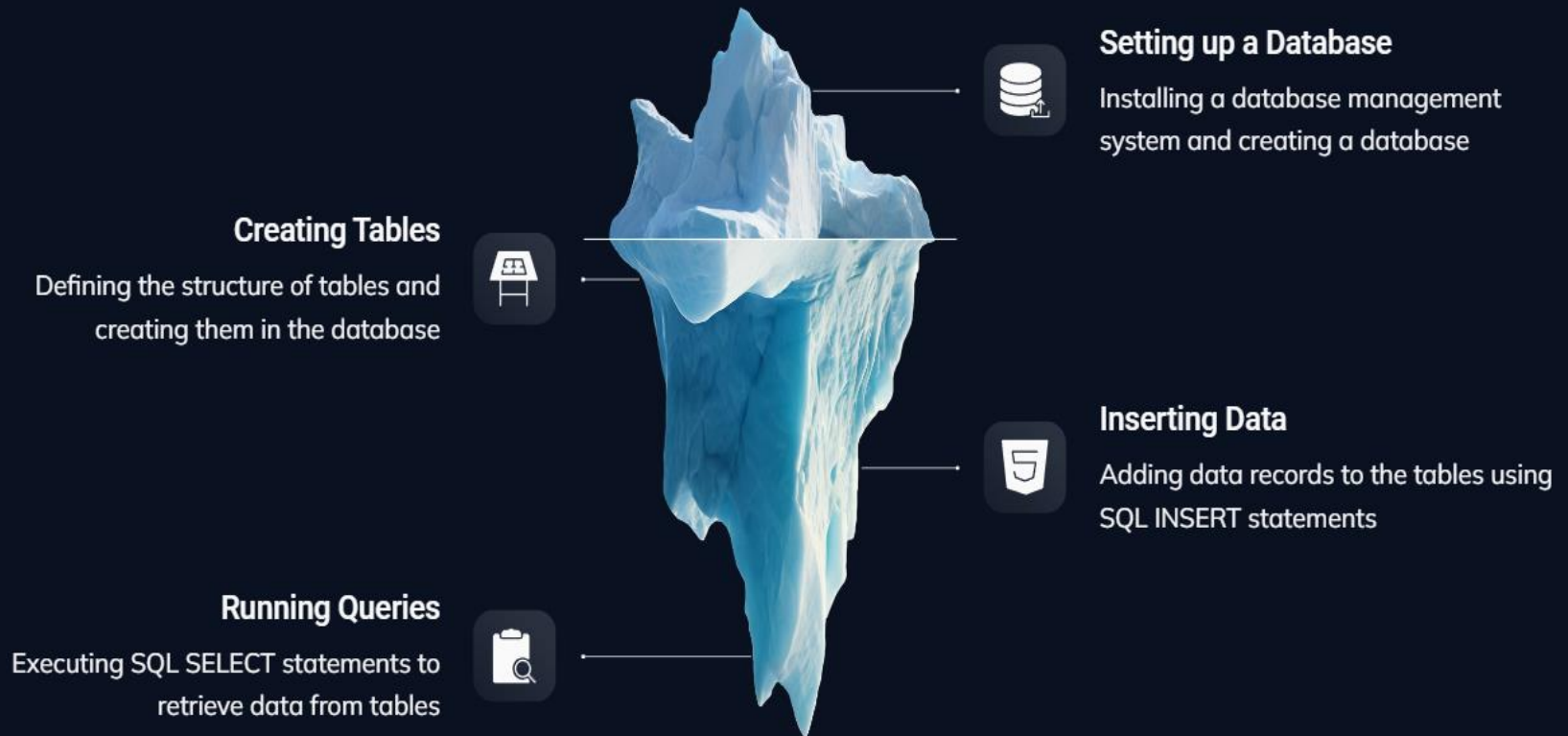
To sort in descending order, use the DESC keyword:

```
SELECT * FROM employees  
ORDER BY last_name DESC;
```


Introduction to SQL

Getting started with SQL: A beginner's guide

Step-by-step guide to start working with SQL



Introduction to SQL

SQL made easy: A beginner's guide to database querying

Simplifying database querying with SQL for beginners

SELECT Statement

Retrieving data from one or more tables using the SELECT statement



WHERE Clause

Filtering data based on specified conditions using the WHERE clause



ORDER BY Clause

Sorting retrieved data in ascending or descending order using the ORDER BY clause



JOIN Operations

Combining data from multiple tables using different types of JOIN operations



SQL Categories:

1. Data Query Language (DQL)

Common DQL statements:

- 1. SELECT**
- 2. SELECT DISTINCT**

2. Data Definition Language (DDL)

Common DDL statements:

- 1. CREATE DATABASE**
- 2. DROP DATABASE**
- 3. CREATE TABLE**
- 4. DROP TABLE**

3. Data Manipulation Language (DML)

Common DML statements:

- 1. INSERT INTO**
- 2. UPDATE**
- 3. DELETE FROM**

1. Data Query Language (DQL) :

1. **SELECT :** The **SELECT** statement is used to select data from a database.

Syntax :

```
1  SELECT column1, column2
2  FROM table_name
3  WHERE condition;
4
```

column1, column2 are the *field names* of the table you want to select data from.

The **table_name** represents the name of the table you want to select data from.

“ **WHERE** condition ” is **optional** and allows you to specify a condition for filtering the results.

Introduction to Database

1. Data Query Language (DQL) :

1. SELECT DISTINCT :

The **SELECT DISTINCT** “ Unique Values ” statement is used to return only distinct (Unique) values.

Syntax :

```
1 SELECT DISTINCT column1, column2
2 FROM table_name
3 WHERE condition;
4
```

SQL

| ProductID | ProductName | Category | Price |
|-----------|-------------|-------------|-------|
| 1 | Laptop | Electronics | 800 |
| 2 | Tablet | Electronics | 400 |
| 3 | Smartphone | Electronics | 600 |
| 4 | Chair | Furniture | 100 |
| 5 | Sofa | Furniture | 500 |
| 6 | Desk | Furniture | 300 |

If you want to select the distinct categories of products from the "Products" table, you would use the following SQL query:

sql

Copy code

```
SELECT DISTINCT Category
FROM Products;
```

The result of this query will be:

| Category |
|-------------|
| Electronics |
| Furniture |

2. Data Definition Language (DDL) :

1. CREATE DATABASE :

The **CREATE DATABASE** statement is used to create a new SQL database.

Syntax :

```
1 CREATE DATABASE database_name;  
2
```

Example :

```
1 CREATE DATABASE Batu_Uni;  
2
```

2. Data Definition Language (DDL) :

2. DROP DATABASE :

The **DROP DATABASE** statement is used to DELETE a SQL database.

Syntax :

```
1 DROP DATABASE database_name;  
2
```

Example :

```
1 DROP DATABASE Batu_Uni;  
2
```

*Thank
you*

