

### SQL Facts

- SQL stands for Structured Query Language
- SQL is pronounced "sequel"
- SQL is declarative language
- SQL is used to access & manipulate data in databases
- Top SQL DBs are MS SQL Server, Oracle, DB2, and MySQL

### Database Definitions

- **RDBMS** (Relational Database Management System) – Software that stores and manipulates data arranged in relational database tables.
- **Table** – A set of data arranged in columns and rows. The columns represent characteristics of stored data and the rows represent actual data entries.

### SQL Commands Categories

#### Data Query Language (DQL)

- SELECT - Retrieve data from table(s)

#### Data Manipulation Language (DML)

- INSERT - Insert data into db table
- UPDATE - Update data in db table
- DELETE - Delete data from table

#### Data Definition Language (DDL)

- CREATE - Create db object (table, view, etc.)
- ALTER - Modify db object (table, view, etc.)
- DROP - Delete db object (table, view, etc.)

#### Data Control Language (DCL)

- GRANT - Assign privilege
- REVOKE - remove privilege

### How to select data from a table

```
SELECT <Column List>
FROM <Table Name>
WHERE <Search Condition>
```

#### Example:

```
SELECT FirstName, LastName, OrderDate
FROM Orders WHERE OrderDate > '10/10/2010'
```

### How to insert data in a table

```
INSERT INTO <Table Name>
(<Column List>) VALUES (<Values>)
```

#### Example:

```
INSERT INTO Orders
(FirstName, LastName, OrderDate) VALUES
('John', 'Smith', '10/10/2010')
```

### How to update data in a table

```
UPDATE <Table Name>
SET <Column1> = <Value1>, <Column2> = <Value2>, ...
WHERE <Search Condition>
```

#### Example:

```
UPDATE Orders
SET FirstName = 'John', LastName = 'Who' WHERE LastName='Wo'
```

### How to delete data from a table

```
DELETE FROM <Table Name>
WHERE <Search Condition>
```

#### Example:

```
DELETE FROM Orders
WHERE OrderDate < '10/10/2010'
```

### How to group data and use aggregates

```
SELECT <Column List>, <Aggregate Function>(<Column Name>)
FROM <Table Name>
WHERE <Search Condition>
GROUP BY <Column List>
```

#### Example:

```
SELECT LastName, SUM(OrderValue)
FROM Orders
WHERE OrderDate > '10/10/2010'
GROUP BY LastName
```

### How to order data

```
SELECT <Column List>
FROM <Table Name>
WHERE <Search Condition>
ORDER BY <Column List>
```

#### Example:

```
SELECT FirstName, LastName, OrderDate
FROM Orders
WHERE OrderDate > '10/10/2010'
ORDER BY OrderDate
```

### How to select data from more than one table

```
SELECT <Column List>
FROM <Table1> JOIN <Table2>
ON <Table1>.<Column1> = <Table2>.<Column1>
```

#### Example:

```
SELECT Orders.LastName, Countries.CountryName
FROM Orders JOIN Countries ON
Orders.CountryID = Countries.ID
```

### Using UNION

```
SELECT <Column List> FROM <Table1>
UNION
SELECT <Column List> FROM <Table2>
```

#### Example:

```
SELECT FirstName, LastName FROM Orders2010
UNION
SELECT FirstName, LastName FROM Orders2011
```

### CREATE TABLE

```
CREATE TABLE <Table Name>
( Column1 DataType,
  Column2 DataType,
  Column3 DataType,
  .... )
```

```
CREATE TABLE Orders
( FirstName CHAR(100),
  LastName CHAR(100),
  OrderDate DATE,
  OrderValue Currency )
```