**Retrieving Data Using the SQL SELECT Statement**

* You need to use the SQL **SELECT** statement to extract data from the database.
* **SELECT** identifies the columns to be displayed.
* **FROM** identifies the table containing those columns.
* **SELECT** Is a list of one or more columns
* **\*** Selects all columns
* **DISTINCT** Suppresses duplicates
* **Column|expression** Selects the named column or the expression
* **Alias** Gives different headings to the selected columns
* **FROM** table Specifies the table containing the columns
* In SQL Developer, you can enter your SQL statement in a **SQL Worksheet** and click the **“Execute Statement” icon or press [F9]** to execute the statement. The output displayed on the Results tabbed page appears as shown in the slide.
* You can use the **SELECT** statement to display specific columns of the table by **specifying the column names, separated by commas**.

**Writing SQL Statements**

* SQL statements are **not case-sensitive**.
* SQL statements can be entered on **one or more lines**.
* **Keywords** cannot be abbreviated or split across lines.
* **Clauses** are usually placed on **separate lines**.
* **Indents** are used to **enhance readability**.
* In **SQL Developer**, SQL statements can be **optionally** terminated by **a semicolon (;)**. Semicolons are **required** when you execute **multiple SQL statements**.
* In **SQL\*Plus**, you are **required** to end each SQL statement with **a semicolon (;).**

**Column Heading Defaults**

* SQL Developer:
  + –Default heading alignment: Left-aligned
  + –Default heading display: Uppercase
* SQL\*Plus:
  + – Character and Date column headings are left-aligned.
  + – Number column headings are right-aligned.
  + – Default heading display: Uppercase

**Arithmetic Operators**

Note: With the **DATE** and **TIMESTAMP** data types, you can use the **addition and subtraction** operators only.

**Rules of Precedence**

* **Multiplication and division** occur before **addition and subtraction**.
* Operators of the **same priority** are evaluated from **left to right**.
* **Parenthese**s are used to **override** the default precedence or to **clarify the statement**.

**Defining a Null Value**

* **Null** is a value that is **unavailable, unassigned, unknown, or inapplicable**.
* **Null is not** the **same as zero or a blank space**.
* Any arithmetic expression using **NULL** values **results into NULL**.
* **Arithmetic expressions** containing a null value **evaluate to null**.

**Defining a Column Alias**

* **Renames** a column heading
* Is useful with calculations
* Immediately follows the column name (there can also be the optional AS keyword between the column name and the alias)
* **Requires double quotation** marks if it contains **spaces or special characters**, or if it is case-sensitive.

**Concatenation Operator**

* **Links** **columns or character** strings to other columns
* Is represented by **two vertical bars (||)**
* Creates a resultant column that is a **character expression**
* If you **concatenate a null value** with a character string, the result is a character string. LAST\_NAME || NULL results in **LAST\_NAME.**

**Literal Character Strings**

* **A literal** is a **character, a number, or a date** that is included in the SELECT statement.
* **Date and character** literal values **must be enclosed** within **single quotation marks**.
* Each character string is output once for each row returned.

**Alternative Quote (q) Operator**

* Specify your own quotation mark delimiter.
* Select any delimiter.
* Increase readability and usability.
  + || q'[ Department's Manager Id: ]' ||

To eliminate duplicate rows in the result, include the **DISTINCT** keyword in the SELECT clause **immediately after** the **SELECT keyword**.

**Displaying Table Structure**

* Use the DESCRIBE command to display the structure of a table.
* Or, select the table in the Connections tree and use the Columns tab to view the table structure.

Note: **DESCRIBE** is a **SQL\*Plus command** supported by **SQL Developer**. It is abbreviated as DESC.