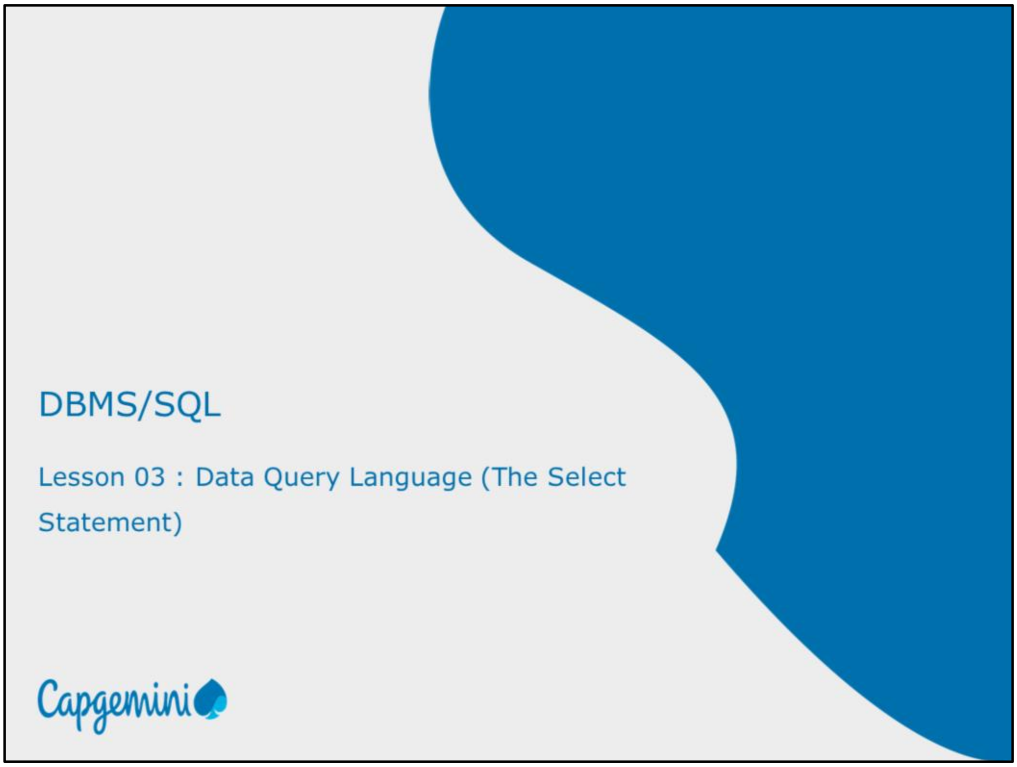
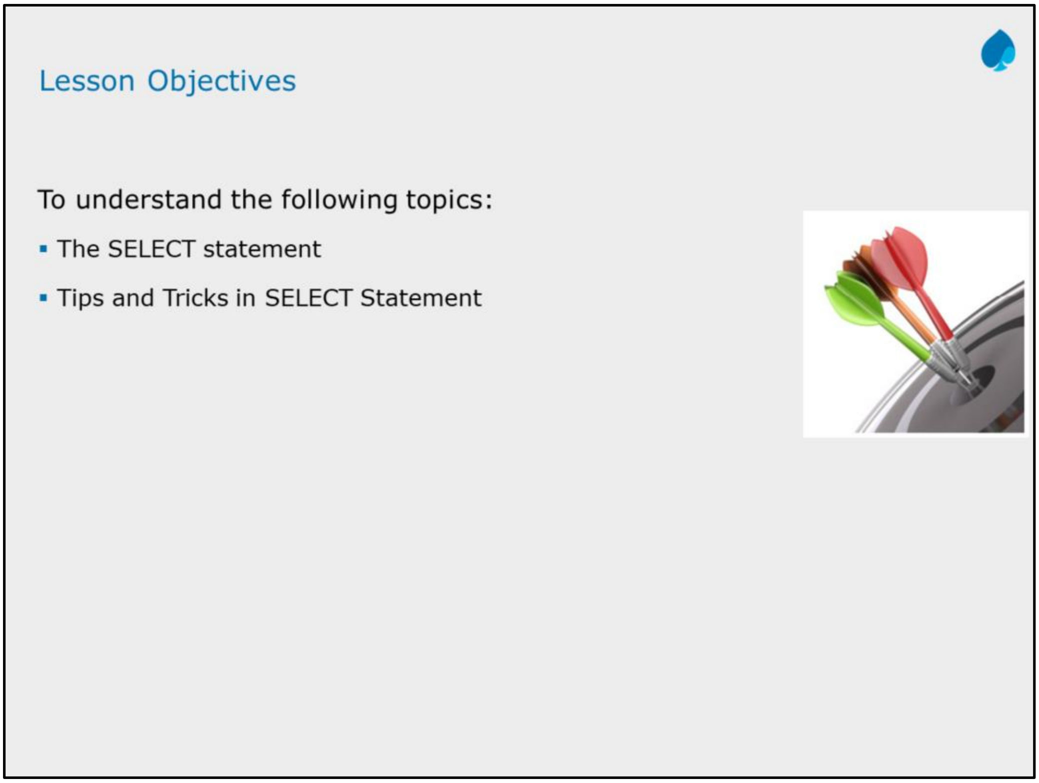


DBMS/SQL

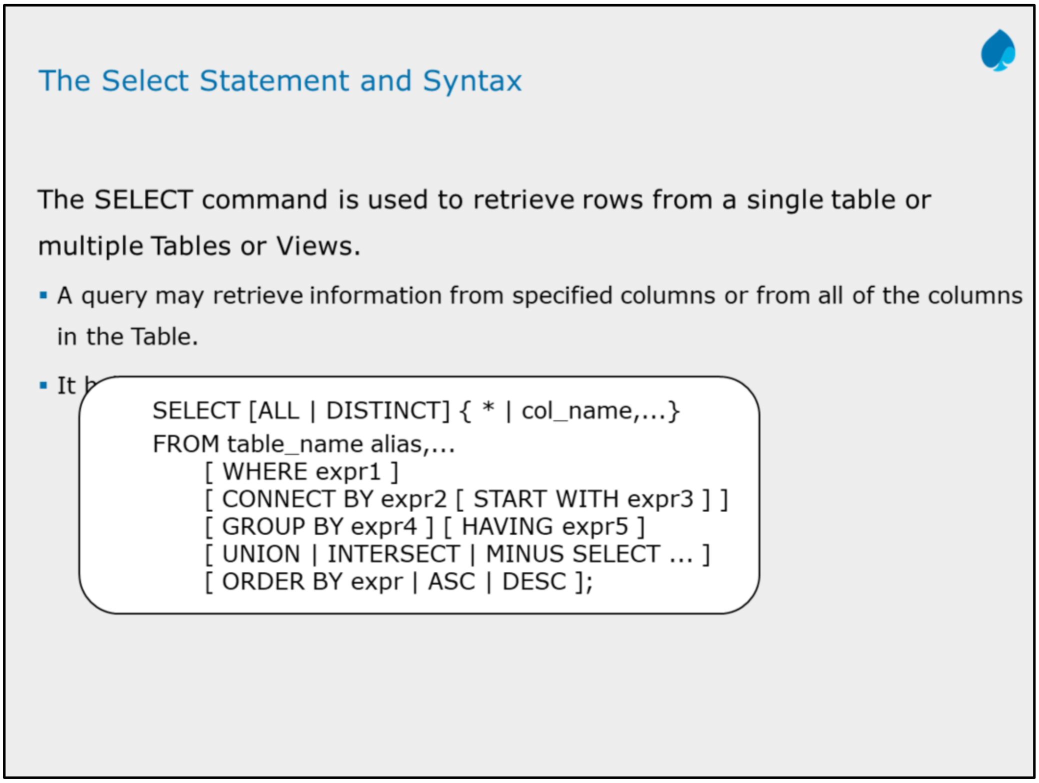
Lesson 03 : Data Query Language (The Select Statement)



Lesson Objectives

To understand the following topics:

- The SELECT statement
- Tips and Tricks in SELECT Statement



The Select Statement and Syntax

The SELECT command is used to retrieve rows from a single table or multiple Tables or Views.

- A query may retrieve information from specified columns or from all of the columns in the Table.
- It h

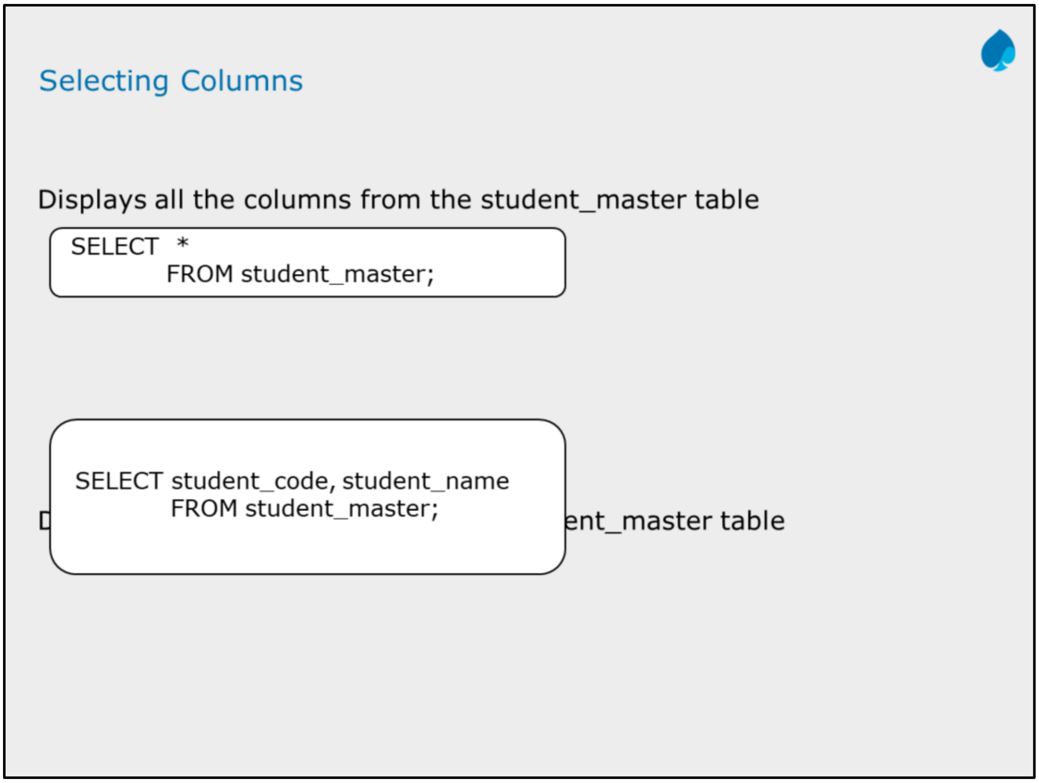
```
SELECT [ALL | DISTINCT] { * | col_name,...}
FROM table_name alias,...
        [ WHERE expr1 ]
        [ CONNECT BY expr2 [ START WITH expr3 ] ]
        [ GROUP BY expr4 ] [ HAVING expr5 ]
        [ UNION | INTERSECT | MINUS SELECT ... ]
        [ ORDER BY expr | ASC | DESC ];
```

<u>The SELECT Statement</u>:

- The SELECT statement is used to select data from a table. The tabular result is stored in a result table (called the result-set). The statement begins with the SELECT keyword. The basic SELECT statement has three clauses:
  - ➢ SELECT
  - ➢ FROM
  - ➢ WHERE
- The SELECT clause specifies the table columns that are retrieved.
- The FROM clause specifies the tables accessed.
- The WHERE clause specifies which table rows are used. The WHERE clause is optional; if missing, all table rows are used.

Note:

- Each clause is evaluated on the result set of a previous clause. The final result of the query will be always a “result table”.
- Only FROM clause is essential. The clauses WHERE, GROUP BY, HAVING, ORDER BY are optional.
- All the examples that follow are based on EMP and DEPT tables that are already available.



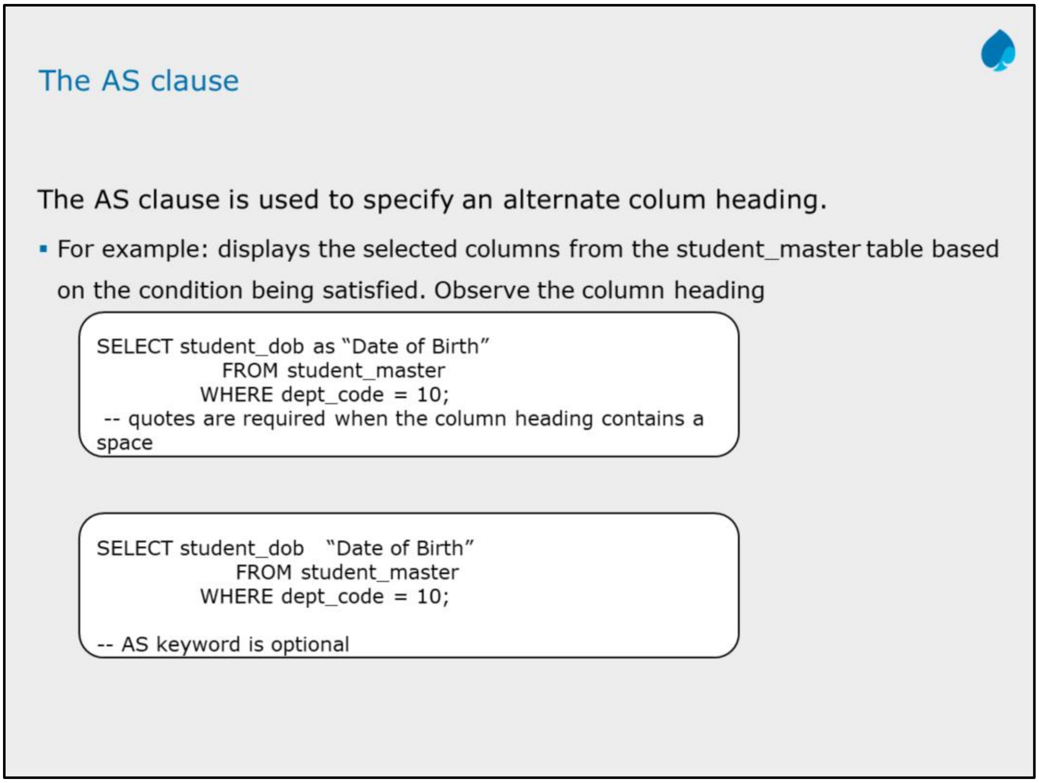
Selecting Columns

Displays all the columns from the student_master table

```
SELECT  *
        FROM student_master;
```

```
SELECT student_code, student_name
        FROM student_master;
```

D ent_master table



The AS clause

The AS clause is used to specify an alternate colum heading.

- For example: displays the selected columns from the student_master table based on the condition being satisfied. Observe the column heading

```
SELECT student_dob as “Date of Birth”
             FROM student_master
           WHERE dept_code = 10;
 -- quotes are required when the column heading contains a
space
```

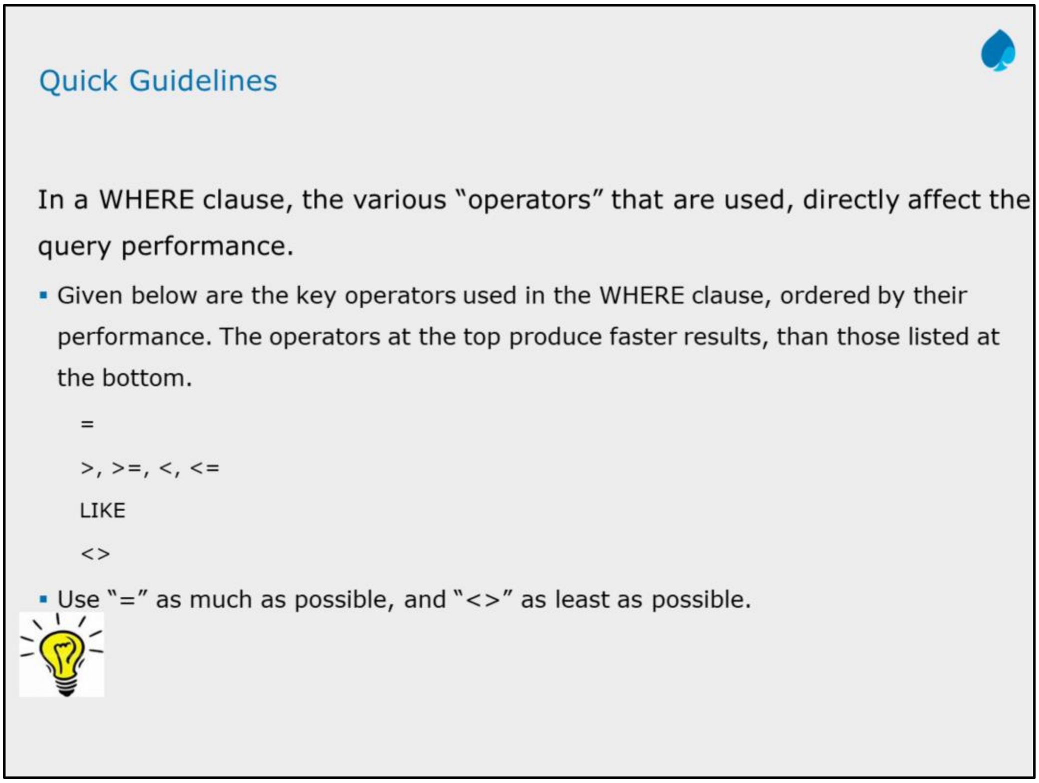
```
SELECT student_dob   “Date of Birth”
              FROM student_master
           WHERE dept_code = 10;

-- AS keyword is optional
```

<u>The AS Clause</u>:

- The AS clause is used to give a different column heading (other than column name) to one or more columns used in the select statement. It follows the column name, and can be used for one or more columns.
- The AS keyword is optional.
- The clause is of the form:

```
Select column1  heading1, column2   as  heading1,
column3 as “heading3 contains space” from
table_name
```



Quick Guidelines

In a WHERE clause, the various "operators" that are used, directly affect the query performance.

- Given below are the key operators used in the WHERE clause, ordered by their performance. The operators at the top produce faster results, than those listed at the bottom.

  =

  >, >=, <, <=

  LIKE

  <>

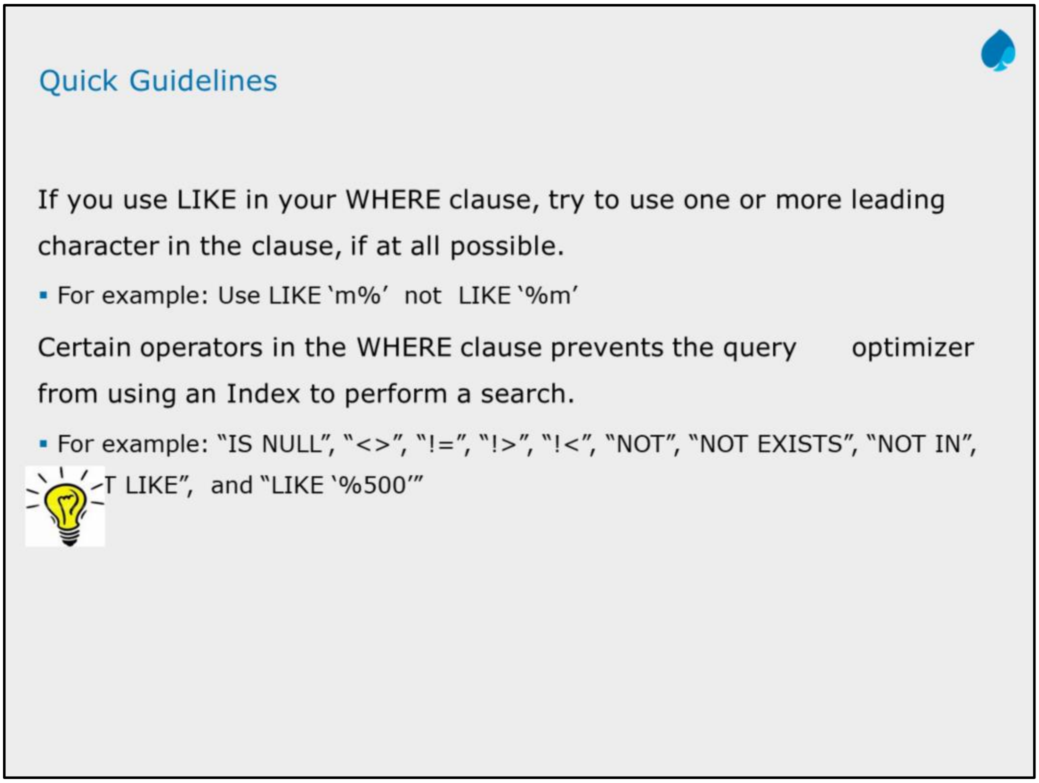
- Use "=" as much as possible, and "<>" as least as possible.

Tips and Tricks in SELECT Statements (contd.):

Use simple operands

- Some operators tend to produced speedy results than other operators. Of course, you may not have choice of using an operator in your WHERE clauses, but sometimes you do have a choice.
  - Using simpler operands, and exact numbers, provides the best overall performance.
  - If a WHERE clause includes multiple expressions, there is generally **no** performance benefit gained by ordering the various expressions in any particular order.
    - This is because the Query Optimizer does this for you, saving you the effort. There are a few exceptions to this, which are discussed further in the lesson.

contd.



Quick Guidelines

If you use LIKE in your WHERE clause, try to use one or more leading character in the clause, if at all possible.

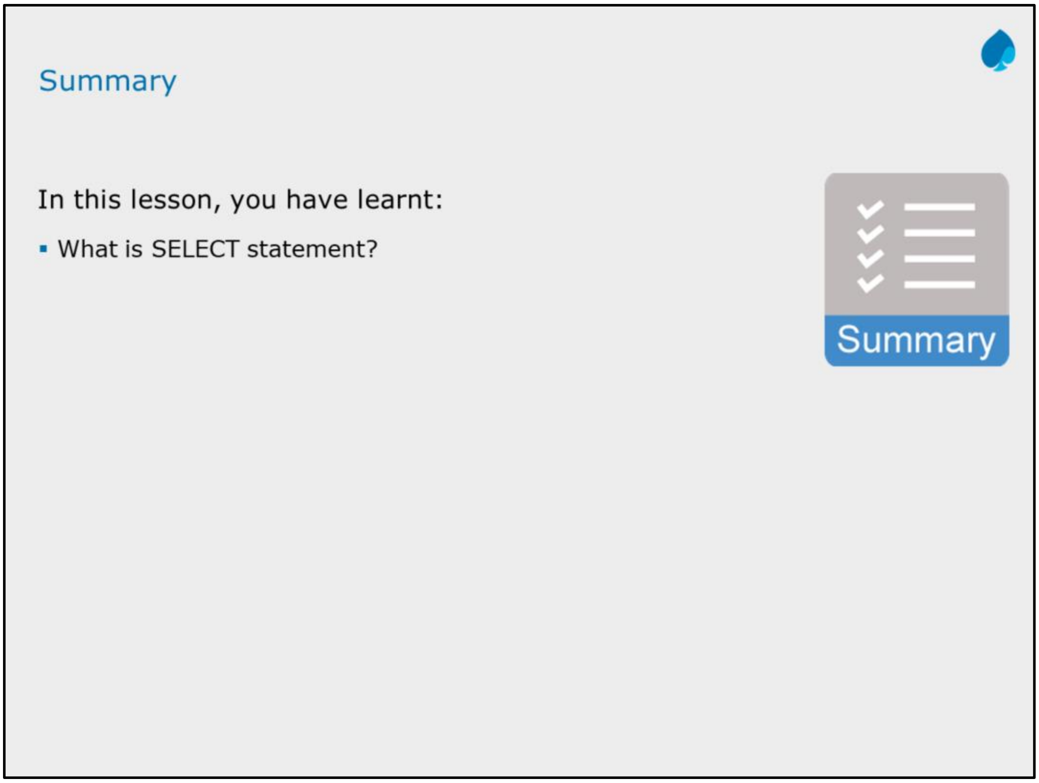
- For example: Use LIKE ‘m%’ not LIKE ‘%m’

Certain operators in the WHERE clause prevents the query optimizer from using an Index to perform a search.

- For example: “IS NULL”, “<>”, “!=”, “!>”, “!<”, “NOT”, “NOT EXISTS”, “NOT IN”, T LIKE”, and “LIKE ‘%500’”

Tips and Tricks in SELECT Statements (contd.):

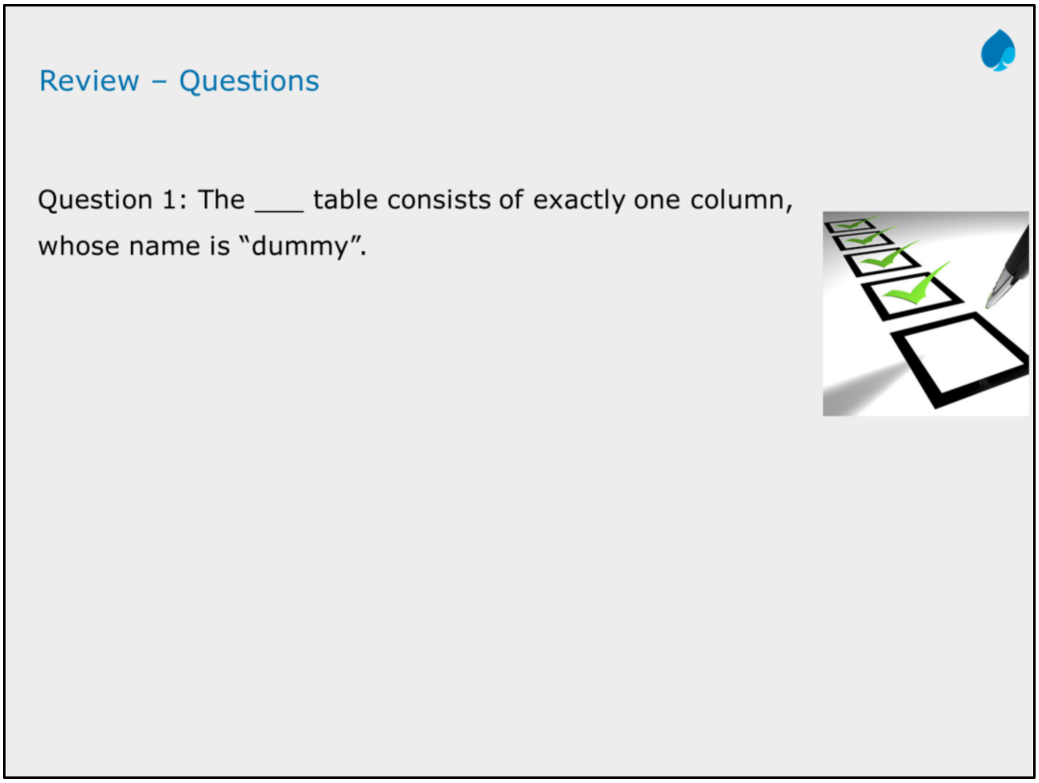
- If you use a leading character in your LIKE clause, then the Query Optimizer has the ability to potentially use an Index to perform the query. Thus speeding performance and reducing the load on SQL engine.
  - However, if the leading character in a LIKE clause is a “wildcard”, then the Query Optimizer will not be able to use an Index. Here a table scan must be run, thus reducing performance and taking more time.
- The more leading characters you use in the LIKE clause, it is more likely that the Query Optimizer will find and use a suitable Index.



Summary

In this lesson, you have learnt:

- What is SELECT statement?



Review – Questions

Question 1: The ____ table consists of exactly one column, whose name is “dummy”.