DBMS SQL

Lesson 2: Basics of SQL

Lesson Objectives

- To understand the following topics:
  - SQL, rules for SQL Statements, standard SQL Statement groups
  - SQL*PLUS & iSQLPlus environment

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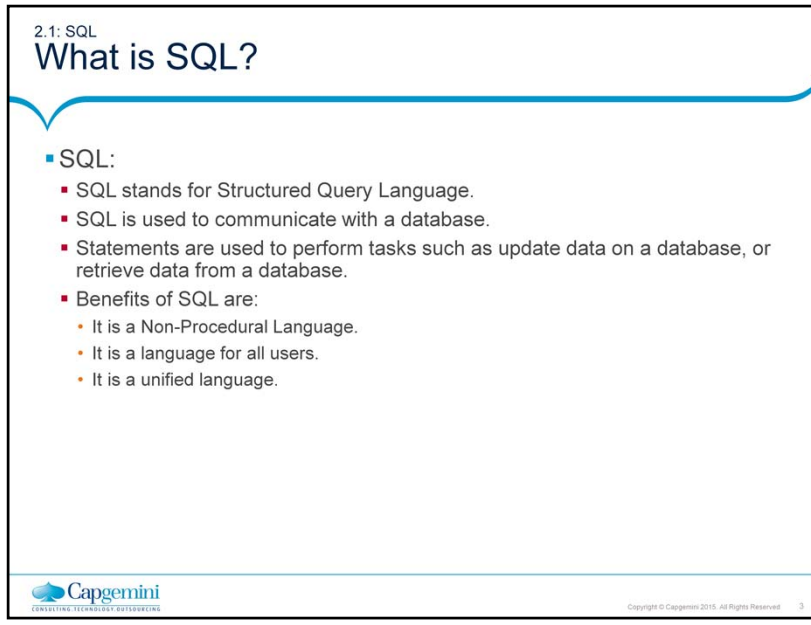


What is SQL?

SQL stands for Structured Query Language. Pronounced as SEQUEL, SQL was

originally developed by IBM based on Dr. E.F. Codd's relational model to

define, manipulate and control data in a database

SQL is a set of commands that allows you to access a Relational Database.

SQL is an ANSI standard computer language.

SQL can execute queries against a database.

SQL can retrieve data from a database.

SQL can insert new records in a database.

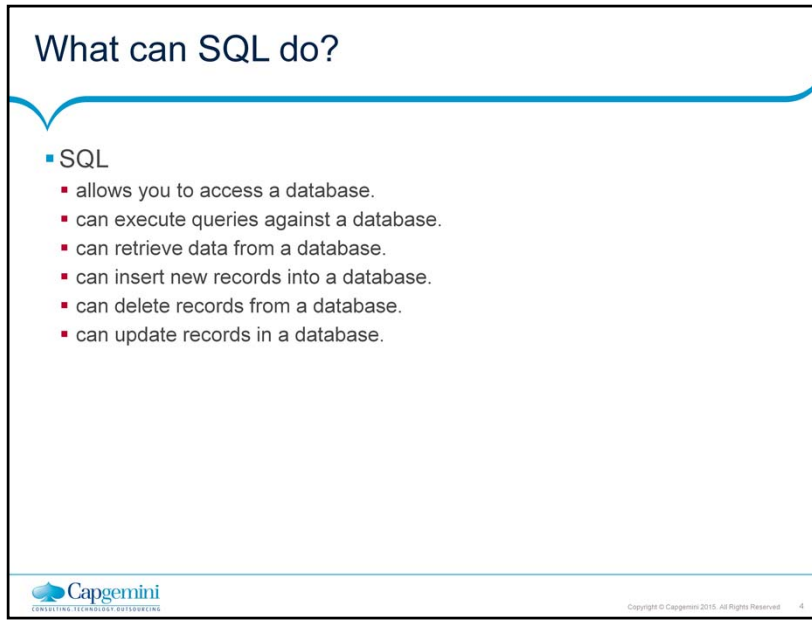
SQL can delete records from a database.

SQL can update records in a database.

SQL is easy to learn.

SQL is a non-procedural, English-like language that processes data in "groups of records" rather than processing one record at a time.

SQL provides automatic navigation to the data.

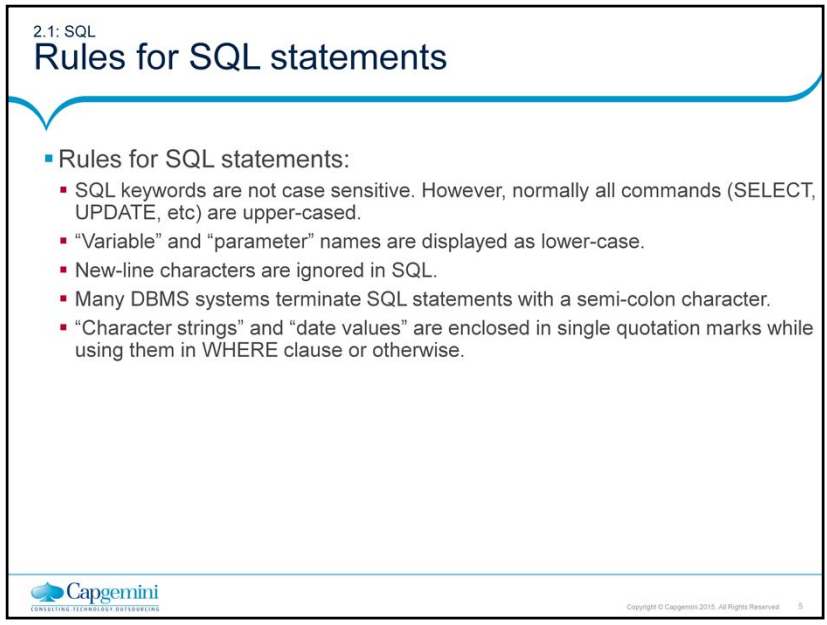


Almost all modern Relational Database Management Systems like MS SQL Server, Microsoft Access, MSDE, Oracle, DB2, Sybase, MySQL, Postgres, and Informix use SQL as standard database language.

However, although all those RDBMS use SQL, they use different SQL dialects

For example: MS SQL Server specific version of the SQL is called T-SQL, Oracle version of SQL is called PL/SQL which also supports Procedural Language features, MS Access version of SQL is called JET SQL, etc.

Oracle has further modified SQL to support ORDBMS features.



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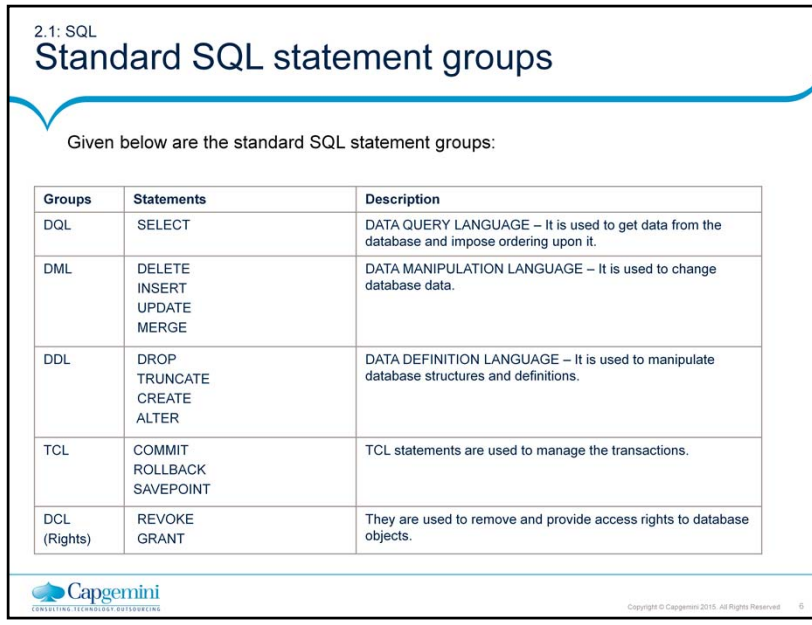

Standard SQL Statement groups:

"SQL commands" are "instructions" used to communicate with the database to perform "specific tasks" that work with data.

A database is a collection of structures with appropriately defined authorizations and accesses. The tables, indexes are structures in the database and are called as "objects" in the database.

The names of tables, indexes, and those of columns are called "identifiers".

SQL commands can be used not only for searching the database, but also to perform various other functions.

For example: You can create tables, add data to tables, or modify data, drop the table, set permissions for users, etc.

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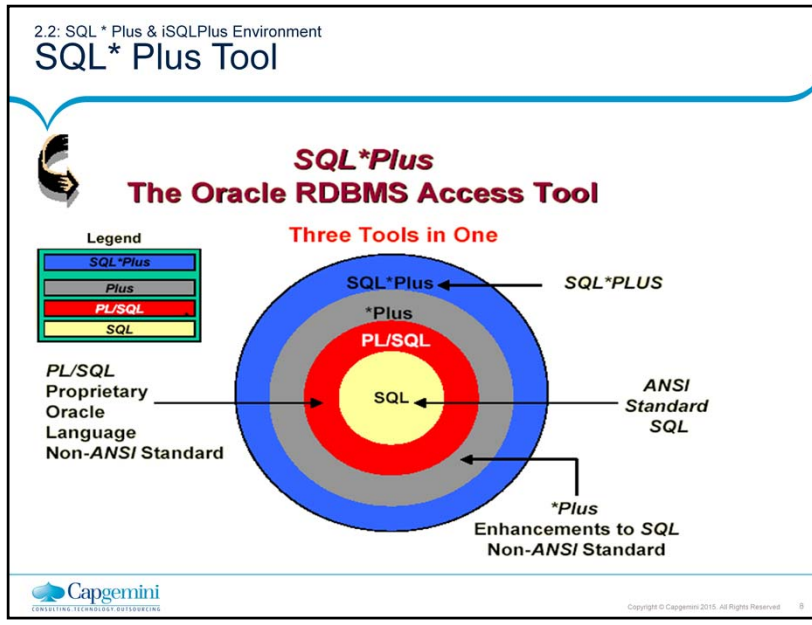
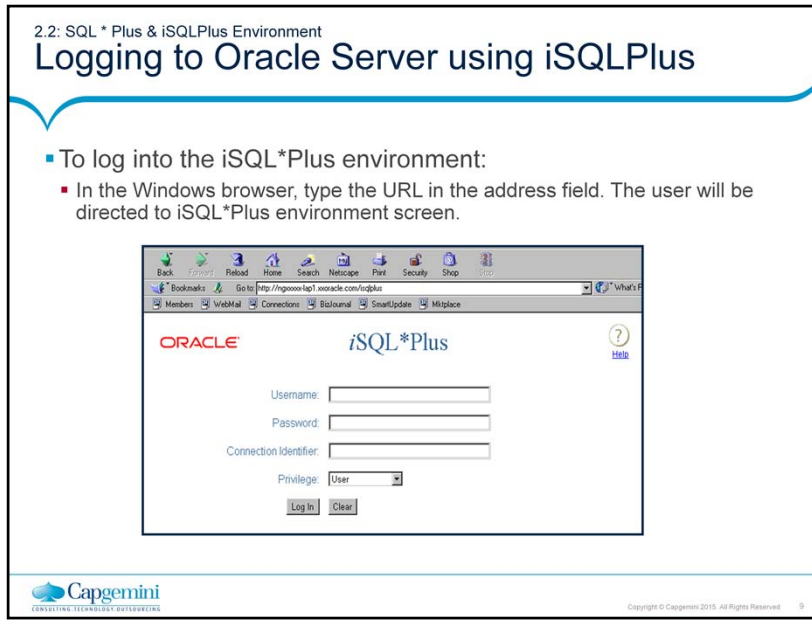


SQL*PLUS:

SQL* PLUS is an Oracle tool which accepts SQL, and SQLPLUS commands and PL/SQL blocks, and executes them.SQL*Plus commands can be abbreviated

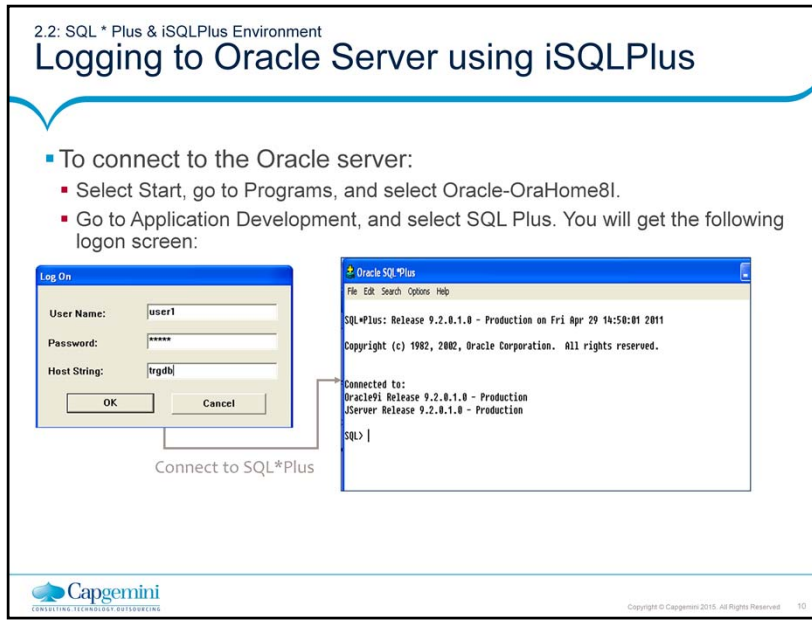


Oracle provides a browser based facility also to access SQL* Plus i.e iSQLPlus. Unlike SQL*Plus the commands in iSQLPlus cannot be abbreviated. Both SQL*Plus and iSQLPLus are Oracle proprietary interfaces.

How to access SQL* PLUS ?

Get your Oracle user name and password, and connect string from your DBA or Instructor.

As shown on the slide you get the login screen wherein the required details can be put in to login into Oracle



Similarly you can use the username, password and Host String details to use the SQL * Plus tool. This is a GUI based tool to interact with Oracle

To enter a SQL> command, type the command at the SQL > prompt. An SQL command can be continuously entered on a single line, or it can be spread over multiple lines. In case of any typing error, use BACKSPACE or DEL key to erase, and then continue typing.

SQL> SELECT empno,hiredate FROM emp
WHERE hiredate >
'01-jan-82' ;

The command can also be entered as:

SQL>SELECT empno,hiredate
FROM emp
WHERE hiredate >'01-jan-82';

Summary

- In this lesson, you have learnt:
  - What is SQL?
    - Rules for SQL statements
    - Standard SQL statement groups
  - SQL*PLUS environment

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Review Question

- Question 1: SQL ___.
  - Option 1: cannot execute queries against a database.
  - Option 2: can manipulate data from a database.
  - Option 3: cannot retrieve data from a database.
  - Option 4: can insert new records in a database.
  - Option 5: can delete records from a database.

Review Question

- Question 2: SQL categories are ___.
  - Option 1: DDL
  - Option 2: DML
  - Option 3: DSL
  - Option 4: DQL
  - Option 5: TCL
  - Option 6: TDL

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