- USER → needs a platform to interact with DATABASE → For **ORACLE that SQL or PL/SQL** can be used for that and FOR **MS SQL SERVER TSQL** is needed
  Example, USER and LAPTOP → OS

Type of SQL Statement:

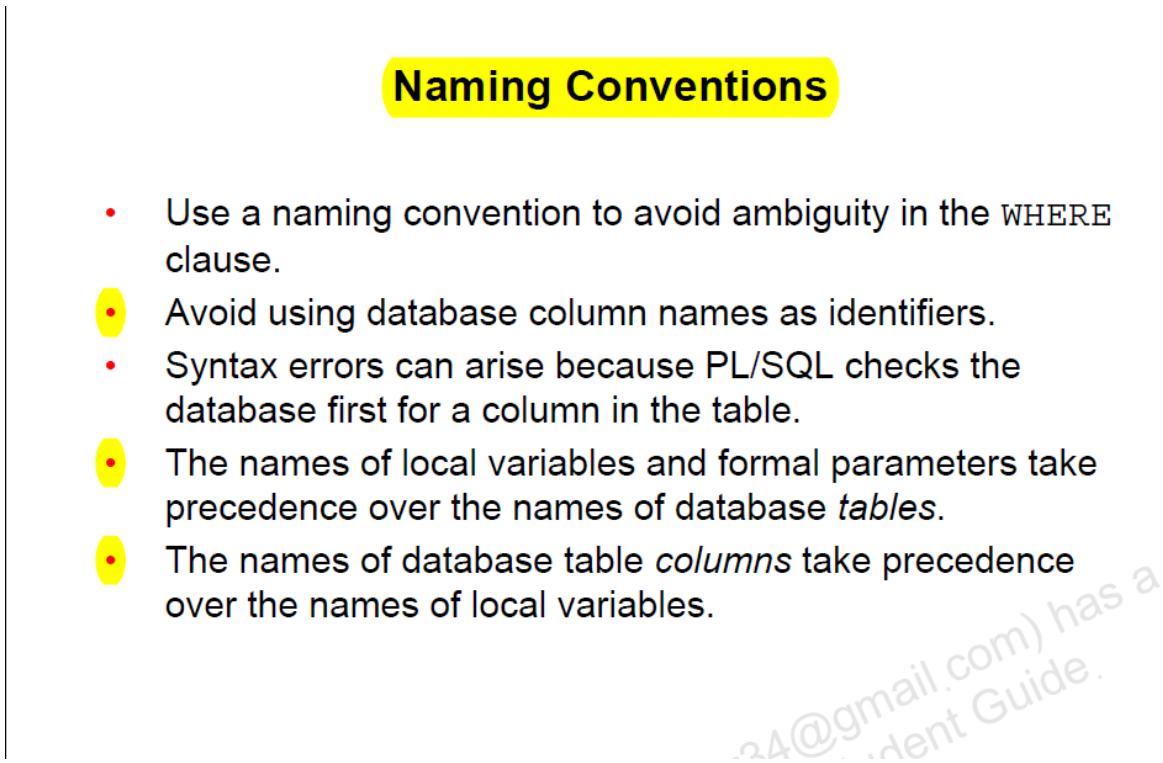
1. TCL → Transaction Control → COMMIT, ROLLBACK, SAVE POINT → Used to control the transaction process
2. DML → INSERT, UPDATE, DELETE
3. DCL → GRANT, REVOKE → Used for giving authorization (Assigning or revoking privileges)
4. DDL → CREATE, ALTER, DROP

After Using **Commit**, you won't be able to go back.

Queries must return only one row and INTO clause is required.

Naming Ambiguities:

Happens when DB Column name takes precedence over local variable name.



IMPORT and EXPORT → DMP (Data Pump) and SQL * LOADER is used for that.

Inserting Data:

Updating Data:

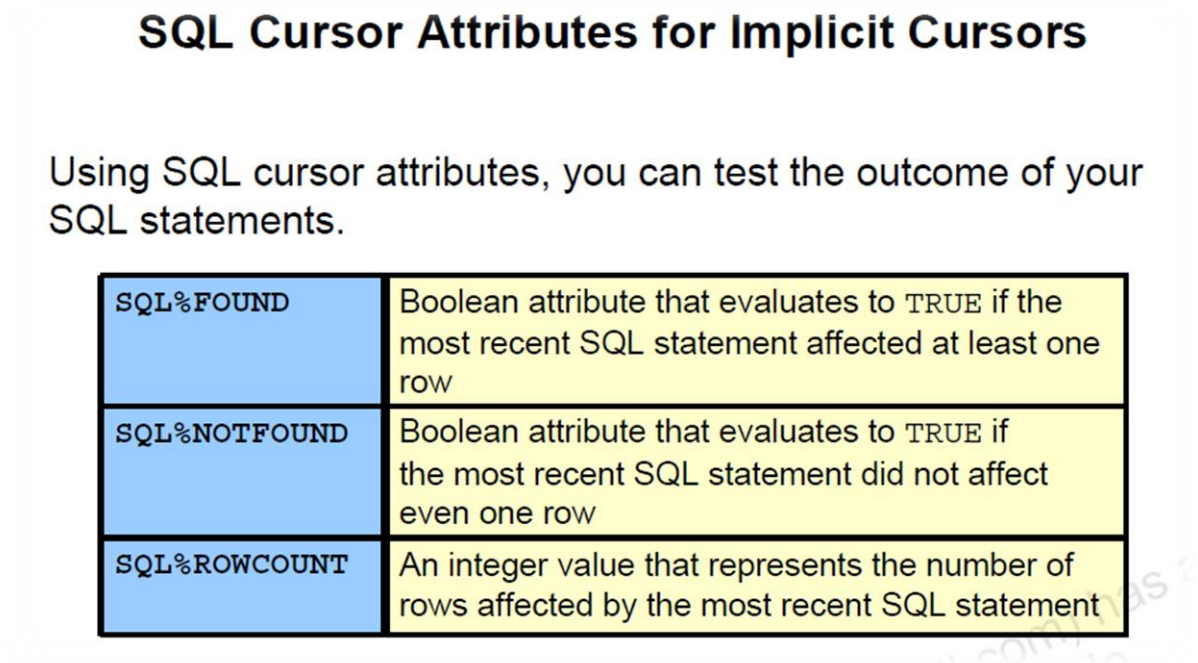
Deleting Data:

Merging Data: → aka upsert (UPDATE + INSERT)

SQL Cursor:

It's a pointer to a private memory are allocated by the Oracle Server. It's a Context Area in a Memory. Required for processing of SQL statements.

1. Implicit: Created and managed internally by the Oracle Server to process SQL statements. We don't have to access it.
2. Explicit: Declared explicitly by the programmers to retrieve multiple rows from a database table
    a. Phases of Explicit Cursor:
        i. Declare:
        ii. OPEN → Allocating the memory
        iii. FETCH:
        iv. CLOSE → Deallocation of Memory



FOUND and NOTFOUND → Boolean attributes

ROWCOUNT → Integer value

```
BEGIN
 INSERT INTO employees
  (employee_id, first_name, last_name, email,
   hire_date, job_id, salary)
   VALUES(employees_seq.NEXTVAL, 'Ruth', 'Cores',
   'RCORES',CURRENT_DATE, 'AD_ASST', 4000);
END;
/
```

```
DECLARE
  sal_increase   employees.salary%TYPE := 800;
BEGIN
  UPDATE      employees
  SET         salary = salary + sal_increase
  WHERE       job_id = 'ST_CLERK';
END;
/
```

```
DECLARE
  deptno   employees.department_id%TYPE := 10;
BEGIN
  DELETE FROM   employees
  WHERE  department_id = deptno;
END;
/
```

If the WHERE clause is not used all the rows in table can be removed if there are no integrity constraints.

```
DECLARE
  v_rows_deleted VARCHAR2(30)
  v_empno employees.employee_id%TYPE := 176;
BEGIN
  DELETE FROM  employees
  WHERE employee_id = v_empno;
  v_rows_deleted := (SQL%ROWCOUNT ||
                       ' row deleted.');
  DBMS_OUTPUT.PUT_LINE (v_rows_deleted);

END;
```