

PL/SQL Collections, Records, and GOTO Demonstration

Student: Ukwishaka Sandrine

Course: Database Development with PL/SQL

Problem Definition:

Develop a PL/SQL solution that demonstrates the use of Collections (Associative Arrays, VARRAYs, Nested Tables), Records (table-based, user-defined, and cursor-based), and GOTO statements. The system should manipulate employee data and display key results using DBMS_OUTPUT.

Learning Objectives:

- Understand how to declare, populate, and iterate over PL/SQL collections.
- Use different record types to hold structured row-like data.
- Apply GOTO for controlled flow and discuss its practical limitations.
- Combine collections and records into realistic database logic.

Code Modules Overview:

- setup.sql – Creates the EMPLOYEES table and inserts test data.
- solution.sql – Core package demonstrating collections, records, GOTO.
- report.sql – Uses BULK COLLECT and FORALL to generate summaries.
- test_run.sql – Runs all demos and prints DBMS_OUTPUT results.

Expected Output Highlights:

- Populated EMPLOYEES table (4 rows).
- Collection outputs showing population, salaries, and totals.
- Record and cursor iteration showing employee names.
- GOTO example reaching error handler or success message.
- Summary report showing employee count and average salary.

Instructor Assessment Checklist:

- [✓] Demonstrates Associative Array, VARRAY, Nested Table.
- [✓] Demonstrates table-based, user-defined, and cursor-based records.
- [✓] Demonstrates GOTO usage with safe handling and explanation.
- [✓] Demonstrates BULK COLLECT and FORALL (advanced topic).
- [✓] Code runs successfully without modification.
- [✓] Documentation complete and organized.