Design Document — PL/SQL Collections, Records & GOTO Problem

Problem Definition (student task)

Build a small PL/SQL module to manage a department payroll & personnel demo that exercises:

- **Collections**

    o Use an **Associative Array** to store city populations (string index).

    o Use a **VARRAY** to store up to 5 monthly salaries for a single employee.

    o Use a **Nested Table** to store a variable list of bonus amounts for a department.

- **Records**

    o Demonstrate a table-based record (%ROWTYPE) by selecting from employees.

    o Demonstrate a user-defined record containing various types and a VARRAY inside it.

    o Demonstrate cursor-based record iteration.

- **GOTO**

    o Use GOTO labels to control flow for early exit or to re-check data validation in one small example. (Explicit use requested by instructor.)

Learning Objectives

- Correct declaration and initialization of collections and records.

- Proper iteration and existence checks (EXISTS, COUNT, LAST).

- Combining records and collections.

- Understand the (limited) use of GOTO in PL/SQL and disciplined labeling.

Assessment Checklist

- Code runs without compile errors.

- DBMS_OUTPUT is clear and annotated.

- Examples include comments explaining each step.

- Edge cases handled (e.g., sparse nested table entries).

- Documentation explains how to run and expected output.