

## PL/SQL Assignment — Database Development with pl/sql

Student Name: Isaro Aurore

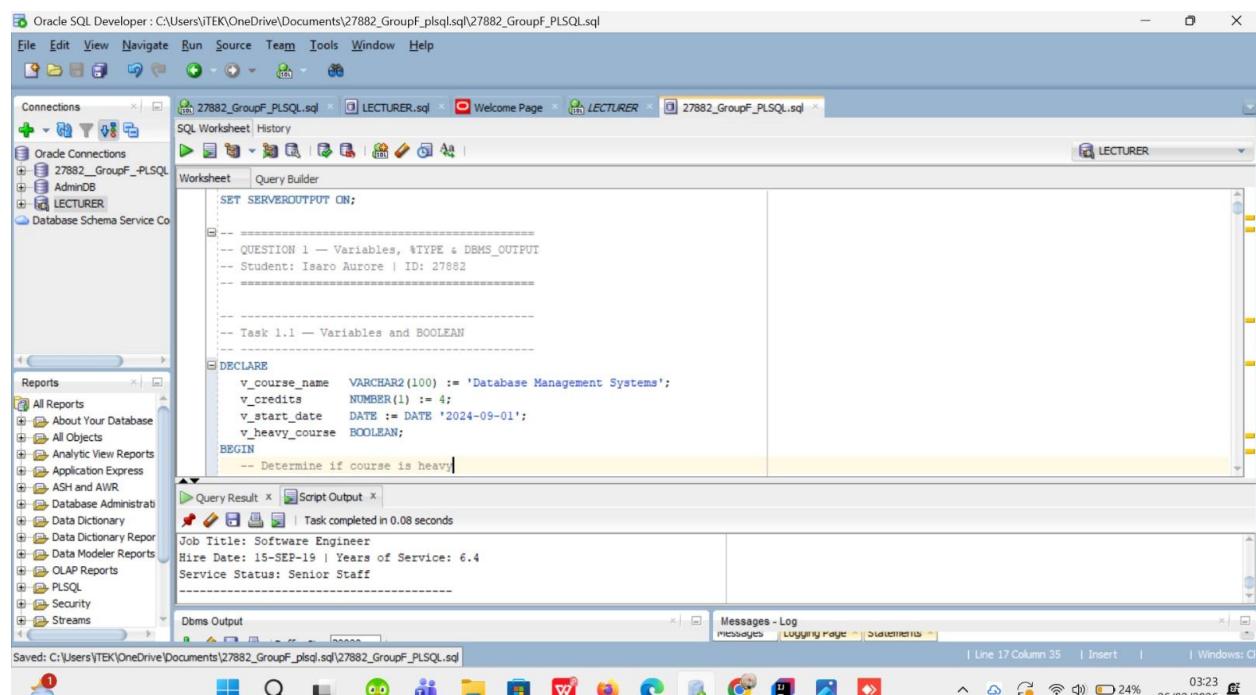
Student ID: 27882

Course: Database Development with pl/sql

Group F

### Question 1 — Variables, %TYPE & DBMS\_OUTPUT

#### TASK1.1 OUTPUT



The screenshot shows the Oracle SQL Developer interface. The main window displays a PL/SQL worksheet with the following code:

```
SET SERVEROUTPUT ON;
=====
-- QUESTION 1 — Variables, %TYPE & DBMS_OUTPUT
-- Student: Isaro Aurore | ID: 27882
-----

-- Task 1.1 — Variables and BOOLEAN

DECLARE
    v_course_name  VARCHAR2(100) := 'Database Management Systems';
    v_credits      NUMBER(1) := 4;
    v_start_date   DATE := DATE '2024-09-01';
    v_heavy_course BOOLEAN;
BEGIN
    -- Determine if course is heavy

```

The 'Query Result' tab shows the output of the code:

```
Job Title: Software Engineer
Hire Date: 15-SEP-19 | Years of Service: 6.4
Service Status: Senior Staff
```

The 'Messages - Log' tab shows the log message:

```
Task completed in 0.08 seconds
```

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    27882\_GroupF\_PLSQL.sql    LECTURER.sql    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

SQL Worksheet History

Worksheet Query Builder

```
SET SERVEROUTPUT ON;

-- -----
-- QUESTION 1 — Variables, %TYPE & DBMS_OUTPUT
-- Student: Isaro Aurore | ID: 27882
-- -----
-- Task 1.1 — Variables and BOOLEAN

DECLARE
    v_course_name    VARCHAR2(100) := 'Database Management Systems';
    v_credits        NUMBER(1) := 4;
    v_start_date     DATE := DATE '2024-09-01';
    v_heavy_course   BOOLEAN;
BEGIN
```

Query Result    Script Output    Task completed in 0.229 seconds

```
Credits: 4
Semester Start: 01-SEP-24
Heavy Course: TRUE
```

Dbms Output    Messages - Log

Saved: C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

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SQL Worksheet History

Worksheet Query Builder

```
BEGIN
    -- Determine if course is heavy
    IF v_credits >= 3 THEN
        v_heavy_course := TRUE;
    ELSE
        v_heavy_course := FALSE;
    END IF;

    -- Print results
    DBMS_OUTPUT.PUT_LINE('Course: ' || v_course_name);
    DBMS_OUTPUT.PUT_LINE('Credits: ' || v_credits);
    DBMS_OUTPUT.PUT_LINE('Semester Start: ' || TO_CHAR(v_start_date, 'DD-MON-YY'));

    IF v_heavy_course THEN
        DBMS_OUTPUT.PUT_LINE('Heavy Course: TRUE');
    ELSE
        DBMS_OUTPUT.PUT_LINE('Heavy Course: FALSE');
    END IF;
END;
```

Query Result    Script Output    Task completed in 0.229 seconds

```
Semester Start: 01-SEP-24
Heavy Course: TRUE
```

Dbms Output    Messages - Log

Saved: C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

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Connections    27882\_GroupF\_PLSQL.sql    LECTURER.sql    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

SQL Worksheet History    0.229 seconds

Worksheet    Query Builder

```

    v_heavy_course := TRUE;
ELSE
    v_heavy_course := FALSE;
END IF;

-- Print results
DBMS_OUTPUT.PUT_LINE('Course: ' || v_course_name);
DBMS_OUTPUT.PUT_LINE('Credits: ' || v_credits);
DBMS_OUTPUT.PUT_LINE('Semester Start: ' || TO_CHAR(v_start_date, 'DD-MON-YY'));

IF v_heavy_course THEN
    DBMS_OUTPUT.PUT_LINE('Heavy Course: TRUE');
ELSE
    DBMS_OUTPUT.PUT_LINE('Heavy Course: FALSE');
END IF;
/

```

Query Result    Script Output    Task completed in 0.229 seconds

PL/SQL procedure successfully completed.

Dbms Output

Messages - Log    Statements

Saved: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

I Line 26 Column 49 | Insert | I Windows: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

03:29

## TASK1.2 OUTPUT

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

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Connections    27882\_GroupF\_PLSQL.sql    LECTURER.sql    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

SQL Worksheet History    0.142 seconds

Worksheet    Query Builder

```

-- Task 1.2 -- SELECT INTO with %TYPE
-- -----
DECLARE
    v_course_name    courses.course_name%TYPE;
    v_instructor     courses.instructor%TYPE;
    v_credits        courses.credits%TYPE;
    v_max_students   courses.max_students%TYPE;
BEGIN
    SELECT course_name, instructor, credits, max_students
    INTO v_course_name, v_instructor, v_credits, v_max_students
    FROM courses
    WHERE course_id = 110;

    DBMS_OUTPUT.PUT_LINE('Course: ' || v_course_name);
    DBMS_OUTPUT.PUT_LINE('Instructor: ' || v_instructor);
    DBMS_OUTPUT.PUT_LINE('Credits: ' || v_credits);

```

Query Result    Script Output    Task completed in 0.142 seconds

PL/SQL procedure successfully completed.

Dbms Output

Messages - Log    Statements

Saved: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

I Line 59 Column 2 | Insert | I Modified | Windows: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

03:34

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

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Worksheet    Query Builder

```

WHERE course_id = 110;

DBMS_OUTPUT.PUT_LINE('Course: ' || v_course_name);
DBMS_OUTPUT.PUT_LINE('Instructor: ' || v_instructor);
DBMS_OUTPUT.PUT_LINE('Credits: ' || v_credits);

IF v_max_students < 20 THEN
  DBMS_OUTPUT.PUT_LINE('Limited seats available!');
END IF;
END;
/
-- Task 1.3 --- %ROWTYPE and Calculations

```

DECLARE  
 v\_employee employees%ROWTYPE;

Query Result    Script Output    | Task completed in 0.142 seconds

COURSE: Machine Learning  
 Instructor: Dr. Thomas  
 Credits: 4

PL/SQL procedure successfully completed.

Dbms Output    Messages - Log

Saved: C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Line 62 Column 47 | Insert | Modified | Windows: C:\

## TASK1.3 OUTPUT

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

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Worksheet    Query Builder

```

-- Task 1.3 --- %ROWTYPE and Calculations

```

DECLARE  
 v\_employee employees%ROWTYPE;  
 v\_years\_worked NUMBER;  
BEGIN  
 SELECT \*  
 INTO v\_employee  
 FROM employees  
 WHERE employee\_id = 22;  
 v\_years\_worked := FLOOR(MONTHS\_BETWEEN(SYSDATE, v\_employee.hire\_date) / 12);  
 DBMS\_OUTPUT.PUT\_LINE('Employee: ' || v\_employee.first\_name || ' ' || v\_employee.last\_name);
 DBMS\_OUTPUT.PUT\_LINE('Department: ' || v\_employee.department);
 DBMS\_OUTPUT.PUT\_LINE('Salary: ' || v\_employee.salary);
 DBMS\_OUTPUT.PUT\_LINE('Hire Year: ' || v\_employee.hire\_date);

Query Result    Script Output    | Task completed in 0.116 seconds

PL/SQL procedure successfully completed.

Employee: Amy Professor  
 Department: Computer Science  
 Salary: 102000  
 Hire Year: 2014

```

    INTO v_employee
    FROM employees
    WHERE employee_id = 22;

    v_years_worked := FLOOR(MONTHS_BETWEEN(SYSDATE, v_employee.hire_date) / 12);

    DBMS_OUTPUT.PUT_LINE('Employee: ' || v_employee.first_name || ' ' || v_employee.last_name);
    DBMS_OUTPUT.PUT_LINE('Department: ' || v_employee.department);
    DBMS_OUTPUT.PUT_LINE('Salary: ' || v_employee.salary);
    DBMS_OUTPUT.PUT_LINE('Hire Year: ' || EXTRACT(YEAR FROM v_employee.hire_date));
    DBMS_OUTPUT.PUT_LINE('Years Worked: ' || v_years_worked);

END;
/

```

Query Result: Years Worked: 11  
PL/SQL procedure successfully completed.

## Question 2 — IF / ELSIF / ELSE CONDITIONS

### Task 2.1 Output((Employee Commission Checker)

```

-- QUESTION 2 — IF / ELSIF / ELSE
-- Student: Isaro Aurore | ID: 27882
-----

-- Task 2.1 — Employee Commission Checker

DECLARE
    v_employee employees%ROWTYPE;
    v_total_pay NUMBER;
BEGIN
    -- Fetch employee data
    SELECT *

```

Query Result: TOTAL POTENTIAL EARNINGS: RMR 05250  
PL/SQL procedure successfully completed.

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    27882\_GroupF\_PLSQL    LECTURER    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

SQL Worksheet | History    0.072 seconds

Worksheet    Query Builder

```

INTO v_employee
FROM employees
WHERE employee_id = 1;

-- IF / ELSIF / ELSE logic
IF v_employee.commission_pct IS NOT NULL
    AND v_employee.salary > 80000 THEN
    DBMS_OUTPUT.PUT_LINE('High-value manager with commission');

ELSIF v_employee.commission_pct IS NOT NULL
    AND v_employee.salary <= 80000 THEN
    DBMS_OUTPUT.PUT_LINE('Manager with commission -- standard tier');

ELSIF v_employee.commission_pct IS NULL

```

Query Result    Script Output    Task completed in 0.072 seconds

```

High-value manager with commission
Base Salary: RWF 85000
Total Potential Earnings: RWF 89250

```

Dbms Output    Messages - Log    Logging Page    Statements

Saved: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Line 112 Column 11 | Insert | Modified | Windows: C

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Connections    27882\_GroupF\_PLSQL    LECTURER    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

SQL Worksheet | History    0.072 seconds

Worksheet    Query Builder

```

AND v_employee.salary > 90000 THEN
    DBMS_OUTPUT.PUT_LINE('Senior employee -- consider adding commission incentive');

ELSE
    DBMS_OUTPUT.PUT_LINE('Standard employee profile');
END IF;

-- Calculate total potential earnings
v_total_pay := v_employee.salary +
    (v_employee.salary * NVL(v_employee.commission_pct, 0));

DBMS_OUTPUT.PUT_LINE('Base Salary: RWF ' || v_employee.salary);
DBMS_OUTPUT.PUT_LINE('Total Potential Earnings: RWF ' || v_total_pay);

```

Query Result    Script Output    Task completed in 0.072 seconds

```

High-value manager with commission
Base Salary: RWF 85000
Total Potential Earnings: RWF 89250

```

Dbms Output    Messages - Log    Logging Page    Statements

Saved: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Line 128 Column 44 | Insert | Modified | Windows: C

## Task 2.2 Output(Course Availability Check)

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27882\_GroupF\_PLSQL.sql LECTURER.sql Welcome Page LECTURER 27882\_GroupF\_PLSQL.sql

Worksheet Query Builder

```
END;
/
-- Task 2.2 — Course Availability Check
DECLARE
    v_course_name    courses.course_name%TYPE;
    v_max_students   courses.max_students%TYPE;
    v_enrolled_count NUMBER;
BEGIN
    -- Fetch course details
    SELECT course_name, max_students
    INTO v_course_name, v_max_students
    FROM courses
    WHERE course_id = 103;
```

Query Result Script Output | Task completed in 0.137 seconds  
PL/SQL procedure successfully completed.

Dbms Output Messages - Log

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27882\_GroupF\_PLSQL.sql LECTURER.sql Welcome Page LECTURER 27882\_GroupF\_PLSQL.sql

Worksheet Query Builder

```
DECLARE
    v_course_name    courses.course_name%TYPE;
    v_max_students   courses.max_students%TYPE;
    v_enrolled_count NUMBER;
BEGIN
    -- Fetch course details
    SELECT course_name, max_students
    INTO v_course_name, v_max_students
    FROM courses
    WHERE course_id = 103;

    -- Count enrolled students
    SELECT COUNT(*)
    INTO v_enrolled_count
    FROM enrollments
    WHERE course_id = 103;
```

Query Result Script Output | Task completed in 0.137 seconds  
Course: PL/SQL Programming  
Max Capacity: 25  
Current Enrollment: 10  
Status: Open — plenty of seats available

Dbms Output Messages - Log

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    Oracle Connections    27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Worksheet Query Builder

```
-- Print course details
DBMS_OUTPUT.PUT_LINE('Course: ' || v_course_name);
DBMS_OUTPUT.PUT_LINE('Max Capacity: ' || v_max_students);
DBMS_OUTPUT.PUT_LINE('Current Enrollment: ' || v_enrolled_count);

-- Availability logic
IF v_enrolled_count < v_max_students * 0.5 THEN
    DBMS_OUTPUT.PUT_LINE('Status: Open — plenty of seats available');

ELSIF v_enrolled_count BETWEEN v_max_students * 0.5
    AND v_max_students * 0.8 THEN
    DBMS_OUTPUT.PUT_LINE('Status: Filling up — limited seats');

ELSIF v_enrolled_count > v_max_students * 0.8
    AND v_enrolled_count < v_max_students THEN
    DBMS_OUTPUT.PUT_LINE('Status: Almost full — enroll soon');
```

Query Result x Script Output x | Task completed in 0.137 seconds

Course: PL/SQL Programming
Max Capacity: 25
Current Enrollment: 10
Status: Open — plenty of seats available

Dbms Output

Messages - Log

Saved: C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

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Connections    Oracle Connections    27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Worksheet Query Builder

```
DBMS_OUTPUT.PUT_LINE('Status: Almost full — enroll soon');

ELSE
    DBMS_OUTPUT.PUT_LINE('Status: FULL — enrollment closed');
END IF;

END;
/

-- Task 2.3 — Student Age Eligibility
```

DECLARE
 v\_first\_name students.first\_name%TYPE;
 v\_last\_name students.last\_name%TYPE;
 v\_dob students.date\_of\_birth%TYPE;

Query Result x Script Output x | Task completed in 0.137 seconds

Course: PL/SQL Programming
Max Capacity: 25
Current Enrollment: 10
Status: Open — plenty of seats available

Dbms Output

Messages - Log

Saved: C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

## Task 2.3 Output(Student Age Eligibility)

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

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Worksheet    Query Builder

```
END;
/
-- Task 2.3 — Student Age Eligibility

DECLARE
    v_first_name      students.first_name%TYPE;
    v_last_name       students.last_name%TYPE;
    v_dob             students.date_of_birth%TYPE;
    v_enrollment_date students.enrollment_date%TYPE;
    v_age              NUMBER;
BEGIN
    -- Fetch student data
    SELECT first_name, last_name, date_of_birth, enrollment_date
    INTO v_first_name, v_last_name, v_dob, v_enrollment_date
    FROM students
    WHERE student_id = 1;
```

Query Result    Script Output    Task completed in 0.099 seconds

Student: Tom Clark  
Age: 21  
Traditional student age

Dbms Output    Messages - Log

Saved: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

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Worksheet    Query Builder

```
DBMS_OUTPUT.PUT_LINE('Student: ' || v_first_name || ' ' || v_last_name);
DBMS_OUTPUT.PUT_LINE('Age: ' || v_age);

-- Age classification
IF v_age < 18 THEN
    DBMS_OUTPUT.PUT_LINE('Minor student — parental consent required');

ELSIF v_age BETWEEN 18 AND 25 THEN
    DBMS_OUTPUT.PUT_LINE('Traditional student age');

ELSE
    DBMS_OUTPUT.PUT_LINE('Mature student — eligible for evening program');
END IF;

-- Enrollment year check
IF EXTRACT(YEAR FROM v_enrollment_date) = 2023 THEN
```

Query Result    Script Output    Task completed in 0.099 seconds

Student: Tom Clark  
Age: 21  
Traditional student age

Dbms Output    Messages - Log

Saved: C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

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Worksheet    Query Builder

```
-- Enrollment year check
IF EXTRACT(YEAR FROM v_enrollment_date) = 2023 THEN
    DBMS_OUTPUT.PUT_LINE('First-year cohort (2023)');
END IF;

END;
/
-- =====
-- QUESTION 3 — CASE Statements
-- Student: Isaro Auoro | ID: 27882
-- =====

-- Task 3.1 — Score to Grade Conversion|
```

Query Result    Script Output    Task completed in 0.099 seconds

Student: Tom Clark  
Age: 21  
Traditional student age

Dbms Output

Messages - Log

Saved: C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

## Question 3 — CASE Statements

### Task 3.1 Output(Score to Grade Conversion)

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

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Worksheet    Query Builder

```
-- Enrollment year check
IF EXTRACT(YEAR FROM v_enrollment_date) = 2023 THEN
    DBMS_OUTPUT.PUT_LINE('First-year cohort (2023)');
END IF;

END;
/
-- =====
-- QUESTION 3 — CASE Statements
-- Student: Isaro Auoro | ID: 27882
-- =====

-- Task 3.1 — Score to Grade Conversion|
```

Query Result    Script Output    Task completed in 0.099 seconds

Student: Tom Clark  
Age: 21  
Traditional student age

Dbms Output

Messages - Log

Saved: C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

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Connections    27882\_GroupF\_PLSQL    LECTURER    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

SQL Worksheet: History

Worksheet    Query Builder

```
DECLARE
    v_score      enrollments.score%TYPE;
    v_stored_grade  enrollments.grade%TYPE;
    v_computed_grade VARCHAR2(20);
BEGIN
    -- Fetch enrollment record
    SELECT score, grade
    INTO v_score, v_stored_grade
    FROM enrollments
    WHERE enrollment_id = 5;

    -- Compute grade using searched CASE
    CASE
        WHEN v_score IS NULL THEN
            v_computed_grade := 'Not yet graded';
    END CASE;
```

Query Result    Script Output

Score: 80  
Stored Grade: B  
Computed Grade: B  
Grade match: YES

Dyms Output    Messages - Log

Saved: C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

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Connections    27882\_GroupF\_PLSQL    LECTURER    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

SQL Worksheet: History

Worksheet    Query Builder

```
-- Compute grade using searched CASE
CASE
    WHEN v_score IS NULL THEN
        v_computed_grade := 'Not yet graded';
    WHEN v_score > 90 THEN
        v_computed_grade := 'A';
    WHEN v_score > 80 THEN
        v_computed_grade := 'B';
    WHEN v_score > 70 THEN
        v_computed_grade := 'C';
    WHEN v_score >= 60 THEN
        v_computed_grade := 'D';
    ELSE
        v_computed_grade := 'F';
END CASE;
```

Query Result    Script Output

Score: 80  
Stored Grade: B  
Computed Grade: B  
Grade match: YES

Dyms Output    Messages - Log

The screenshot shows the Oracle SQL Developer interface with the following details:

- Title Bar:** Oracle SQL Developer : C:\Users\ITEK. OneDrive\Documents\27882\_GroupF\_plsql.sql@27882\_GroupF\_PLSQL
- Menu Bar:** File, Edit, View, Navigate, Run, Source, Team, Tools, Window, Help
- Toolbar:** Includes icons for New, Open, Save, Run, Stop, Refresh, and Database.
- Connections Sidebar:** Shows Oracle Connections (27882\_GroupF\_PLSQL, AdminDB, LECTURER) and Database Schema Service Co.
- Reports Sidebar:** Shows All Reports, About Your Database, All Objects, Analytic View Reports, Application Express, ASH and AWR, Database Administration, Data Dictionary, Data Modeler Reports, OLAP Reports, PLSQL, Security, Streams.
- SQL Worksheet:** Contains the following PL/SQL code:

```
DBMS_OUTPUT.PUT_LINE('Score: ' || NVL(TO_CHAR(v_score), 'NULL'));
DBMS_OUTPUT.PUT_LINE('Stored Grade: ' || NVL(v_stored_grade, 'NULL'));
DBMS_OUTPUT.PUT_LINE('Computed Grade: ' || v_computed_grade);

-- Compare grades
IF v_stored_grade = v_computed_grade THEN
  DBMS_OUTPUT.PUT_LINE('Grade match: YES');
ELSE
  DBMS_OUTPUT.PUT_LINE('Grade match: NO — stored '
    || NVL(v_stored_grade, 'NULL')
    || ', computed '
    || v_computed_grade);
END IF;

END;
```
- Query Result Tab:** Displays the output of the script:

```
Score: 80
Stored Grade: B
Computed Grade: B
Grade match: YES
```
- Script Output Tab:** Shows "Task completed in 0.145 seconds".
- Status Bar:** Shows "Dbms Output" and "Messages - Log".

## **Task 3.2 Output(Department Location Codes)**

The screenshot shows the Oracle SQL Developer interface. The top menu bar includes File, Edit, View, Navigate, Run, Source, Team, Tools, Window, and Help. The left sidebar has sections for Connections (Oracle Connections, 27882\_GroupF\_PLSQL, AdminDB, LECTURER), Reports (All Reports, About Your Database, All Objects, Analytic View Reports, Application Express, ASH and AWR, Database Administrati, Data Dictionary, Data Dictionary Repor, Data Modeler Reports, OLAP Reports, PLSQL, Security, Streams), and Dbsms Output. The main workspace shows a worksheet titled '27882\_GroupF\_PLSQL.sql' containing the following PL/SQL code:

```
-- Task 3.2 -- Department Location Codes
-- Fetch Computer Science department
DECLARE
    v_dept_name    departments.department_name%TYPE;
    v_budget       departments.budget%TYPE;
    v_building_code VARCHAR2(50);
BEGIN
    SELECT department_name, budget
    INTO v_dept_name, v_budget
    FROM departments
    WHERE department_name = 'Computer Science';
    -- Simple CASE for building code
    CASE v_building_code
        WHEN 'BLD-CS' THEN
            v_building_code := 'BLD-CS | ICT Wing';
    END CASE;
END;
/

```

The bottom status bar indicates "Task completed in 0.146 seconds". The bottom right corner shows a "Messages - Log" window.

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections      27882\_GroupF\_PLSQL      AdminID      Database Schema Service Co

Reports      All Reports      About Your Database      All Objects      Analytic View Reports      Application Express      ASH and AWR      Database Administrators      Data Dictionary      Data Modeler Reports      OLAP Reports      PLSQL      Security      Streams

SQL Worksheet History

Worksheet      Query Builder

```

    WHERE department_name = 'Computer Science';

-- Simple CASE for building code
CASE v_dept_name
    WHEN 'Computer Science' THEN
        v_building_code := 'BLD-CS | ICT Wing';
    WHEN 'Mathematics' THEN
        v_building_code := 'BLD-MT | Science Wing';
    WHEN 'Business' THEN
        v_building_code := 'BLD-BS | Commerce Wing';
    WHEN 'Engineering' THEN
        v_building_code := 'BLD-EN | Technical Wing';
    WHEN 'Psychology' THEN
        v_building_code := 'BLD-PS | Humanities Wing';
    ELSE

```

Query Result      Script Output      Task completed in 0.146 seconds

PL/SQL procedure successfully completed.

Department: Computer Science  
Building Code: BLD-CS | ICT Wing  
Budget: RWF 750000

Dbms Output      Messages - Log

Line 283 Column 47 | Insert | Modified | Windows: O

aved: C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections      27882\_GroupF\_PLSQL      AdminID      Database Schema Service Co

Reports      All Reports      About Your Database      All Objects      Analytic View Reports      Application Express      ASH and AWR      Database Administrators      Data Dictionary      Data Modeler Reports      OLAP Reports      PLSQL      Security      Streams

SQL Worksheet History

Worksheet      Query Builder

```

DBMS_OUTPUT.PUT_LINE('Department: ' || v_dept_name);
DBMS_OUTPUT.PUT_LINE('Building Code: ' || v_building_code);
DBMS_OUTPUT.PUT_LINE('Budget: RWF ' || v_budget);

-- Inline CASE expression for budget status
DBMS_OUTPUT.PUT_LINE(
    'Budget Status: ' ||
    CASE
        WHEN v_budget > 600000 THEN 'Well Funded'
        WHEN v_budget BETWEEN 400000 AND 600000 THEN 'Adequately Funded'
        ELSE 'Underfunded'
    END
);

```

Query Result      Script Output      Task completed in 0.146 seconds

PL/SQL procedure successfully completed.

Department: Computer Science  
Building Code: BLD-CS | ICT Wing  
Budget: RWF 750000

Dbms Output      Messages - Log

## Task 3.3 Output(Job Title Rank)

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    Reports

Oracle Connections: 27882\_GroupF\_PLSQL, AdminDB, LECTURER, Database Schema Service Co.

SQL Worksheet | History

Worksheet | Query Builder

```
-- Task 3.3 — Job Title Rank
-- 
-- DECLARE
  v_employee    employees%ROWTYPE;
  v_rank_number NUMBER;
  v_rank_title  VARCHAR2(50);
BEGIN
  -- Fetch employee
  SELECT *
  INTO v_employee
  FROM employees
  WHERE employee_id = 14;
```

Script Output | Task completed in 0.105 seconds

Job Title: Assistant Professor  
Salary: RWF 88000  
Rank Number: 3  
Rank Title: Junior Academic

PL/SQL procedure successfully completed.

Dbsn Outout | Messages - Log

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    Reports

Oracle Connections: 27882\_GroupF\_PLSQL, AdminDB, LECTURER, Database Schema Service Co.

SQL Worksheet | History

Worksheet | Query Builder

```
FROM employees
WHERE employee_id = 14;

-- CASE for rank assignment
CASE
  WHEN v_employee.job_title = 'Full Professor' THEN
    v_rank_number := 1;
    v_rank_title  := 'Senior Academic';

  WHEN v_employee.job_title = 'Associate Professor' THEN
    v_rank_number := 2;
    v_rank_title  := 'Mid Academic';
```

Script Output | Task completed in 0.105 seconds

Job Title: Assistant Professor  
Salary: RWF 88000  
Rank Number: 3  
Rank Title: Junior Academic

PL/SQL procedure successfully completed.

Dbsn Outout | Messages - Log

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    Reports

27882\_GroupF\_PLSQL.sql    LECTURER.sql    LECTURER1.sql    27882\_GroupF\_PLSQL.sql    Welcome Page

Worksheet    Query Builder

```
WHEN v_employee.job_title = 'Assistant Professor' THEN
    v_rank_number := 3;
    v_rank_title := 'Junior Academic';

WHEN v_employee.job_title LIKE '%Developer'
    OR v_employee.job_title LIKE '%Engineer%' THEN
    v_rank_number := 4;
    v_rank_title := 'Technical Staff';

WHEN v_employee.job_title LIKE '%Admin%'
    OR v_employee.job_title LIKE '%Coordinator%' THEN
    v_rank_number := 5;
```

Script Output X | Task completed in 0.105 seconds

Job Title: Assistant Professor  
Salary: RWF 88000  
Rank Number: 3  
Rank Title: Junior Academic

PL/SQL procedure successfully completed.

Dbms Output    Messages - Log

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    Reports

27882\_GroupF\_PLSQL.sql    LECTURER.sql    LECTURER1.sql    27882\_GroupF\_PLSQL.sql    Welcome Page

Worksheet    Query Builder

```
v_rank_title := 'Administrative Staff';

ELSE
    v_rank_number := 6;
    v_rank_title := 'General Staff';
END CASE;

-- Print details
DBMS_OUTPUT.PUT_LINE('Employee: ' || v_employee.first_name || ' ' || v_employee.last_name);
DBMS_OUTPUT.PUT_LINE('Job Title: ' || v_employee.job_title);
DBMS_OUTPUT.PUT_LINE('Salary: RWF ' || v_employee.salary);
DBMS_OUTPUT.PUT_LINE('Rank Number: ' || v_rank_number);
DBMS_OUTPUT.PUT_LINE('Rank Title: ' || v_rank_title);

-- Promotion check
IF v_rank_number <= 2 AND v_employee.salary < 100000 THEN
    DBMS_OUTPUT.PUT_LINE('Promotion eligible');
END IF;
```

Script Output X | Task completed in 0.105 seconds

PL/SQL procedure successfully completed.

Dbms Output    Messages - Log

```

    END CASE;

    -- Print details
    DBMS_OUTPUT.PUT_LINE('Employee: ' || v_employee.first_name || ' ' || v_employee.last_name);
    DBMS_OUTPUT.PUT_LINE('Job Title: ' || v_employee.job_title);
    DBMS_OUTPUT.PUT_LINE('Salary: RWF ' || v_employee.salary);
    DBMS_OUTPUT.PUT_LINE('Rank Number: ' || v_rank_number);
    DBMS_OUTPUT.PUT_LINE('Rank Title: ' || v_rank_title);

    -- Promotion check
    IF v_rank_number <= 2 AND v_employee.salary < 100000 THEN
        DBMS_OUTPUT.PUT_LINE('Promotion eligible');
    END IF;

END;
/

```

Script Output: Task completed in 0.105 seconds  
PL/SQL procedure successfully completed.

## Question 4 — Loops

### Task 4.1 Output(Basic LOOP: Tuition Fee Calculator)

```

-- QUESTION 4 — Loops
-- Student: Isaro Aurore | ID: 27882

-- Task 4.1 — Basic LOOP: Tuition Fee Calculator

DECLARE
    v_total_credits  NUMBER := 0;
    v_total_tuition  NUMBER := 0;
    v_course_id      NUMBER := 101;
    v_course_name    courses.course_name%TYPE;
    v_credits        courses.credits%TYPE;
    v_cost_per_credit CONSTANT NUMBER := 150000;
BEGIN
    LOOP

```

Script Output: Task completed in 0.105 seconds  
PL/SQL procedure successfully completed.

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administration Data Dictionary Data Modeler Reports OLAP Reports PLSQL Security Streams

27882\_GroupF\_PLSQL.sql LECTURER.sq LECTURER1.sq 27882\_GroupF\_PLSQL.sql Welcome Page

Worksheet Query Builder

```
-- Declare constants
v_cost_per_credit CONSTANT NUMBER := 15000;
BEGIN
  LOOP
    -- Fetch course
    SELECT course_name, credits
    INTO v_course_name, v_credits
    FROM courses
    WHERE course_id = v_course_id;

    -- Accumulate totals
    v_total_credits := v_total_credits + v_credits;
    v_total_tuition := v_total_tuition +
      (v_credits * v_cost_per_credit);

    -- Print iteration
    DBMS_OUTPUT.PUT_LINE(
      'Added: ' || v_course_name ||
      '(' || v_credits || ' credits)' );
  END LOOP;
END;
```

Script Output X Task completed in 0.119 seconds  
PL/SQL procedure successfully completed.

Dbms Output Messages - Log

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administration Data Dictionary Data Modeler Reports OLAP Reports PLSQL Security Streams

27882\_GroupF\_PLSQL.sql LECTURER.sq LECTURER1.sq 27882\_GroupF\_PLSQL.sql Welcome Page

Worksheet Query Builder

```
-- Print iteration
DBMS_OUTPUT.PUT_LINE(
  'Added: ' || v_course_name ||
  '(' || v_credits || ' credits)' ||
  ' | Running Total: ' || v_total_credits ||
  ' | Credits | Tuition So Far: RWF' || v_total_tuition
);

-- Exit condition
EXIT WHEN v_total_credits >= 15;

-- Move to next course
v_course_id := v_course_id + 1;
END LOOP;

-- Final output
DBMS_OUTPUT.PUT_LINE('');
```

Script Output X Task completed in 0.133 seconds  
Final Total Credits: 17  
Final Tuition: RWF 2550000  
Average Cost per Credit: RWF 150000

Dbms Output Messages - Log

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrati Data Dictionary Data Dictionary Repor Data Modeler Reports OLAP Reports PLSQL Security Streams

SQL Worksheet History 27882\_GroupF\_PLSQL.sql LECTURER.sq LECTURER1.sq 27882\_GroupF\_PLSQL.sql Welcome Page

Worksheet Query Builder

```

    -- Exit condition
    EXIT WHEN v_total_credits >= 15;

    -- Move to next course
    v_course_id := v_course_id + 1;
END LOOP;

-- Final output
DBMS_OUTPUT.PUT_LINE('-----');
DBMS_OUTPUT.PUT_LINE('Final Total Credits: ' || v_total_credits);
DBMS_OUTPUT.PUT_LINE('Final Tuition: RWF ' || v_total_tuition);
DBMS_OUTPUT.PUT_LINE('Average Cost per Credit: RWF ' ||
(v_total_tuition / v_total_credits));

END;
/

```

Script Output X Task completed in 0.133 seconds

Final Total Credits: 17  
Final Tuition: RWF 2550000  
Average Cost per Credit: RWF 150000

Dbms Output

Messages - Log Messages Logging Page statements

Line 416 Column 29 Insert Windows: C

## Task 4.2 Output(WHILE Loop: Department Salary Budget)

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrati Data Dictionary Data Dictionary Repor Data Modeler Reports OLAP Reports PLSQL Security Streams

SQL Worksheet History 27882\_GroupF\_PLSQL.sql LECTURER.sq LECTURER1.sq 27882\_GroupF\_PLSQL.sql Welcome Page

Worksheet Query Builder

```

-- Task 4.2 — WHILE Loop: Department Salary Budget

DECLARE
    CURSOR cs_employees IS
        SELECT first_name, last_name, salary
        FROM employees
        WHERE department = 'Computer Science';

    v_first_name      employees.first_name%TYPE;
    v_last_name       employees.last_name%TYPE;
    v_salary          employees.salary%TYPE;

    v_total_salary    NUMBER := 0;
    v_employee_count NUMBER := 0;
    v_high_earners   NUMBER := 0;
    v_low_earners    NUMBER := 0;

```

Script Output X Task completed in 0.179 seconds

Average Salary: RWF 70800  
High Earners (>75k): 3  
Low Earners (<65k): 3

Dbms Output

Messages - Log

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrat Data Dictionary Data Dictionary Report Data Modeler Reports OLAP Reports PLSQL Security Streams

27882\_GroupF\_PLSQL.sql LECTURER.sq LECTURER.lsq 27882\_GroupF\_PLSQL.sql Welcome Page

SQL Worksheet History 0.17900001 seconds

Worksheet Query Builder

```
v_max_salary NUMBER := 0;
v_max_name VARCHAR2(100);
BEGIN
  OPEN cs_employees;
  FETCH cs_employees INTO v_first_name, v_last_name, v_salary;
  WHILE cs_employees%FOUND LOOP
    v_employee_count := v_employee_count + 1;
    v_total_salary := v_total_salary + v_salary;
    -- High earners
    IF v_salary > 75000 THEN
      v_high_earners := v_high_earners + 1;
    END IF;
    -- Low earners
    IF v_salary < 65000 THEN
      v_low_earners := v_low_earners + 1;
    END IF;
  END LOOP;
  CLOSE cs_employees;
  -- Print Report
  DBMS_OUTPUT.PUT_LINE('***** Computer Science Salary Report *****');
END;
```

Script Output Task completed in 0.179 seconds

Average Salary: RWF 70800  
High Earners (>75k): 3  
Low Earners (<65k): 3

Dbms Output

Messages - Log Messages Logging Page Statements

Oracle SQL Developer : C:\Users\TEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrat Data Dictionary Data Dictionary Report Data Modeler Reports OLAP Reports PLSQL Security Streams

27882\_GroupF\_PLSQL.sql LECTURER.sq LECTURER.lsq 27882\_GroupF\_PLSQL.sql Welcome Page

SQL Worksheet History 0.17900001 seconds

Worksheet Query Builder

```
-- Low earners
IF v_salary < 65000 THEN
  v_low_earners := v_low_earners + 1;
END IF;

-- Track highest salary
IF v_salary > v_max_salary THEN
  v_max_salary := v_salary;
  v_max_name := v_first_name || ' ' || v_last_name;
END IF;

FETCH cs_employees INTO v_first_name, v_last_name, v_salary;
END LOOP;

CLOSE cs_employees;

-- Print Report
DBMS_OUTPUT.PUT_LINE('***** Computer Science Salary Report *****');
```

Script Output Task completed in 0.179 seconds

Average Salary: RWF 70800  
High Earners (>75k): 3  
Low Earners (<65k): 3

Dbms Output

Messages - Log Messages Logging Page Statements

Line 463 Column 1 Insert Windows: O

```

-- Print Report
DBMS_OUTPUT.PUT_LINE('===== Computer Science Salary Report =====');
DBMS_OUTPUT.PUT_LINE('Total Employees: ' || v_employee_count);
DBMS_OUTPUT.PUT_LINE('Total Salary Bill: RWF ' || v_total_salary);

IF v_employee_count > 0 THEN
    DBMS_OUTPUT.PUT_LINE('Average Salary: RWF ' ||
        (v_total_salary / v_employee_count));
END IF;

DBMS_OUTPUT.PUT_LINE('High Earners (>75k): ' || v_high_earners);
DBMS_OUTPUT.PUT_LINE('Low Earners (<65k): ' || v_low_earners);
DBMS_OUTPUT.PUT_LINE('Highest Paid: ' || v_max_name ||
    ' — RWF ' || v_max_salary);
DBMS_OUTPUT.PUT_LINE('=====');

END;
/

```

PL/SQL procedure successfully completed.

## Task 4.3 Output(FOR Loop: Academic Performance Table)

```

/
<-- Task 4.3 — FOR Loop: Academic Performance Table
<--

DECLARE
    v_first_name    students.first_name%TYPE;
    v_last_name     students.last_name%TYPE;
    v_gpa           students.gpa%TYPE;
    v_enroll_count  NUMBER;

    v_performance   VARCHAR2(30);
    v_load_status   VARCHAR2(30);

    v_total_students NUMBER := 0;

```

Total Students Printed: 10  
 Summa Cum Laude: 2  
 Magna Cum Laude: 3  
 Cum Laude: 2  
 Satisfactory: 3  
 Evolutions: 0

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Reports    All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrators Data Dictionary Data Dictionary Reports Data Modeler Reports OLAP Reports PLSQL Security Streams

SQL Worksheet History 0.71600002 seconds

Worksheet Query Builder

```
v_total_students NUMBER := 0;

v_summa_count NUMBER := 0;
v_magna_count NUMBER := 0;
v_cum_count NUMBER := 0;
v_satisfactory_count NUMBER := 0;
v_prob_count NUMBER := 0;

BEGIN
  FOR v_id IN 1001..1010 LOOP
    -- Fetch student
    SELECT first_name, last_name, gpa
    INTO v_first_name, v_last_name, v_gpa
    FROM students
    WHERE student_id = v_id;
  END LOOP;
END;
```

Query Result | Script Output | Task completed in 0.716 seconds

Total Students Printed: 10  
Summa Cum Laude: 2  
Magna Cum Laude: 3  
Cum Laude: 2  
Satisfactory: 3  
Probation: 0

Dbms Output

Messages - Log | Line 525 Column 20 | Insert | Modified | Windows: O

aved: C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co

Reports    All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrators Data Dictionary Data Dictionary Reports Data Modeler Reports OLAP Reports PLSQL Security Streams

SQL Worksheet History 0.71600002 seconds

Worksheet Query Builder

```
INTO v_first_name, v_last_name, v_gpa
FROM students
WHERE student_id = v_id;

-- Count enrollments
SELECT COUNT(*)
INTO v_enroll_count
FROM enrollments
WHERE student_id = v_id;

-- Performance classification
CASE
  WHEN v_gpa >= 3.8 THEN
    v_performance := 'Summa Cum Laude';
    v_summa_count := v_summa_count + 1;
  WHEN v_gpa >= 3.2 THEN
    v_performance := 'Magna Cum Laude';
    v_magna_count := v_magna_count + 1;
  WHEN v_gpa >= 2.5 THEN
    v_performance := 'Cum Laude';
    v_cum_count := v_cum_count + 1;
  ELSE
    v_performance := 'Satisfactory';
    v_satisfactory_count := v_satisfactory_count + 1;
  END CASE;
```

Query Result | Script Output | Task completed in 0.716 seconds

Total Students Printed: 10  
Summa Cum Laude: 2  
Magna Cum Laude: 3  
Cum Laude: 2  
Satisfactory: 3  
Probation: 0

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrators Data Dictionary Data Dictionary Repor Data Modeler Reports OLAP Reports PLSQL Security

27882\_GroupF\_PLSQL.sq LECTURER.sql Welcome Page LECTURER 27882\_GroupF\_PLSQL.sql

Worksheet Query Builder

```
v_summa_count := v_summa_count + 1;

WHEN v_gpa >= 3.5 THEN
    v_performance := 'Magna Cum Laude';
    v_magna_count := v_magna_count + 1;

WHEN v_gpa >= 3.2 THEN
    v_performance := 'Cum Laude';
    v_cum_count := v_cum_count + 1;

WHEN v_gpa >= 2.5 THEN
    v_performance := 'Satisfactory';
    v_sat_count := v_sat_count + 1;

ELSE
    v_performance := 'Probation';
```

Query Result Script Output Task completed in 0.716 seconds

```
Total Students Printed: 10
Summa Cum Laude: 2
Magna Cum Laude: 3
Cum Laude: 2
Satisfactory: 3
Probation: 0
```

Oracle SQL Developer : C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections Oracle Connections 27882\_GroupF\_PLSQL AdminDB LECTURER Database Schema Service Co Reports All Reports About Your Database All Objects Analytic View Reports Application Express ASH and AWR Database Administrators Data Dictionary Data Dictionary Repor Data Modeler Reports OLAP Reports PLSQL Security Streams

27882\_GroupF\_PLSQL.sq LECTURER.sql Welcome Page LECTURER 27882\_GroupF\_PLSQL.sql

Worksheet Query Builder

```
v_performance := 'Probation';
v_prob_count := v_prob_count + 1;
END CASE;

-- Enrollment load classification
CASE
    WHEN v_enroll_count <= 1 THEN
        v_load_status := 'Under-enrolled';
    WHEN v_enroll_count BETWEEN 2 AND 3 THEN
        v_load_status := 'Normal Load';
    ELSE
        v_load_status := 'Full Load';
END CASE;

-- Print row
DBMS_OUTPUT.PUT_LINE(
```

Query Result Script Output Task completed in 0.716 seconds

```
Total Students Printed: 10
Summa Cum Laude: 2
Magna Cum Laude: 3
Cum Laude: 2
Satisfactory: 3
Probation: 0
```

Doms Output Messages - Log Line 567 Column 19 | Insert | Modified | Windows: C:\Users\iTEK\OneDrive\Documents\27882\_GroupF\_plsql.sql\27882\_GroupF\_PLSQL.sql

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    27882\_GroupF\_PLSQL    LECTURER    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

Worksheet    Query Builder

```
-- Print row
DBMS_OUTPUT.PUT_LINE(
  'ID: ' || v_id ||
  ' | ' || RPAD(v_first_name || ' ' || v_last_name, 20) ||
  ' | GPA: ' || v_gpa ||
  ' | ' || RPAD(v_performance, 20) ||
  ' | ' || v_load_status
);

v_total_students := v_total_students + 1;

END LOOP;

-- Final summary
DBMS_OUTPUT.PUT_LINE('-----');
DBMS_OUTPUT.PUT_LINE('Total Students Printed: ' || v_total_students);
```

Query Result x Script Output x

Total Students Printed: 10  
 Summa Cum Laude: 2  
 Magna Cum Laude: 3  
 Cum Laude: 2  
 Satisfactory: 3  
 Probation: 0

Dbms Output    Messages - Log

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    27882\_GroupF\_PLSQL    LECTURER    Welcome Page    LECTURER    27882\_GroupF\_PLSQL.sql

Worksheet    Query Builder

```
v_total_students := v_total_students + 1;

END LOOP;

-- Final summary
DBMS_OUTPUT.PUT_LINE('-----');
DBMS_OUTPUT.PUT_LINE('Total Students Printed: ' || v_total_students);
DBMS_OUTPUT.PUT_LINE('Summa Cum Laude: ' || v_summa_count);
DBMS_OUTPUT.PUT_LINE('Magna Cum Laude: ' || v_magna_count);
DBMS_OUTPUT.PUT_LINE('Cum Laude: ' || v_cum_count);
DBMS_OUTPUT.PUT_LINE('Satisfactory: ' || v_sat_count);
DBMS_OUTPUT.PUT_LINE('Probation: ' || v_prob_count);

END;
/
```

Query Result x Script Output x

PL/SQL procedure successfully completed.

Dbms Output    Messages - Log

## Question 5 — Combined Challenge

Oracle SQL Developer : C:\Users\ITEK\OneDrive\Documents\27882\_GroupF\_plsql\27882\_GroupF\_PLSQL.sql

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SQL Worksheet History

Worksheet Query Builder

```
-- QUESTION 5 — Combined Challenge
-- Student: Isaro Aurore | ID: 27882
-- -----
-- QUESTION 5 — Employee Profile Report

DECLARE
    v_employee      employees%ROWTYPE;
    v_years_service NUMBER;
    v_service_status VARCHAR2(30);

    v_pay_grade     NUMBER;
    v_raise_status  VARCHAR2(30);
    v_proposed_salary NUMBER;
```

Query Result x Script Output x

EMPLOYEE PROFILE REPORT  
AUCA — HR Department System

Employee: Tom Engineer (ID: 5)

Dbms Output

Messages - Log

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SQL Worksheet History

Worksheet Query Builder

```
v_proposed_salary NUMBER;

v_colleagues      NUMBER := 0;
v_highest_salary  NUMBER := 0;
v_more_than_tom   NUMBER := 0;

BEGIN
    -- =====
    -- Step 1 — Employee Profile
    -- =====

    SELECT *
    INTO v_employee
    FROM employees
    WHERE employee_id = 5;

    v_years_service := ROUND(MONTHS_BETWEEN(SYSDATE, v_employee.hire_date) / 12, 1);
```

Query Result x Script Output x

EMPLOYEE PROFILE REPORT  
AUCA — HR Department System

Employee: Tom Engineer (ID: 5)

Dbms Output

Messages - Log

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27882\_GroupF\_PLSQL.sql LECTURER.sql Welcome Page LECTURER 27882\_GroupF\_PLSQL.sql

Worksheet Query Builder

```
WHERE employee_id = 5;

v_years_service := ROUND(MONTHS_BETWEEN(SYSDATE, v_employee.hire_date) / 12, 1);

IF v_years_service < 2 THEN
    v_service_status := 'Probationary';
ELSIF v_years_service BETWEEN 2 AND 5 THEN
    v_service_status := 'Confirmed';
ELSE
    v_service_status := 'Senior Staff';
END IF;

----- Step 2 — Salary Analysis
CASE
```

Query Result Script Output | Task completed in 0.066 seconds

```
EMPLOYEE PROFILE REPORT
AUCA — HR Department System
-----
Employee: Tom Engineer (ID: 5)
```

Dbms Output

Messages - Log

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27882\_GroupF\_PLSQL.sql LECTURER.sql Welcome Page LECTURER 27882\_GroupF\_PLSQL.sql

Worksheet Query Builder

```
CASE
    WHEN v_employee.salary >= 100000 THEN v_pay_grade := 1;
    WHEN v_employee.salary >= 90000 THEN v_pay_grade := 2;
    WHEN v_employee.salary >= 80000 THEN v_pay_grade := 3;
    WHEN v_employee.salary >= 70000 THEN v_pay_grade := 4;
    ELSE v_pay_grade := 5;
END CASE;

IF v_years_service > 3 AND v_employee.salary < 85000 THEN
    v_raise_status := 'Raise recommended';
    v_proposed_salary := v_employee.salary * 1.10;
ELSE
    v_raise_status := 'No raise required';
    v_proposed_salary := v_employee.salary;
END IF;
```

Query Result Script Output | Task completed in 0.066 seconds

```
AUCA — HR Department System
-----
Employee: Tom Engineer (ID: 5)
Department: Computer Science
Job Title: Software Engineer
Hire Date: 15-SEP-19 | Years of Service: 6.4
```

Dbms Output

Messages - Log

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Worksheet Query Builder

```
-- Step 3 -- Department Summary
-- -----
FOR rec IN (
    SELECT salary_
    FROM employees
    WHERE department = v_employee.department
        AND employee_id != v_employee.employee_id
) LOOP

    v_colleagues := v_colleagues + 1;

    IF rec.salary > v_highest_salary THEN
        v_highest_salary := rec.salary;
    END IF;
```

Query Result | Script Output | Task completed in 0.066 seconds  
AUC4 — HR Department System  
-----  
Employee: Tom Engineer (ID: 5)  
Department: Computer Science  
Job Title: Software Engineer  
Hire Date: 15-SEP-19 | Years of Service: 6.4

Dbms Output | Messages - Log | Line 665 Column 11 | Insert | Modified | Windows: C

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Worksheet Query Builder

```
END IF;

IF rec.salary > v_employee.salary THEN
    v_more_than_tom := v_more_than_tom + 1;
END IF;

END LOOP;

-- -----
-- Step 4 -- Final Report Output
-- -----
```

```
DBMS_OUTPUT.PUT_LINE('-----');
DBMS_OUTPUT.PUT_LINE(' EMPLOYEE PROFILE REPORT ');
DBMS_OUTPUT.PUT_LINE(' AUC4 — HR Department System ');
DBMS_OUTPUT.PUT_LINE('-----');
```

Query Result | Script Output | Task completed in 0.066 seconds  
Hire Date: 15-SEP-19 | Years of Service: 6.4  
Service Status: Senior Staff  
-----  
Salary: RWF 80000 | Pay Grade: 3  
Raise Status: Raise recommended  
Proposed Salary: RWF 88000

Dbms Output | Messages - Log | Line 580 Column 69 | Insert | Modified | Windows: C

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Worksheet    Query Builder

```
DBMS_OUTPUT.PUT_LINE('Service Status: ' || v_service_status);
DBMS_OUTPUT.PUT_LINE('-----');
DBMS_OUTPUT.PUT_LINE('Salary: RWF ' || v_employee.salary ||
                     ' | Pay Grade: ' || v_pay_grade);

DBMS_OUTPUT.PUT_LINE('Raise Status: ' || v_raise_status);
DBMS_OUTPUT.PUT_LINE('Proposed Salary: RWF ' || v_proposed_salary);

DBMS_OUTPUT.PUT_LINE('-----');

DBMS_OUTPUT.PUT_LINE('Dept. Colleagues: ' || v_colleagues);
DBMS_OUTPUT.PUT_LINE('Dept. Highest Salary: RWF ' || v_highest_salary);
DBMS_OUTPUT.PUT_LINE('Colleagues Earning More: ' || v_more_than_tom);
```

Query Result    Script Output    Task completed in 0.066 seconds

```
HIRE DATE: 15-SEP-19 | YEARS OF SERVICE: 6.4
Service Status: Senior Staff
-----
Salary: RWF 80000 | Pay Grade: 3
Raise Status: Raise recommended
Proposed Salary: RWF 80000
```

Dbms Output    Messages - Log

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Worksheet    Query Builder

```
DBMS_OUTPUT.PUT_LINE('Salary: RWF ' || v_employee.salary ||
                     ' | Pay Grade: ' || v_pay_grade);

DBMS_OUTPUT.PUT_LINE('Raise Status: ' || v_raise_status);
DBMS_OUTPUT.PUT_LINE('Proposed Salary: RWF ' || v_proposed_salary);

DBMS_OUTPUT.PUT_LINE('-----');

DBMS_OUTPUT.PUT_LINE('Dept. Colleagues: ' || v_colleagues);
DBMS_OUTPUT.PUT_LINE('Dept. Highest Salary: RWF ' || v_highest_salary);
DBMS_OUTPUT.PUT_LINE('Colleagues Earning More: ' || v_more_than_tom);

DBMS_OUTPUT.PUT_LINE('-----');

END;
/
```

Query Result    Script Output    Task completed in 0.066 seconds

```
Dept. Colleagues: 9
Dept. Highest Salary: RWF 102000
Colleagues Earning More: 2
```

Dbms Output    Messages - Log

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Oracle Connections    AdminDB    LECTURER    Database Schema Service Co

Worksheet    Query Builder

```
DBMS_OUTPUT.PUT_LINE('Salary: RWF ' || v_employee.salary ||  
                      ' | Pay Grade: ' || v_pay_grade);  
  
DBMS_OUTPUT.PUT_LINE('Raise Status: ' || v_raise_status);  
DBMS_OUTPUT.PUT_LINE('Proposed Salary: RWF ' || v_proposed_salary);  
  
DBMS_OUTPUT.PUT_LINE('-----');  
  
DBMS_OUTPUT.PUT_LINE('Dept. Colleagues: ' || v_colleagues);  
DBMS_OUTPUT.PUT_LINE('Dept. Highest Salary: RWF ' || v_highest_salary);  
DBMS_OUTPUT.PUT_LINE('Colleagues Earning More: ' || v_more_than_tom);  
  
DBMS_OUTPUT.PUT_LINE('-----');  
  
END;  
/  
  
Query Result    Script Output    Task completed in 0.066 seconds  
Colleagues Earning More: 2  
-----  
PL/SQL procedure successfully completed.
```

Dbms Output    Messages - Log