EXPERIMENT- 10

AIm: Study and implementation of PL/SQL in DBMS:

THEORY: PL/SPL is a block structured language.

That enables developers to combine the power of

Spl with procedural statements. All the statements

of a block are passed to grade eight all at once

Which increases processing spled and decreases the

traffic.

PL/SPL Stands for Procedural Longuage extensions
to the Structured Juery Longuage (Spe).

PL/SPL is a combination of Spl pleng with the
procedural features of programming languages.

Poracle uses a PL/SPL engine to process the
PL/SPL statements.

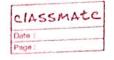
PL/SPL includes procedural language elements like conditions and loops. It allows declaration of constants and variables, procedures and functions, types and variable of those types and triggers.

= Features of PL/SQL:

1) Procedural language:

PLISPL is a full-fledged procedural language,

allering you to write code with control structurer

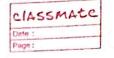


bondling.

St supporter feature like voriables, constants, data
types and supprograms (procedures and functions) to
organize and structure your code.

- 2) Integration with SpL:
- PL/SOL integrater seambersly with SpL, allowing you to enbed spe statements within your code blocks.
- you can use Sgr Statements like SFIECT, INSERT, UPDATE, DELETE and more to manipulate data stored in the database
- network traffic between the database and dient applications
- 3) Exception Mandling:
- to catch and handle errors that occur during code execution
- -> you can define exception handlers to gracefully handle exceptional conditions and provide custom error newsges or perform recovery.
- error newages or perform recovery.

 I plyspe provides predefined exceptions all allows
 you to define your own custom exceptions.



4) Modularization and Rusability:

- Teusable program units such as stored procedures, functions, and packages.
- Stored procedurer and functions can be invoked from which PL/Jgz or called from external applications.
- procedurer, functions, variables and cursors
 into a single unit box easter management and better
 code recognization.

5) Performance aptimization:

- To perform operations or multiple yours of data at once, reducing the number of centext switches between the PLISPL engine and the SPL engine of dynamic
- JEL aperations

 -> PL/SEL supporter compiler optimizations, Caching of
 compiled code, and afficient memory management to
 compare performance.

6) Security and Priviliges:

- programs execute with the priviliges of the invoking vsir, allowing fine-grined access control.

- you can define PL/spl code to run with definer's

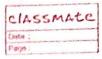
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Code (PL/SQL example):
DECLARE
 total_salary NUMBER := 0;
 employee count NUMBER := 0;
 average_salary NUMBER;
BEGIN
  -- Calculate total salary and count of employees
  FOR emp IN (SELECT salary FROM employees) LOOP
   total_salary := total_salary + emp.salary;
   employee_count := employee_count + 1;
  END LOOP;
  -- Calculate average salary
 IF employee count > 0 THEN
   average_salary := total_salary / employee_count;
   DBMS OUTPUT.PUT LINE('Average Salary: ' || average salary);
 ELSE
   DBMS_OUTPUT.PUT_LINE('No employees found.');
  END IF;
END;
In this program:
```

We declare three variables: total_salary to store the sum of all employee salaries, employee_count to store the count of employees, and average_salary to calculate and store the average salary.

The program loops through all the records in the employees table using a cursor emp (implicitly defined in the FOR loop). For each record, it adds the salary to total_salary and increments employee_count.

After the loop, the program checks if any employees were found (employee_count > 0). If there are employees, it calculates the average salary by dividing total_salary by employee_count and displays the result using DBMS_OUTPUT.PUT_LINE.

If no employees are found (employee_count <= 0), it displays a message indicating the absence of employees.



	Costs : Parys
	rights (invoker's rights) providing controlled access to database objects.
	CONCLUSION: PL/SPL har been studied and implemented successfully in DBMS
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