



Subject :

Software :

Hardware :

Branch :

Semester :

Page No.

Prog No. 9

PROBLEM STATEMENT

Implementation of Packages in PL/SQL

ALGORITHM & CODE:

In PL/SQL (Procedural Language / Structured Query Language), a Package is a Schema Object that groups logically related PL/SQL types, items, and subprograms. Packages have two Parts:

1. Specification (Header) - declare the Public interface

2. Body - Contains the implementation of the Specification

Package Syntax

1. Package Specification:

CREATE OR REPLACE PACKAGE Package-name IS/AS

- Public variable declaration.

- Public type declaration.

- Public curs or declaration.

- Public exception declaration.

- Public Procedure and function declaration.

END Package-name;

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OUTPUT OBTAINED

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Subject :

Software :

Hardware :

Branch :

Semester :

Page No.

Prog No.

PROBLEM STATEMENT

ALGORITHM & CODE :

2. Package Body

CREATE OR REPLACE PACKAGE BODY Package-name/s/ps

- Private variable Declaration
- Private type declaration
- Private curs or declaration
- Private exception declaration
- Procedure and function implementations

END Package-name;

Example: Create a Package body to find the salary of a Particular customer.

The Package assumes that there is a table Customer with columns Customer-id and Salary.

Step-1 Create the table

First, let's create the customer table for the purpose of this Problem:

```
CREATE TABLE customers (  
    customer-id NUMBER PRIMARY KEY,  
    customer-name VARCHAR2(100),  
    Salary NUMBER  
);
```

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GRADE :

Signature of Faculty

Date :

Signature of Student

Date :





Subject :

Software :

Hardware :

Branch :

Semester :

Page No.

Prog No.

PROBLEM STATEMENT

ALGORITHM & CODE :

```
INSERT INTO customers VALUES (1, 'John Doe', 50000);  
INSERT INTO customers VALUES (2, 'Jane Smith', 60000);  
INSERT INTO customers VALUES (3, 'Mike Johnson', 55000);
```

Commit ;

Step 2: Create the Package Specification:

Now, let's create the Package Specification. This defines the interface to the Package:

```
CREATE OR REPLACE PACKAGE customer_pkg AS  
    PROCEDURE get_customer_salary (p_customer_id  
IN NUMBER, p_salary OUT NUMBER);  
END customer_pkg;
```

Step-3 Create the Package Body.

Next, let's create the Package body. This contains the implementation of the procedures defined in the Package Specification:

```
CREATE OR REPLACE PACKAGE BODY customer_pkg AS  
    PROCEDURE get_customer_salary (p_customer_id  
IN NUMBER, p_salary OUT NUMBER) IS
```

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OUTPUT OBTAINED

REMARKS

GRADE :

Signature of Faculty

Date :

Signature of Student

Date :





Subject :

Software :

Hardware :

Branch :

Semester :

Page No.

Prog No.

PROBLEM STATEMENT

ALGORITHM & CODE :

```
BEGIN
  SELECT Salary INTO P-Salary
  FROM Customers
  WHERE customer-id = P-customer-id;
EXCEPTION
  WHEN NO-DATA-FOUND THEN
    P-Salary := NULL;
  WHEN OTHERS THEN
    RAISE;
END get-customer-Salary;
END customer-Pkg;
```

Step-4 Test the Package.

Finally: lets test the Package to ensure it works as expected:

```
DECLARE
  V-Salary NUMBER;
BEGIN
  customer-Pkg.get-customer-Salary (1, V-Salary);
  DBMS-OUTPUT.PUT_LINE ('Salary of customer 1: '
  || V-Salary);
  customer-Pkg.get-customer-Salary (2, V-Salary);
  DBMS-OUTPUT.PUT_LINE ('Salary of customer 2: '
  || V-Salary);
```

INPUT GIVEN

OUTPUT OBTAINED

REMARKS

GRADE :

Signature of Faculty

Date :

Signature of Student

Date :



Subject :

Software :

Hardware :

Branch :

Semester :

Page No.

Prog No. 9

PROBLEM STATEMENT

ALGORITHM & CODE :

```
customerz_pkg.get_customer_salary(99, v_salary);  
IF v_salary IS NULL THEN  
    DBMS_OUTPUT.PUT_LINE('customer not found.');
```

ELSE

```
    DBMS_OUTPUT.PUT_LINE('Salary of customer 99: '  
    || v_salary);
```

END IF;

END;

This script will output the salary for the customer with IDs 1 and 2, and indicate that the customer with ID 99 does not exist.

INPUT GIVEN

OUTPUT OBTAINED

REMARKS

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