

**University of Colombo**

Faculty of Technology

Department of ICT

# IC 2201 – Database Management Systems II (21/22)

Assignment PL/SQL

**Y.E.N.PREMATHILAKA**

**REG. NO : 2022T01564**

**SUB. DATE : 28/12/2024**

Contents

[1) Create Tables 2](#_Toc185790422)

[-- Product table 2](#_Toc185790423)

[-- Warehouse table 2](#_Toc185790424)

[-- Inventory table 3](#_Toc185790425)

[2) Insert Data into the Tables 3](#_Toc185790426)

[-- insert data into product table 3](#_Toc185790427)

[-- insert data into warehouse table 3](#_Toc185790428)

[-- insert data into inventory table 4](#_Toc185790429)

[3) Create a PL/SQL Package 4](#_Toc185790430)

[a) Warehouse Name (A) package Body 5](#_Toc185790431)

[--warehouse name 5](#_Toc185790432)

[b) Standard Discount Functions (B) 6](#_Toc185790433)

[-- Function to get discounted price (standard discounts) 6](#_Toc185790434)

[Apply Discounts 6](#_Toc185790435)

[-- Apply standard discount based on price range 6](#_Toc185790436)

[c) total profit without discounts (C) 7](#_Toc185790437)

[-- Procedure to compute total profit without discounts 7](#_Toc185790438)

[d) Get Discounted Price (D) 8](#_Toc185790439)

[-- Overloaded function to get discounted price (custom discount) 8](#_Toc185790440)

[e) total profit with discounts (E) 9](#_Toc185790441)

[-- Procedure to compute total profit with discounts 9](#_Toc185790442)

[f) Calling Package Methods (F) 10](#_Toc185790443)

[-- i. Print the total profit of the current inventory with no discounts. 10](#_Toc185790444)

[-- ii. Print the total profit of the current inventory with 10% discount for all products. 10](#_Toc185790445)

[-- iii. Print the total profit of the current inventory with 15% discount for all products. 10](#_Toc185790446)

[-- iv. Print the discounted price of the product PRD01 when standard discount percentages are applied. 10](#_Toc185790447)

[-- v. Print the discounted price of the product PRD01 when a 20% discount is applied. 10](#_Toc185790448)

[Outputs 11](#_Toc185790449)



**FACULITY OF TECHNOLOGY UNIVERSITY OF COLOMBO**

**DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY**

# IC 2201 – DBMS II (21/22)

# Assignment PL/SQL

# Name: Eranda Nimsara Index Numbers: 2022t01564

# Create Tables

## -- Product table

CREATE TABLE Product (

Product\_id VARCHAR2(10) PRIMARY KEY,

Product\_name VARCHAR2(50),

Warranty\_period NUMBER(4, 1),

Supplier\_code VARCHAR2(10),

List\_price NUMBER(10, 2)

);

## -- Warehouse table

CREATE TABLE Warehouse (

Warehouse\_id VARCHAR2(10) PRIMARY KEY,

Warehouse\_name VARCHAR2(50),

Location VARCHAR2(50)

);

## -- Inventory table

CREATE TABLE Inventory (

Product\_id VARCHAR2(10),

Warehouse\_id VARCHAR2(10),

Qty\_on\_hand NUMBER(10),

PRIMARY KEY (Product\_id, Warehouse\_id),

FOREIGN KEY (Product\_id) REFERENCES Product(Product\_id),

FOREIGN KEY (Warehouse\_id) REFERENCES Warehouse(Warehouse\_id)

);

# Insert Data into the Tables

## -- insert data into product table

INSERT INTO Product VALUES ('PRD01', 'Air cooler', 5, 'SW\_00101', 25990.00);

INSERT INTO Product VALUES ('PRD02', 'Ceiling fan', 2, 'IN\_20034', 6690.00);

INSERT INTO Product VALUES ('PRD03', 'Dry iron', 0.5, 'IN\_20034', 2750.00);

INSERT INTO Product VALUES ('PRD04', 'Floor polisher', 1, NULL, 15690.00);

INSERT INTO Product VALUES ('PRD05', 'Stand fan', 0.5, 'SG\_34023', 18590.00);

INSERT INTO Product VALUES ('PRD06', 'Steam iron', 0.5, NULL, 2190.00);

INSERT INTO Product VALUES ('PRD07', 'Vacuum cleaner', 1.5, 'SG\_34023', 9990.00);

INSERT INTO Product VALUES ('PRD08', 'Water heater', 2, 'TW\_90846', 18890.00);

INSERT INTO Product VALUES ('PRD09', 'Water purifier', 2, 'US\_56798', 11850.00);

## -- insert data into warehouse table

INSERT INTO Warehouse VALUES ('ST001', 'Shop Warehouse', 'Colombo');

INSERT INTO Warehouse VALUES ('ST002', 'Large Zone', 'Rathmalana');

INSERT INTO Warehouse VALUES ('ST003', 'Retail Zone', 'Kiribathgoda');

INSERT INTO Warehouse VALUES ('ST004', 'Whole Supply', 'Colombo');

## -- insert data into inventory table

INSERT INTO Inventory VALUES ('PRD01', 'ST001', 30);

INSERT INTO Inventory VALUES ('PRD02', 'ST001', 45);

INSERT INTO Inventory VALUES ('PRD02', 'ST002', 20);

INSERT INTO Inventory VALUES ('PRD02', 'ST003', 10);

INSERT INTO Inventory VALUES ('PRD03', 'ST002', 50);

INSERT INTO Inventory VALUES ('PRD03', 'ST004', 50);

INSERT INTO Inventory VALUES ('PRD06', 'ST002', 75);

INSERT INTO Inventory VALUES ('PRD07', 'ST001', 15);

INSERT INTO Inventory VALUES ('PRD07', 'ST003', 10);

# Create a PL/SQL Package

CREATE OR REPLACE PACKAGE Inventory\_Pkg IS

-- Public variables

G\_total\_profit\_no\_discount NUMBER := 0;

G\_total\_profit\_with\_discount NUMBER := 0;

G\_discount\_percentage NUMBER := 0;

-- Public procedures and functions

PROCEDURE Compute\_Total\_Profit\_No\_Discount;

PROCEDURE Compute\_Total\_Profit\_With\_Discount(p\_discount\_percentage NUMBER);

FUNCTION Get\_Discounted\_Price(p\_product\_id VARCHAR2) RETURN NUMBER;

FUNCTION Get\_Discounted\_Price(p\_product\_id VARCHAR2, p\_discount\_percentage NUMBER) RETURN NUMBER;

-- Declare Get\_Warehouse\_Name in the package specification

PROCEDURE Get\_Warehouse\_Name(p\_warehouse\_id VARCHAR2, p\_name OUT VARCHAR2);

END Inventory\_Pkg;

/

## Warehouse Name (A) package Body

CREATE OR REPLACE PACKAGE BODY Inventory\_Pkg IS

-- Private procedure to get warehouse name

PROCEDURE Get\_Warehouse\_Name(p\_warehouse\_id VARCHAR2, p\_name OUT VARCHAR2) IS

BEGIN

SELECT UPPER(Warehouse\_name) INTO p\_name

FROM Warehouse

WHERE Warehouse\_id = p\_warehouse\_id;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('Warehouse ID not found.');

WHEN OTHERS THEN

RAISE;

END Get\_Warehouse\_Name;

### --warehouse name

SET SERVEROUTPUT ON;

DECLARE

v\_warehouse\_name VARCHAR2(100);

BEGIN

-- Call the procedure to fetch the warehouse name in uppercase

Inventory\_Pkg.Get\_Warehouse\_Name('ST001', v\_warehouse\_name);

-- Display the warehouse name

DBMS\_OUTPUT.PUT\_LINE('Warehouse Name in Uppercase: ' || v\_warehouse\_name);

END;

/

## Standard Discount Functions (B)

### -- Function to get discounted price (standard discounts)

FUNCTION Get\_Discounted\_Price(p\_product\_id VARCHAR2) RETURN NUMBER IS

v\_list\_price Product.List\_price%TYPE;

v\_discounted\_price NUMBER;

BEGIN

SELECT List\_price INTO v\_list\_price

FROM Product

WHERE Product\_id = p\_product\_id;

# Apply Discounts

### -- Apply standard discount based on price range

v\_discounted\_price := CASE

WHEN v\_list\_price < 6000 THEN v\_list\_price \* 0.88

WHEN v\_list\_price BETWEEN 6000 AND 12000 THEN v\_list\_price \* 0.84

ELSE v\_list\_price \* 0.76

END;

RETURN v\_discounted\_price;

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('Product not found.');

RETURN NULL;

WHEN OTHERS THEN

RAISE;

END Get\_Discounted\_Price;

## total profit without discounts (C)

### -- Procedure to compute total profit without discounts

PROCEDURE Compute\_Total\_Profit\_No\_Discount IS

CURSOR cur\_inventory IS

SELECT i.Product\_id, i.Qty\_on\_hand, p.List\_price

FROM Inventory i JOIN Product p ON i.Product\_id = p.Product\_id;

BEGIN

G\_total\_profit\_no\_discount := 0;

FOR rec IN cur\_inventory LOOP

G\_total\_profit\_no\_discount := G\_total\_profit\_no\_discount + (rec.List\_price \* rec.Qty\_on\_hand \* 0.1);

END LOOP;

END Compute\_Total\_Profit\_No\_Discount;

## Get Discounted Price (D)

### -- Overloaded function to get discounted price (custom discount)

FUNCTION Get\_Discounted\_Price(p\_product\_id VARCHAR2, p\_discount\_percentage NUMBER) RETURN NUMBER IS

v\_list\_price Product.List\_price%TYPE;

BEGIN

SELECT List\_price INTO v\_list\_price

FROM Product

WHERE Product\_id = p\_product\_id;

RETURN v\_list\_price \* (1 - p\_discount\_percentage);

EXCEPTION

WHEN NO\_DATA\_FOUND THEN

DBMS\_OUTPUT.PUT\_LINE('Product not found.');

RETURN NULL;

WHEN OTHERS THEN

RAISE;

END Get\_Discounted\_Price;

## total profit with discounts (E)

### -- Procedure to compute total profit with discounts

PROCEDURE Compute\_Total\_Profit\_With\_Discount(p\_discount\_percentage NUMBER) IS

CURSOR cur\_inventory IS

SELECT i.Product\_id, i.Qty\_on\_hand, p.List\_price

FROM Inventory i JOIN Product p ON i.Product\_id = p.Product\_id;

BEGIN

G\_total\_profit\_with\_discount := 0;

FOR rec IN cur\_inventory LOOP

G\_total\_profit\_with\_discount := G\_total\_profit\_with\_discount + (rec.List\_price \* (1 - p\_discount\_percentage) \* rec.Qty\_on\_hand \* 0.1);

END LOOP;

END Compute\_Total\_Profit\_With\_Discount;

END Inventory\_Pkg;

/

SET SERVEROUTPUT ON;

DECLARE

v\_discounted\_price NUMBER;

BEGIN

## Calling Package Methods (F)

### -- i. Print the total profit of the current inventory with no discounts.

Inventory\_Pkg.Compute\_Total\_Profit\_No\_Discount;

DBMS\_OUTPUT.PUT\_LINE('Total Profit With No Discount: ' || Inventory\_Pkg.G\_total\_profit\_no\_discount);

### -- ii. Print the total profit of the current inventory with 10% discount for all products.

Inventory\_Pkg.Compute\_Total\_Profit\_With\_Discount(0.10);

DBMS\_OUTPUT.PUT\_LINE('Total Profit With 10% Discount: ' || Inventory\_Pkg.G\_total\_profit\_with\_discount);

### -- iii. Print the total profit of the current inventory with 15% discount for all products.

Inventory\_Pkg.Compute\_Total\_Profit\_With\_Discount(0.15);

DBMS\_OUTPUT.PUT\_LINE('Total Profit With 15% Discount: ' || Inventory\_Pkg.G\_total\_profit\_with\_discount);

### -- iv. Print the discounted price of the product PRD01 when standard discount percentages are applied.

v\_discounted\_price := Inventory\_Pkg.Get\_Discounted\_Price('PRD01');

DBMS\_OUTPUT.PUT\_LINE('Discounted Price of PRD01 (Standard Discount): ' || v\_discounted\_price);

### -- v. Print the discounted price of the product PRD01 when a 20% discount is applied.

v\_discounted\_price := Inventory\_Pkg.Get\_Discounted\_Price('PRD01', 0.20);

DBMS\_OUTPUT.PUT\_LINE('Discounted Price of PRD01 (20% Discount): ' || v\_discounted\_price);

END;

/

# Outputs

Total Profit With No Discount: 197045

Total Profit With 10% Discount: 177340.5

Total Profit With 15% Discount: 167488.25

Discounted Price of PRD01 (Standard Discount): 19752.4

Discounted Price of PRD01 (20% Discount): 20792