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CS275 PL/SQL

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CS275 Direct Assignment 9

**Scripts:**

CREATE OR REPLACE PACKAGE STUDENT\_INFO

IS

-- student record

TYPE STUDENT\_DATA\_RECORD\_T IS RECORD

(STUDENT\_ID STUDENT.STUDENT\_ID%TYPE,

STUDENT\_FIRST\_NAME STUDENT.STUDENT\_FIRST\_NAME%TYPE,

STUDENT\_LAST\_NAME STUDENT.STUDENT\_LAST\_NAME%TYPE,

STUDENT\_TYPE STUDENT.FK\_STUDENT\_TYPE\_ID%TYPE);

--STUDENT\_REC STUDENT\_DATA\_RECORD\_T;

-- get student grade info

CURSOR STUDENT\_GRADE\_CUR IS

SELECT GRADE, FK\_STUDENT\_ID

FROM ENROLLMENT;

-- get general student data

PROCEDURE GET\_STUDENT\_DATA (STUDENT\_ID\_ARG VARCHAR2, STUDENT\_DATA OUT STUDENT\_DATA\_RECORD\_T);

-- calculate gpa

PROCEDURE CALCULATE\_STUDENT\_GPA (STUDENT\_DATA\_REC IN STUDENT\_DATA\_RECORD\_T, STUDENT\_GPA OUT NUMBER);

END STUDENT\_INFO;

-- PACKAGE BODY

CREATE OR REPLACE PACKAGE BODY STUDENT\_INFO

IS

-- get student data

PROCEDURE GET\_STUDENT\_DATA (STUDENT\_ID\_ARG VARCHAR2, STUDENT\_DATA OUT STUDENT\_DATA\_RECORD\_T)

IS

INVALID\_STUDENT\_TYPE EXCEPTION;

PRAGMA EXCEPTION\_INIT (INVALID\_STUDENT\_TYPE, -200004);

BEGIN

SELECT \*

INTO STUDENT\_DATA

FROM STUDENT

WHERE STUDENT.STUDENT\_ID = STUDENT\_ID\_ARG;

END GET\_STUDENT\_DATA;

-- calulate student GPA given record

PROCEDURE CALCULATE\_STUDENT\_GPA (STUDENT\_DATA\_REC IN STUDENT\_DATA\_RECORD\_T, STUDENT\_GPA OUT NUMBER)

IS

V\_STUDENT\_GPA\_POINTS NUMBER := 0;

V\_STUDENT\_GRADE\_COUNT NUMBER := 0;

BEGIN

-- loop through the grade cursor

-- use case statement to increment grade point counter based on letter

FOR GRADE IN STUDENT\_GRADE\_CUR

LOOP

IF GRADE.FK\_STUDENT\_ID = STUDENT\_DATA\_REC.STUDENT\_ID THEN

CASE SUBSTR(GRADE.GRADE, 1, 1)

WHEN 'A' THEN V\_STUDENT\_GPA\_POINTS := 4 + V\_STUDENT\_GPA\_POINTS;

WHEN 'B' THEN V\_STUDENT\_GPA\_POINTS := 3 + V\_STUDENT\_GPA\_POINTS;

WHEN 'C' THEN V\_STUDENT\_GPA\_POINTS := 2 + V\_STUDENT\_GPA\_POINTS;

WHEN 'D' THEN V\_STUDENT\_GPA\_POINTS := 1 + V\_STUDENT\_GPA\_POINTS;

ELSE NULL;

END CASE;

V\_STUDENT\_GRADE\_COUNT := 1 + V\_STUDENT\_GRADE\_COUNT;

END IF;

END LOOP;

-- return calculated GPA

STUDENT\_GPA := V\_STUDENT\_GPA\_POINTS / V\_STUDENT\_GRADE\_COUNT;

END CALCULATE\_STUDENT\_GPA;

END STUDENT\_INFO;

SELECT \* FROM STUDENT;

SELECT \* FROM ENROLLMENT;

set feedback on;

set serveroutput on;

DECLARE

STUDENT\_REC STUDENT\_INFO.STUDENT\_DATA\_RECORD\_T;

STUDENT\_GPA NUMBER;

BEGIN

STUDENT\_INFO.GET\_STUDENT\_DATA('L1164156', STUDENT\_REC);

STUDENT\_INFO.CALCULATE\_STUDENT\_GPA(STUDENT\_REC, STUDENT\_GPA);

DBMS\_OUTPUT.PUT\_LINE('Student GPA is: ' || STUDENT\_GPA);

END;

**Screenshots:**





