



الجامعة الإسلامية العالمية ماليزيا

INTERNATIONAL ISLAMIC UNIVERSITY OF MALAYSIA

Semester 1 2017/2018

INFO 4102 - ADVANCED DATABASE

PL/SQL program on database system

You are given two (2) database schemas that you can use for your work – Northwoods and HR. Choose one database schema and write a PL/SQL program to generate a report about a particular entity in the database. Example of a report:

- I. Northwoods - The number of courses and the list of courses enrolled by the student in each term, OR
- II. HR – The number of employees and the list of employees in each department.

Indicate which database schema you have selected and what you want to report on from the database schema selected. Include the description of the report that your PL/SQL program focuses on as part of the program comment at the top of the codes. It should look like the following:

/ Based on Northwoods database, this PL/SQL program generates the number of courses and the list of courses enrolled by the student in each term. The program prompts user to enter the student ID. */*

Your PL/SQL program should be complex enough to include at least:

- I. A prompt for user to enter a value (e.g. student_ID and employee_ID);
- II. An anonymous block; (2 pt.)
- III. A procedure; (2 pts.)
- IV. A function; (2 pts.)
- V. A cursor; and (1 pt.)
- VI. An exception handler that displays a user-defined error message. (1 pt.)

Design how you want the program results to be displayed. 2 *points* are allocated for program flow and logic, use of comments to briefly describe the procedure, function, cursor and exception, and spooled display of results.

Using the Aviaco Database, write the PL/SQL code to create a trigger that calculates and updates the respective aircraft hours flown column automatically in the aircraft table when a new charter trip is added in the charter table (i.e., the charter hours flown is added). Include the message in the trigger as in the expected output but ensure SET SERVEROUTPUT ON is issued in the session for the message to be displayed.

SPOOL the execution of the trigger to show 'Trigger created.' successfully and the output similar to below.

```
SQL> select * from aircraft;
AC_NU AC_HOURS_FLOWN
-----
1484P 3833.1
2289L 1243.8
2778V 5992.9
4278Y 647.3
SQL> insert into charter(char_trip, ac_number, char_hours_flown) values (10019, '4278Y', 10);
Charter trip added and aircraft hours flown updated.
1 row created.
SQL> select * from aircraft;
AC_NU  AC_HOURS_FLOWN
-----  -
1484P      3833.1
2289L      1243.8
2778V      5992.9
4278Y      657.3  ← Trigger has updated the aircraft hours flown
```

Submit 1 softcopy script file and 1 softcopy SPOOLED result file via iTaleem. SPOOLED results must demonstrate 2 types of result - result that does not invoke exception and another result that invokes exception.