CSC 355 Database Systems 602T/631
Assignment 6 (5/17)

Due 9:00:00pm, Wednesday 5/24.

Reading: The posted Lecture 14-16 Slides, (just skim through) Sections 9.3-9.4 of Ullman/Widom, and the posted PL/SQL Examples and Trigger Examples. If you want an additional PL/SQL reference, I recommend Chapters 1 through 6 of Oracle's PL/SQL User's Guide and Reference (link posted on course web site). For next week: Sections 8.1-8.2 and 8.5 of Ullman/Widom.

Problem:

Consider the table TRIP with attributes TID, TripDate, Miles, and Gallons, and the table INPUTS with attribute HighMPG, defined and populated by the following script:

```
DROP TABLE TRIP CASCADE CONSTRAINTS;
CREATE TABLE TRIP
(
       TID          INTEGER           PRIMARY KEY,
       TripDate     DATE,
       Miles        NUMBER(4,0),
       Gallons      NUMBER(3,1)
);
INSERT INTO TRIP VALUES (1, DATE '2022-09-30', 300, 12.0);
INSERT INTO TRIP VALUES (2, DATE '2022-10-30', 350, 13.0);
INSERT INTO TRIP VALUES (3, DATE '2022-10-31', 325, 9.5);
INSERT INTO TRIP VALUES (4, DATE '2022-12-15', 450, 15.0);
INSERT INTO TRIP VALUES (5, DATE '2022-01-31', 120, 4.5);
INSERT INTO TRIP VALUES (6, DATE '2023-02-20', 500, 16.5);
SELECT * FROM TRIP;
DROP TABLE INPUTS CASCADE CONSTRAINTS;
CREATE TABLE INPUTS
(
       HighMPG        NUMBER(2,0)
);
INSERT INTO INPUTS VALUES (30);
SELECT * FROM INPUTS;
COMMIT;
```

Write a script file Assignment6.sql containing just an anonymous PL/SQL block that will do the following:

First, read the high miles-per-gallon (MPG) cutoff from the INPUTS table, store it in a variable, and display its value. (You may assume that the INPUTS table contains exactly one record.)

Next, for each trip in the TRIP table, compute the miles-per-gallon for the trip (number of miles for the trip divided by the number of gallons used, rounded to two decimal places). Output each trip's information on a single line, showing the ID, date, and miles-per-gallon for the trip. Add the word HIGH to the end of each line in which the miles-per-gallon is greater than or equal to the high miles-per-gallon cutoff.

Also compute the overall miles-per-gallon for all of the trips together (total miles divided by total gallons, rounded to two decimal places) and the number of trips that reached the high miles-per-gallon cutoff, and report those values at the end. For the sample data given, the output should be:

```
High MPG cutoff: 30

Trip 1: 30-SEP-22 25
Trip 2: 30-OCT-22 26.92
Trip 3: 31-OCT-22 34.21 HIGH
Trip 4: 15-DEC-22 30 HIGH
Trip 5: 31-JAN-22 26.67
Trip 6: 20-FEB-23 30.3 HIGH

Overall MPG: 29.01
Trips with high MPG: 3
```

(Of course, this is just an example – your anonymous PL/SQL procedure should work in general, not just for the given sample data.)

Include a comment at the top of your script file including your name, the course number and section, the assignment and problem number, and the date of submission, e.g.:

```
/*
YourName
CSC 355 Section 602T/631
Assignment 6
SubmissionDate, 2023
*/
```

Submit your script file Assignment6.sql to the Assignment 6 dropbox. You do not have to submit any output.

Remarks:

1. You may cut and paste the script I have supplied into SQLDeveloper to set up the tables so that you can test your code, but your submitted answer should include only the code you have written to solve the problem – not any of my code. Be sure that your submitted script file is in a plain text format that can be run and tested in SQLDeveloper.

2. It is always your responsibility to make sure that the files you have uploaded are readable and in the correct locations. You should check that you can successfully download your submitted files back from the course web site immediately after submitting them to be sure that they have been uploaded correctly.

3. As is the case for every assignment, all work must be completed individually – no collaboration between students or sharing of answers between students is permitted. Do not post this assignment to any website in search of answers, and do not consult posted answers on any website while completing the assignment. Your assignment must be your own individual work.

Eric J. Schwabe – 05/17/23