CSCI235 Database Systems
Laboratory Task 1

Scope

This laboratory includes the tasks related to implementation of advanced SQL statements and PL/SQL Trigger.

More implementation related information can be found in "How to … ?" Cookbook available through Moodle or at:
`http://www.uow.edu.au/~jrg/235/COOKBOOK`.

The outcomes of the laboratory work are due by **Friday, 17 April 2020, 11.55 pm (sharp).**

This laboratory contributes to 2% of the total evaluation in the subject.

A submission procedure is explained at the end of specification.

This laboratory consists of 1 task and specification of each task starts from a new page.

It is recommended to solve the problems before attending a laboratory class in order to efficiently use supervised laboratory time.

Only one submission of the outcomes of Laboratory 1 is allowed and only one submission per student is accepted. Please make sure that you submit the correct files.

A submission that contains an incorrect file attached is treated as a correct submission with all consequences coming from the evaluation of the file attached.

A submission marked by Moodle as "late" is treated as a late submission no matter how many seconds it is late.

All files left on Moodle in a state "`Draft(not submitted)`" will not be evaluated.

A policy regarding late submissions is included in CSCI235 Subject Outline.

Prologue

Download and unzip a file `Lab1.zip`. You should get the following files: `dbcreate.sql` and `dbdrop.sql`.

Execute a script `dbcreate.sql` to create the relational tables of a sample database used in this laboratory. The sample database contains information about the applicant, skills, positions, applications, skills possessed by applicants, skills needed by the positions.

You can use a script `dbdrop.sql` to drop all relational tables created by `dbcreate.sql` later. Do not drop the relational tables now.

Tasks

Task 1 Triggers (2 marks, 1 mark each)

(1) Implement and comprehensively test a **`statement trigger`** that verifies the following consistency constraint.

"Maximum number of subjects offered in a session is 7".

```
Hint: use the following SQL statement to test:
INSERT INTO RunningSubject VALUES ('CSCI236', 'AUTUMN', 2015, 150);
```

(2) Implement and comprehensively test a **`row trigger`** that verifies the following consistency constraint.

"When inserting a new staff record, the staff number must be continuous".

"Continuous" in staff number means, for example, that the first number must have a number 1, the second number must have a number 2, and each next number must have a number greater by one than a number of the previous position.

When ready save your `CREATE TRIGGER` statement and all SQL statements that comprehensively test a trigger in a script `L1.sql`.

Comprehensive testing means that the trigger must reject SQL statements that violate the consistency constraint and accept SQL statements that do not violate the consistency constraint. It is a part of your task to find what SQL statements should be tested. Whenever SQL statement violates the consistency constraint a trigger must return `ORA-…` error message. Use a procedure `RAISE_APPLICATION_ERROR(-20001,'YOUR MESSAGE HERE')` to return `ORA-…` error message. If SQL statement does not violate the consistency constraint then a trigger must return no messages.

Your report must include listing of all SQL statement processed. To achieve that put the following SQL*Plus commands:

```
SET ECHO ON
SET FEEDBACK ON
```

at the beginning of SQL script `L1.sql`.

Deliverables

Submit SQL script `L1.sql`. The report MUST have no errors other than reported by a trigger and the report MUST list all SQL statements processed. The report MUST include ONLY SQL statements and control statements that implement the specifications of Task 1 and NO OTHER statements.

A report that contains no listing of executed SQL statements scores no marks!

A report that contains any kind of processing errors other than reported by a trigger scores no marks!

Submission of a file with a different name and/or different extension and/or different type scores no marks!

It is expected that all tasks included within **Laboratory 1** will be solved **individually without any cooperation** with the other students. If you have any doubts, questions, etc. please consult your lecturer or tutor during lab classes or office hours. Plagiarism will result in a **FAIL** grade being recorded for that assessment task.

End of specification