

COMP 3311: Database Management Systems

Lab 6 Exercise: Oracle Indexing and PL/SQL Exceptions

HOW TO GET THE CREDIT FOR THIS LAB

1. **Download** the zipped folder Lab6Exercise.zip from the **Oracle Indexing and PL/SQL Exceptions** entry of the Lab Schedule course webpage and unzip it. The folder contains the script files Lab6.sql, Lab6CgaCalculations.sql, Lab6DuplicateEmailCheck.sql and Lab6TestQueries.sql.
2. **Place** your InsertMyself.sql script file constructed in the previous lab inside the Lab6Exercise folder.
3. **Modify** your InsertMyself.sql script file so that it creates a unique index on the attribute email of the Student table.
4. **Complete** the PL/SQL procedure in the Lab6DuplicateEmailCheck.sql script file to check whether a unique index has been created on the attribute email of the Student table. If an attempt is made to insert a Student record with a duplicate email, then output the message:

Tried to insert duplicate email into the Student table.

Note: There is a predefined exception to check for this error.

5. **Complete** the PL/SQL procedure in the Lab6CgaCalculations.sql script file to do the following additional tasks.
 - a. If a student has not enrolled in any course, then he/she will not have any related EnrollsIn tuples. In this case, when the student's CGA is calculated, the denominator will be zero and a divide-by-zero error will be raised. Therefore, add an exception handler that checks whether a divide-by-zero error occurs when calculating a student's CGA.

Note: You must use the predefined exception ZERO_DIVIDE to check for this error. If a divide-by-zero error occurs, then output the following message:

<student name> (*<student id>*) is not enrolled in any course.

You should also ensure that if a divide-by-zero error occurs, then the student's CGA is not updated (i.e., it remains set to null). **Note:** This exception should be handled in a sub block.

- b. If the CGA is less than or equal to 2, output the following message:

*** Low CGA alert for *<student name>* (*<student id>*) with CGA=*<cga>*.

In the preceding messages, you should replace *<student name>* with the concatenation of the first and last name of the student, *<student id>* with the student's student id and *<cga>* with the student's calculated CGA.

6. **Execute** the Lab6TestQueries.sql script file inside the Lab6Exercise folder in SQL Developer.

WHAT TO SUBMIT

1. Your completed Lab6DuplicateEmailCheck.sql script file.
2. A screenshot of the SQL Developer window or a text file that shows the result of running the Lab6TestQueries.sql script file in the Script Output pane as shown in Figure 1.

HOW TO SUBMIT

By 11:59 p.m. on Friday of the current week, upload your Lab6DuplicateEmailCheck.sql script file and the screenshot or text file showing the result of running the Lab6TestQueries.sql script file to Canvas by clicking on "Lab 6" in the Assignments section of Canvas, and then clicking the "Submit Assignment" button. To check your submission, click the "Submission Details" button on the right side. For help, click the "Help" button at the top-right of Canvas.

```

Script Output x
Task completed in 7.574 seconds

### Tried to insert duplicate email into the Student table.

PL/SQL procedure successfully completed.

*** Low CGA alert for Julius Caesar (14567890) with CGA=1.9.
### Lazy Lazy (99987654) is not enrolled in any course.
*** Low CGA alert for Donald Trump (26184444) with CGA=1.49.
*** Low CGA alert for Ferris Bueller (66666666) with CGA=1.64.
>>> Typical Student (11111111) with CGA=3.57 is an honours student.

PL/SQL procedure successfully completed.

STUDENTI FIRSTNAME LASTNAME CGA
-----
99987654 Lazy Lazy 3.42
11111111 Typical Student 3.57
26186666 Warren Buffet 3.42
13556789 Legolas Greenleaf 3.36
13456789 Ariana Grande 2.83
13455789 Harry Potter 2.76
15678989 Maria Callas 2.73
15456789 Leonardo Da Vinci 2.72
16789012 Robert Redford 2.57
15678901 Albert Einstein 2.56
26184624 Bruce Wayne 2.48
14567890 Julius Caesar 1.9
66666666 Ferris Bueller 1.64
26184444 Donald Trump 1.49

14 rows selected.

STUDENTI FIRSTNAME LASTNAME CGA
-----
14567890 Julius Caesar 1.9
66666666 Ferris Bueller 1.64
26184444 Donald Trump 1.49

```

Your
information
should be
shown in
these lists.

Figure 1: Example Script Output pane showing the result of executing the Lab6TestQueries.sql script file.