Database Systems Project 2 - Student Registration System

This project has been done by:

Priyanka Prakash Tanpure.

B00821027

This report entails summary of all the tools used, PL SQL code and how to execute this code.

Tools:

Database used: Oracle 12c

Notepad++ : To write java code

CMD: To execute code

remote.cs: to execute code, for demo

PL SQL Objects:

Package:

1. project2procedurefunction: It contains all the functions and procedures created in this project

Procedures:

1. show_students: It displays all the tuples present in students table when you execute the procedure.
2. show_courses: It displays all the tuples present in courses table when you execute the procedure.
3. show_prerequisites: It simply displays all the tuples present in prerequisites table when you execute the procedure.
4. show_classes: It displays all the tuples present in classes table when you execute the procedure.

5. show_enrollments: It displays all the tuples present in enrollments table when you execute the procedure.
6. show_logs: It displays all the tuples present in logs table when you execute the procedure.
7. procedure add_student(student_id in char,first_name in varchar2,last_name in varchar2,student_status in varchar2,student_gpa in number, student_email in varchar2) : Procedure to add student into students table
8. procedure studentclass_info(student_id in char) : procedure to display the student details corresponding to student_id(i.e sid) entered and also student's class info.
9. procedure prerequisite_info(departmentcode in varchar2,coursenumber in number): It displays all the direct and indirect prerequisite courses of the course you provide.
10. procedure class_info(s_classid in char) : displays class info and also the details of students enrolled in this class.
11. procedure enrollment(student_id in char,c_classid in char): It is to enroll student in class where sid and classid are given as input and if it matches all the required criteria then student is successfully enrolled into the class otherwise the failing criteria i.e message is display. On successful enrollment, class size is increased, and entry is inserted in logs table.
12. procedure drop_student_from_class(student_id in char,c_classid in char): It is to remove student from a class where sid and classid are taken as input and if all the checks matches, student is successfully removed otherwise error message is displayed. On successful deletion, class size is decreased, and entry is inserted in logs table.
13. procedure delete_student(student_id in char): It is to delete a student from a system where sid is provided as input. Which in turn delete the entry from enrollments table and entry inserted in log table.

Functions and procedures created to use them in java/jdbc code. (Which send ref cursor and a show_message varchar as and when required to display output from java program)

1. function getstudents return refcur: It is a function is same as show_students procedure which will return students tuple and are displayed as output in java program.

2. function getcourses return refcur: It is a function is same as show_courses procedure which will return courses tuple and are displayed as output in java program.
3. function getenrollment return refcur: It is a function same as show_enrollments procedure which will return enrollments tuple and are displayed as output in java program.
4. function getclasses return refcur: It is a function same as show_classes procedure which will return classes tuple and are displayed as output in java program.
5. function getprereq return refcur: It is a function same as show_prerequisites procedure which will return prerequisites tuple and are displayed as output in java program.
6. function getlogs return refcur: It is a same as show_logs procedure which will return logs tuple and are displayed as output in java program.
7. procedure j_studentclass_info(student_id in char, show_message OUT varchar2, sc_recordset OUT SYS_REFCURSOR) : It is a same as studentclass_info procedure which will return logs tuple and are displayed as output in java program.
8. procedure j_prerequisite_info(departmentcode in varchar2,coursenumber in number, p_recordset OUT SYS_REFCURSOR,show_message OUT varchar2) : It is a same as prerequisite_info procedure which will return logs tuple and are displayed as output in java program.
9. procedure j_class_info(s_classid in char, show_message OUT varchar2, c_recordset OUT SYS_REFCURSOR) : It is a same as class_info procedure which will return logs tuple and are displayed as output in java program.
10. procedure j_enrollment(student_id in char,c_classid in char, show_message OUT varchar2) : It is a same as enrollment procedure which will return logs tuple and are displayed as output in java program.
11. procedure j_drop_student_from_class(student_id in char,c_classid in char, show_message1 OUT varchar2, show_message2 OUT varchar2, show_message3 OUT varchar2) : It is a same as drop_student_from_class procedure which will return logs tuple and are displayed as output in java program.

12. procedure j_delete_student(student_id in char, show_message OUT varchar2) : It is a same as delete_student procedure which will return logs tuple and are displayed as output in java program.

Sequence:

1. log_number: It is 7 digit id for auto-increment and auto – insert in logs table when any new entry is made to the table.

Triggers:

1. t_after_add_student : entry inserted into log table.
2. t_after_enroll : class_size increses by 1 and entry inserted into log table.
3. t_before_delete_student : entry deleted from enrollments tabe.
4. log_entry_after_delete_stud : entry inserted into log table.
5. t_after_delete_enroll: decreases class size by 1 and insert entry into log table.
6. t_before_delete_class : delete entry from enrollments table

How to run code:

1. Open remote.cs. Go to folder where file Try.java (source code) is kept.
2. Change unsername and password in UserInterface1.java file.
3. javac -cp /usr/lib/oracle/18.3/client64/lib/ojdbc8.jar UserInterface1.java -- compile java file
4. java -cp /usr/lib/oracle/18.3/client64/lib/ojdbc8.jar UserInterface1.java -- execute code

After above commands, on correct authentication, a text-based menu driven program will be returned which will take user input and return output accordingly. 1-6 option contains sub menu also. It is a continuous loop unless sql exception is thrown or user choose to exit.

```
-bash-4.2$ javac -cp /usr/lib/oracle/18.3/client64/lib/ojdbc8.jar UserInterface1.java
-bash-4.2$ java -cp /usr/lib/oracle/18.3/client64/lib/ojdbc8.jar UserInterface1.java
################################################################################################
-----------------Main Menu---------------------------

Please select required option to perform action on specific table

1.Students
2.Courses
3.Prerequisites
4.Classes
5.Enrollments
6.Logs
0.exit

################################################################################################
```