

PL/SQL Implementation (50 points)

1. (2 points) check sequence – insert new log record
2. (3 points) check procedure – select separately from six tables: students, courses, prerequisites, classes, enrollments, logs
3. (2 points) check procedure – insert student
4. (3 points) check procedure – list classes that the student has taken (with sid provided as a parameter)
 - If the student is not in the table, report “The sid is invalid”
 - If the student has not taken any courses, report “The student has not taken any courses”
5. (3 points) check procedure – list all direct and indirect prerequisite courses for a given course (with dept_code and course_no)
 - If course C1 has course C2 as a prerequisite, C2 is a direct prerequisite.
 - If C2 has course C3 as a prerequisite, then C3 is an indirect prerequisite for C1. Please also note that indirect prerequisites can be more than two levels away.
6. (3 points) check procedure – list students for a given class (with classid provided as a parameter)
 - If the class is not in the table, report “The cid is invalid”
 - If no student has taken the classes, report “No student is enrolled in the classes”
7. (12 points) check procedure – enroll a student into a class (with sid and classid provided as a parameter)
 - If the student is not in the table, report “The sid is invalid.”
 - If the class is not in the table, report “The classid is invalid.”
 - If the enrollment of the student into a class would cause “class_size > limit”, reject the enrollment and report “The class is closed.”
 - If the student is already in the class, report “The student is already in the class.”
 - If the student is already enrolled in two other classes in the same semester and the same year, report “You are overloaded.” and allow the student to be enrolled.
 - If the student is already enrolled in three other classes in the same semester and the same year, report “Students cannot be enrolled in more than three classes in the same semester.” and reject the enrollment.
 - If the student has not completed the required prerequisite courses with minimum grade “C”, reject the enrollment and report “Prerequisite courses have not been completed.”
 - After successfully enrolling a student into a class, the size of the corresponding class should be updated accordingly (using trigger).
8. (9 points) check procedure – drop a student drop a class – delete a tuple from the enrollments table (with sid and classid provided as parameters)
 - If the student is not in the students table, report “The sid is invalid.”
 - If the classid is not in the classes table, report “The classid is invalid.”
 - If the student is not enrolled in the class, report “The student is not enrolled in the class.”
 - If dropping the student from the class would cause a violation of the prerequisite requirement for another class, then reject the drop attempt and report “The drop is not permitted because another class uses it as a prerequisite.”
 - If the class is the last class for the student, report “This student is not enrolled in any classes.”
 - If the student is the last student in the class, report “The class now has no students.”
 - After the drop and all updates caused by the drop should be implemented using trigger(s).
9. (5 points) check procedure – delete a student from the students table (with sid provided as a parameter)
 - If the student is not in the students table, report “The sid is invalid.”
 - When a student is deleted, all tuples in the enrollments table involving the student should also be deleted (use a trigger to implement this) and this will trigger a number of actions as described in #7.
10. (8 points) check triggers – adding tuples to the logs table whenever student is added or deleted, and when a student is enrolled or dropped from class.

Interface (35 points)

1. (30 points) user-friendly menu-driven interface with passing parameters
2. (5 points) notifications (messages) should be generated by Java program, not by dbms_output.

Documentation (15 points)

1. (9 points) design document
 - Explanation of the usage and objective of each procedure, function and trigger
 - Relationship among different objects (procedure, function and trigger)
2. (6 points) in-line comments of the code