

Q1 EXPLANATION

1	<p>A trigger is created to manage the requirements.</p> <p>Number of courses already registered in the semester is checked by querying the registration table.</p> <p>Credits of the courses already registered for in the same semester are checked by joining the course table and the registration table.</p> <p>For checking if a student secured a grade greater than or equal to 6 in all the prerequisite courses for a course, the following is considered:</p> <p>A: set of prerequisite courses for a given course</p> <p>B: set of courses the student has secured a grade greater than or equal to 6</p> <p>To validate the given condition, we check if A is a proper subset of B.</p> <p>For checking if a student completed all the prerequisite courses for a course, the following is considered:</p> <p>A: set of prerequisite courses for a given course</p> <p>B: set of courses the student has completed</p> <p>To validate the given condition, we check if A is a proper subset of B.</p>
2	<p>A trigger is created to manage the requirements.</p> <p>For a given course and a given student, we get the total number of classes commenced and attended by querying the attendance table.</p> <p>If there is any discrepancy found with the above values as per the given condition, the student record is entered into corresponding tables and deleted from the registration table.</p>
3	<p>A function is created to manage the requirements.</p> <p>Given a student and a semester, we join the registration table (to know the semester), course table (to know the credits) and the grade table (to know the grade) to find the sgpa of the student for that semester.</p>

4	<p>A view is created to manage the requirements.</p> <p>For all students, sgpa is stored in the view.</p> <p>We join the student table (to know the name), grade table (to know the grade and courses), course table (to know the credits for each course) and find the sgpa for every student in each semester.</p> <p>The above view is used to find the list of toppers for each semester.</p>
5	<p>A view is created to manage the requirements.</p> <p>For all students, cgpa is stored in the view.</p> <p>We join the student table (to know the name) and the sgpa_list view created in the above question to find the cgpa for each student.</p>
6	<p>The above view is used to find the list of toppers for each batch.</p>
7	<p>We join the student table (to know the department) and the view cgpa_list created in the above question to find the department-wise count of students who secured a cgpa of greater than 9.</p>

Q1 OUTPUT

```

INSERT INTO registration VALUES (8, 12, 2)
*
ERROR at line 1:
ORA-20124: Registration denied : total credits in the semester can not exceed
24
ORA-06512: at "SYSTEM.CHECK_T", line 29
ORA-04088: error during execution of trigger 'SYSTEM.CHECK_T'

INSERT INTO registration VALUES (8, 19, 2)
*
ERROR at line 1:
ORA-20124: Registration denied : grade in all prerequisite courses should be
atleast 6
ORA-06512: at "SYSTEM.CHECK_T", line 18
ORA-04088: error during execution of trigger 'SYSTEM.CHECK_T'

```

```
INSERT INTO registration VALUES (8, 19, 2)
*
ERROR at line 1:
ORA-20124: Registration denied : grade in all prerequisite courses should be
atleast 6
ORA-06512: at "SYSTEM.CHECK_T", line 18
ORA-04088: error during execution of trigger 'SYSTEM.CHECK_T'
```

```
INSERT INTO registration VALUES (8, 13, 2)
*
ERROR at line 1:
ORA-20124: Registration denied : not completed in all prerequisite courses
required
ORA-06512: at "SYSTEM.CHECK_T", line 25
ORA-04088: error during execution of trigger 'SYSTEM.CHECK_T'
```

```
INSERT INTO registration (roll, courseno, semester_no) VALUES (8, 18, 2)
*
ERROR at line 1:
ORA-20124: Registration denied : total courses in the semester can not exceed 6
ORA-06512: at "SYSTEM.CHECK_T", line 32
ORA-04088: error during execution of trigger 'SYSTEM.CHECK_T'
```

ROLL	ADATE	COURSENO
8	10-JAN-20	14
8	15-JAN-20	14

ROLL	ADATE	COURSENO
8	15-JAN-20	14

Function created.

Enter value for roll_no: 2

old 5: roll_no := &roll_no;

new 5: roll_no := 2;

Enter value for sem_no: 2

old 6: sem_no := &sem_no;

new 6: sem_no := 2;

The grade for the requested student in the specific semester is 7

PL/SQL procedure successfully completed.

View created.

ROLL	NAME	SEMESTER_NO	SGPA	BATCH
5	Mike Tyson	2	9.67	2020
6	Donald Trump	1	9	2021
5	Mike Tyson	1	9	2020
8	Ravichandran Ashwin	1	9	2020

Enter value for roll_no: 1

old 6: roll_no := &roll_no;

new 6: roll_no := 1;

Enter value for sem_no: 2

old 7: sem_no := &sem_no;

new 7: sem_no := 2;

The grade for the requested student in the specific semester is 7

PL/SQL procedure successfully completed.

View created.

ROLL	NAME	CGPA	BATCH
4	Jack Lite	7.5	2020
2	James Musk	6.5	2020
5	Mike Tyson	9.34	2020
8	Ravichandran Ashwin	7	2020
1	Andrew Pavlo	7.72	2020
3	Richard Jackson	7.65	2020
7	Joe Biden	8	2021
6	Donald Trump	9	2021

8 rows selected.

ROLL	NAME	CGPA	BATCH
6	Donald Trump	9	2021
5	Mike Tyson	9.34	2020

DE	STRENGTH	BATCH
ME	1	2020