Activity based

Project 2 Report on

Database Management Systems

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Implement DDL and DML Operations on Student Registration and Grading System

Project Statement:

Implement DDL and DML Operations on Student Registration and Grading System

Use all applicable operations based on ER diagram

Mention about DDL and DML commands applicable to given problem statement

DDL (Data Definition Language)

1) CREATE: Used to create database objects such as tables, indexes, views, and schemas.

Student Table:

```
mysql> CREATE TABLE student (
    ->     student_id INT PRIMARY KEY,
    ->     name VARCHAR(50),
    ->     email VARCHAR(50),
    ->     phone VARCHAR(20));
Query OK, 0 rows affected (0.09 sec)
```

```
mysql> select *from student;
+------------+------------------+------------------------------+--------------------------+
| student_id | name             | email                        | phone                    |
+------------+------------------+------------------------------+--------------------------+
|          1 | John Doe         | john.doe@example.com         | 123-456-7890,987-654-3210 |
|          2 | Jane Smith       | jane.smith@example.com       | 555-123-4567,555-987-6543 |
|          3 | Bob Johnson      | bob.johnson@example.com      | 999-888-7777,333-222-1111 |
|          4 | Alice Johnson    | alice.johnson@example.com    | 111-222-3333,444-555-6666 |
|          5 | Charlie Brown    | charlie.brown@example.com    | 444-555-6666,777-888-9999 |
|          6 | Emily Davis      | emily.davis@example.com      | 123-987-6543,321-789-4560 |
|          7 | Michael Smith    | michael.smith@example.com    | 555-111-2222,999-888-7777 |
|          8 | Sophia Taylor    | sophia.taylor@example.com    | 333-444-5555,666-777-8888 |
|          9 | William Anderson | william.anderson@example.com | 123-456-7890,987-654-3210 |
|         10 | Emma Miller      | emma.miller@example.com      | 111-222-3333,444-555-6666 |
|         11 | Daniel Wilson    | daniel.wilson@example.com    | 444-555-6666,777-888-9999 |
|         12 | Olivia Brown     | olivia.brown@example.com     | 123-987-6543,321-789-4560 |
|         13 | Ethan Davis      | ethan.davis@example.com      | 555-111-2222,999-888-7777 |
|         14 | Ava White        | ava.white@example.com        | 333-444-5555,666-777-8888 |
|         15 | Liam Johnson     | liam.johnson@example.com     | 222-333-4444,777-888-9999 |
|         16 | Sophie Miller    | sophie.miller@example.com    | 111-222-3333,444-555-6666 |
|         17 | Noah Wilson      | noah.wilson@example.com      | 333-444-5555,666-777-8888 |
|         18 | Emma Brown       | emma.brown@example.com       | 222-333-4444,777-888-9999 |
|         19 | Oliver Smith     | oliver.smith@example.com     | 111-222-3333,444-555-6666 |
|         20 | Amelia Davis     | amelia.davis@example.com     | 333-444-5555,666-777-8888 |
+------------+------------------+------------------------------+--------------------------+
20 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE grading_system (
    ->     assignment_name VARCHAR(50),
    ->     marks INT,
    ->     percentage FLOAT GENERATED ALWAYS AS (marks / 100.0) STORED
    -> );
Query OK, 0 rows affected (0.04 sec)
```

```
mysql>    SELECT* FROM grading_system;
+--------------------------+-------+------------+
| assignment_name          | marks | percentage |
+--------------------------+-------+------------+
| Essay on History         |    85 |       0.85 |
| Programming Exercise     |    92 |       0.92 |
| Research Paper           |    78 |       0.78 |
| Web Development Project  |    88 |       0.88 |
| Mathematics Problem Set  |    95 |       0.95 |
+--------------------------+-------+------------+
5 rows in set (0.00 sec)
```

Grading System Table:

Registration Table:

```
mysql> CREATE TABLE registration (
    ->     course_id INT,
    ->     student_id INT,
    ->     registration_date DATE,
    ->     FOREIGN KEY (course_id) REFERENCES course(course_id),
    ->     FOREIGN KEY (student_id) REFERENCES student(student_id)
    -> );
Query OK, 0 rows affected (0.09 sec)
```

```
mysql>    SELECT* FROM registration;
+-----------+------------+-------------------+
| course_id | student_id | registration_date |
+-----------+------------+-------------------+
|         1 |          1 | 2024-03-01        |
|         2 |          2 | 2024-03-02        |
|         3 |          3 | 2024-03-03        |
|         4 |          4 | 2024-03-04        |
|         5 |          5 | 2024-03-05        |
|         6 |          6 | 2024-03-06        |
|         7 |          7 | 2024-03-07        |
|         8 |          8 | 2024-03-08        |
|         9 |          9 | 2024-03-09        |
|        10 |         10 | 2024-03-10        |
|        11 |         11 | 2024-03-11        |
|        12 |         12 | 2024-03-12        |
|        13 |         13 | 2024-03-13        |
|        14 |         14 | 2024-03-14        |
|        15 |         15 | 2024-03-15        |
+-----------+------------+-------------------+
15 rows in set (0.00 sec)
```

2) ALTER: Modifies the structure of existing database objects, such as adding or removing.

```
mysql> ALTER TABLE student
    -> ADD COLUMN newcolumn INT;
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>     select* from student;
+------------+------------------+-----------------------------+---------------------------+-----------+
| student_id | name             | email                       | phone                     | newcolumn |
+------------+------------------+-----------------------------+---------------------------+-----------+
|          1 | John Doe         | john.doe@example.com        | 123-456-7890,987-654-3210 |      NULL |
|          2 | Jane Smith       | jane.smith@example.com      | 555-123-4567,555-987-6543 |      NULL |
|          3 | Bob Johnson      | bob.johnson@example.com     | 999-888-7777,333-222-1111 |      NULL |
|          4 | Alice Johnson    | alice.johnson@example.com   | 111-222-3333,444-555-6666 |      NULL |
|          5 | Charlie Brown    | charlie.brown@example.com   | 444-555-6666,777-888-9999 |      NULL |
|          6 | Emily Davis      | emily.davis@example.com     | 123-987-6543,321-789-4560 |      NULL |
|          7 | Michael Smith    | michael.smith@example.com   | 555-111-2222,999-888-7777 |      NULL |
|          8 | Sophia Taylor    | sophia.taylor@example.com   | 333-444-5555,666-777-8888 |      NULL |
|          9 | William Anderson | william.anderson@example.com| 123-456-7890,987-654-3210 |      NULL |
|         10 | Emma Miller      | emma.miller@example.com     | 111-222-3333,444-555-6666 |      NULL |
|         11 | Daniel Wilson    | daniel.wilson@example.com   | 444-555-6666,777-888-9999 |      NULL |
|         12 | Olivia Brown     | olivia.brown@example.com    | 123-987-6543,321-789-4560 |      NULL |
|         13 | Ethan Davis      | ethan.davis@example.com     | 555-111-2222,999-888-7777 |      NULL |
|         14 | Ava White        | ava.white@example.com       | 333-444-5555,666-777-8888 |      NULL |
|         15 | Liam Johnson     | liam.johnson@example.com    | 222-333-4444,777-888-9999 |      NULL |
|         16 | Sophie Miller    | sophie.miller@example.com   | 111-222-3333,444-555-6666 |      NULL |
|         17 | Noah Wilson      | noah.wilson@example.com     | 333-444-5555,666-777-8888 |      NULL |
|         18 | Emma Brown       | emma.brown@example.com      | 222-333-4444,777-888-9999 |      NULL |
|         19 | Oliver Smith     | oliver.smith@example.com    | 111-222-3333,444-555-6666 |      NULL |
|         20 | Amelia Davis     | amelia.davis@example.com    | 333-444-5555,666-777-8888 |      NULL |
+------------+------------------+-----------------------------+---------------------------+-----------+
20 rows in set (0.00 sec)
```

3) DROP: Deletes database objects like tables, indexes, or views.

```
mysql> DROP TABLE IF EXISTS grades;
Query OK, 0 rows affected, 1 warning (0.01 sec)
```

4) TRUNCATE: Removes all records from a table, but retains the structure for future use.

```
mysql> TRUNCATE TABLE grades;
Query OK, 0 rows affected (0.05 sec)

mysql>     select* from grades;
Empty set (0.00 sec)
```

5) RENAME: Renames a database object.

```
mysql> -- Rename the grades table to a new name, for example, "student_grades"
mysql> RENAME TABLE grades TO student_grades;
Query OK, 0 rows affected (0.04 sec)
```

DML (Data Manipulation Language):

1) SELECT: Retrieves data from one or more tables.

```
mysql> select *from student;
+------------+-----------------+-----------------------------+--------------------------+
| student_id | name            | email                       | phone                    |
+------------+-----------------+-----------------------------+--------------------------+
|          1 | John Doe        | john.doe@example.com        | 123-456-7890,987-654-3210 |
|          2 | Jane Smith      | jane.smith@example.com      | 555-123-4567,555-987-6543 |
|          3 | Bob Johnson     | bob.johnson@example.com     | 999-888-7777,333-222-1111 |
|          4 | Alice Johnson   | alice.johnson@example.com   | 111-222-3333,444-555-6666 |
|          5 | Charlie Brown   | charlie.brown@example.com   | 444-555-6666,777-888-9999 |
|          6 | Emily Davis     | emily.davis@example.com     | 123-987-6543,321-789-4560 |
|          7 | Michael Smith   | michael.smith@example.com   | 555-111-2222,999-888-7777 |
|          8 | Sophia Taylor   | sophia.taylor@example.com   | 333-444-5555,666-777-8888 |
|          9 | William Anderson | william.anderson@example.com | 123-456-7890,987-654-3210 |
|         10 | Emma Miller     | emma.miller@example.com     | 111-222-3333,444-555-6666 |
|         11 | Daniel Wilson   | daniel.wilson@example.com   | 444-555-6666,777-888-9999 |
|         12 | Olivia Brown    | olivia.brown@example.com    | 123-987-6543,321-789-4560 |
|         13 | Ethan Davis     | ethan.davis@example.com     | 555-111-2222,999-888-7777 |
|         14 | Ava White       | ava.white@example.com       | 333-444-5555,666-777-8888 |
|         15 | Liam Johnson    | liam.johnson@example.com    | 222-333-4444,777-888-9999 |
|         16 | Sophie Miller   | sophie.miller@example.com   | 111-222-3333,444-555-6666 |
|         17 | Noah Wilson     | noah.wilson@example.com     | 333-444-5555,666-777-8888 |
|         18 | Emma Brown      | emma.brown@example.com      | 222-333-4444,777-888-9999 |
|         19 | Oliver Smith    | oliver.smith@example.com    | 111-222-3333,444-555-6666 |
|         20 | Amelia Davis    | amelia.davis@example.com    | 333-444-5555,666-777-8888 |
+------------+-----------------+-----------------------------+--------------------------+
20 rows in set (0.00 sec)
```

```
mysql>    SELECT* FROM grading_system;
+---------------------------+-------+------------+
| assignment_name           | marks | percentage |
+---------------------------+-------+------------+
| Essay on History          |    85 |       0.85 |
| Programming Exercise      |    92 |       0.92 |
| Research Paper            |    78 |       0.78 |
| Web Development Project   |    88 |       0.88 |
| Mathematics Problem Set   |    95 |       0.95 |
+---------------------------+-------+------------+
5 rows in set (0.00 sec)
```

```
mysql>    SELECT* FROM registration;
+-----------+------------+-------------------+
| course_id | student_id | registration_date |
+-----------+------------+-------------------+
|         1 |          1 | 2024-03-01        |
|         2 |          2 | 2024-03-02        |
|         3 |          3 | 2024-03-03        |
|         4 |          4 | 2024-03-04        |
|         5 |          5 | 2024-03-05        |
|         6 |          6 | 2024-03-06        |
|         7 |          7 | 2024-03-07        |
|         8 |          8 | 2024-03-08        |
|         9 |          9 | 2024-03-09        |
|        10 |         10 | 2024-03-10        |
|        11 |         11 | 2024-03-11        |
|        12 |         12 | 2024-03-12        |
|        13 |         13 | 2024-03-13        |
|        14 |         14 | 2024-03-14        |
|        15 |         15 | 2024-03-15        |
+-----------+------------+-------------------+
15 rows in set (0.00 sec)
```

```
mysql> SELECT *
    -> FROM student
    -> WHERE student_id = 12;
+------------+--------------+---------------------------+-----------------------------+-----------+
| student_id | name         | email                     | phone                       | newcolumn |
+------------+--------------+---------------------------+-----------------------------+-----------+
|         12 | Olivia Brown | olivia.brown@example.com | 123-987-6543,321-789-4560 |      NULL |
+------------+--------------+---------------------------+-----------------------------+-----------+
1 row in set (0.01 sec)

mysql> SELECT *
    -> FROM course
    -> WHERE course_name = 'Digital Marketing';
+-----------+-------------------+--------------+
| course_id | course_name       | credit_hours |
+-----------+-------------------+--------------+
|        12 | Digital Marketing |            3 |
+-----------+-------------------+--------------+
1 row in set (0.01 sec)
```

2) INSERT: Adds new records to a table.

```
mysql> INSERT INTO student (student_id, name, email, phone)
    -> VALUES
    ->     (1, 'John Doe', 'john.doe@example.com', '123-456-7890,987-654-3210'),
    ->     (2, 'Jane Smith', 'jane.smith@example.com', '555-123-4567,555-987-6543'),
    ->     (3, 'Bob Johnson', 'bob.johnson@example.com', '999-888-7777,333-222-1111'),
    ->     (4, 'Alice Johnson', 'alice.johnson@example.com', '111-222-3333,444-555-6666'),
    ->     (5, 'Charlie Brown', 'charlie.brown@example.com', '444-555-6666,777-888-9999'),
    ->     (6, 'Emily Davis', 'emily.davis@example.com', '123-987-6543,321-789-4560'),
    ->     (7, 'Michael Smith', 'michael.smith@example.com', '555-111-2222,999-888-7777'),
    ->     (8, 'Sophia Taylor', 'sophia.taylor@example.com', '333-444-5555,666-777-8888'),
    ->     (9, 'William Anderson', 'william.anderson@example.com', '123-456-7890,987-654-3210'),
    ->     (10, 'Emma Miller', 'emma.miller@example.com', '111-222-3333,444-555-6666'),
    ->     (11, 'Daniel Wilson', 'daniel.wilson@example.com', '444-555-6666,777-888-9999'),
    ->     (12, 'Olivia Brown', 'olivia.brown@example.com', '123-987-6543,321-789-4560'),
    ->     (13, 'Ethan Davis', 'ethan.davis@example.com', '555-111-2222,999-888-7777'),
    ->     (14, 'Ava White', 'ava.white@example.com', '333-444-5555,666-777-8888'),
    ->     (15, 'Liam Johnson', 'liam.johnson@example.com', '222-333-4444,777-888-9999'),
    ->     (16, 'Sophie Miller', 'sophie.miller@example.com', '111-222-3333,444-555-6666'),
    ->     (17, 'Noah Wilson', 'noah.wilson@example.com', '333-444-5555,666-777-8888'),
    ->     (18, 'Emma Brown', 'emma.brown@example.com', '222-333-4444,777-888-9999'),
    ->     (19, 'Oliver Smith', 'oliver.smith@example.com', '111-222-3333,444-555-6666'),
    ->     (20, 'Amelia Davis', 'amelia.davis@example.com', '333-444-5555,666-777-8888');
Query OK, 20 rows affected (0.01 sec)
Records: 20  Duplicates: 0  Warnings: 0
```

```
mysql> INSERT INTO grading_system (assignment_name, marks)
    -> VALUES
    ->     ('Essay on History', 85),
    ->     ('Programming Exercise', 92),
    ->     ('Research Paper', 78),
    ->     ('Web Development Project', 88),
    ->     ('Mathematics Problem Set', 95);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
mysql> INSERT INTO registration (course_id, student_id, registration_date)
    -> VALUES
    ->     (1, 1, '2024-03-01'),
    ->     (2, 2, '2024-03-02'),
    ->     (3, 3, '2024-03-03'),
    ->     (4, 4, '2024-03-04'),
    ->     (5, 5, '2024-03-05'),
    ->     (6, 6, '2024-03-06'),
    ->     (7, 7, '2024-03-07'),
    ->     (8, 8, '2024-03-08'),
    ->     (9, 9, '2024-03-09'),
    ->     (10, 10, '2024-03-10'),
    ->     (11, 11, '2024-03-11'),
    ->     (12, 12, '2024-03-12'),
    ->     (13, 13, '2024-03-13'),
    ->     (14, 14, '2024-03-14'),
    ->     (15, 15, '2024-03-15');
Query OK, 15 rows affected (0.01 sec)
Records: 15  Duplicates: 0  Warnings: 0
```

3) UPDATE: Modifies existing records in a table.

```
mysql>
mysql>
mysql> UPDATE student
    -> SET name = 'Pratik Desai'
    -> WHERE Student_id = 1;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 1  Changed: 0  Warnings: 0

mysql>
mysql> UPDATE student
    -> SET email = 'Pratik.desai@example.com'
    -> WHERE Student_id = 1;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 1  Changed: 0  Warnings: 0
```

4) DELETE: Removes records from a table.

```
mysql>
mysql> DELETE FROM assignment
    -> WHERE assignment_name = 'Mathematics Problem Set';
Query OK, 1 row affected (0.01 sec)
```

5) JOINS

```
mysql> SELECT registration.student_id, registration.course_id, registration.student_id
    -> FROM registration
    -> INNER JOIN grading_system ON registration.student_id = grading_system.student_id;
+------------+-----------+------------+
| student_id | course_id | student_id |
+------------+-----------+------------+
|          1 |         1 |          1 |
|          2 |         2 |          2 |
|          3 |         3 |          3 |
|          4 |         4 |          4 |
|          5 |         5 |          5 |
+------------+-----------+------------+
5 rows in set (0.01 sec)

mysql> SELECT registration.student_id, registration.course_id, registration.student_id
    -> FROM registration
    -> LEFT JOIN grading_system ON registration.student_id = grading_system.student_id;
+------------+-----------+------------+
| student_id | course_id | student_id |
+------------+-----------+------------+
|          1 |         1 |          1 |
|          2 |         2 |          2 |
|          3 |         3 |          3 |
|          4 |         4 |          4 |
|          5 |         5 |          5 |
|          6 |         6 |          6 |
|          7 |         7 |          7 |
|          8 |         8 |          8 |
|          9 |         9 |          9 |
|         10 |        10 |         10 |
|         11 |        11 |         11 |
|         12 |        12 |         12 |
|         13 |        13 |         13 |
|         14 |        14 |         14 |
|         15 |        15 |         15 |
+------------+-----------+------------+
15 rows in set (0.01 sec)

mysql> SELECT registration.student_id, registration.course_id, registration.student_id
    -> FROM registration
    -> RIGHT JOIN grading_system ON registration.student_id = grading_system.student_id;
+------------+-----------+------------+
| student_id | course_id | student_id |
+------------+-----------+------------+
|       NULL |      NULL |       NULL |
|       NULL |      NULL |       NULL |
|       NULL |      NULL |       NULL |
|       NULL |      NULL |       NULL |
|       NULL |      NULL |       NULL |
|          1 |         1 |          1 |
|          2 |         2 |          2 |
|          3 |         3 |          3 |
|          4 |         4 |          4 |
|          5 |         5 |          5 |
+------------+-----------+------------+
10 rows in set (0.00 sec)
```

```
mysql> SELECT student.student_id, student.name, course.course_name
    -> FROM student
    -> FULL JOIN course ON student.student_id = course.student_id;
ERROR 1054 (42S22): Unknown column 'student.student_id' in 'field list'
mysql> SELECT * FROM registration
    -> LEFT JOIN grading_system ON registration.student_id = grading_system.student_id
    -> UNION
    -> SELECT * FROM registration
    -> RIGHT JOIN  grading_system ON registration.student_id = grading_system.student_id
    -> ;
+-----------+------------+-------------------+-------------------------+-------+------------+------------+
| course_id | student_id | registration_date | assignment_name         | marks | percentage | student_id |
+-----------+------------+-------------------+-------------------------+-------+------------+------------+
|         1 |          1 | 2024-03-01        | NULL                    |  NULL |       NULL |          1 |
|         2 |          2 | 2024-03-02        | NULL                    |  NULL |       NULL |          2 |
|         3 |          3 | 2024-03-03        | NULL                    |  NULL |       NULL |          3 |
|         4 |          4 | 2024-03-04        | NULL                    |  NULL |       NULL |          4 |
|         5 |          5 | 2024-03-05        | NULL                    |  NULL |       NULL |          5 |
|         6 |          6 | 2024-03-06        | NULL                    |  NULL |       NULL |       NULL |
|         7 |          7 | 2024-03-07        | NULL                    |  NULL |       NULL |       NULL |
|         8 |          8 | 2024-03-08        | NULL                    |  NULL |       NULL |       NULL |
|         9 |          9 | 2024-03-09        | NULL                    |  NULL |       NULL |       NULL |
|        10 |         10 | 2024-03-10        | NULL                    |  NULL |       NULL |       NULL |
|        11 |         11 | 2024-03-11        | NULL                    |  NULL |       NULL |       NULL |
|        12 |         12 | 2024-03-12        | NULL                    |  NULL |       NULL |       NULL |
|        13 |         13 | 2024-03-13        | NULL                    |  NULL |       NULL |       NULL |
|        14 |         14 | 2024-03-14        | NULL                    |  NULL |       NULL |       NULL |
|        15 |         15 | 2024-03-15        | NULL                    |  NULL |       NULL |       NULL |
|      NULL |       NULL | NULL              | Essay on History        |    85 |       0.85 |       NULL |
|      NULL |       NULL | NULL              | Programming Exercise    |    92 |       0.92 |       NULL |
|      NULL |       NULL | NULL              | Research Paper          |    78 |       0.78 |       NULL |
|      NULL |       NULL | NULL              | Web Development Project |    88 |       0.88 |       NULL |
|      NULL |       NULL | NULL              | Mathematics Problem Set |    95 |       0.95 |       NULL |
+-----------+------------+-------------------+-------------------------+-------+------------+------------+
20 rows in set (0.01 sec)
```

```
mysql> SELECT student_id, registration_date FROM registration
    -> UNION
    -> SELECT assignment_name, marks FROM grading_system;
+-------------------------+-------------------+
| student_id              | registration_date |
+-------------------------+-------------------+
| 1                       | 2024-03-01        |
| 2                       | 2024-03-02        |
| 3                       | 2024-03-03        |
| 4                       | 2024-03-04        |
| 5                       | 2024-03-05        |
| 6                       | 2024-03-06        |
| 7                       | 2024-03-07        |
| 8                       | 2024-03-08        |
| 9                       | 2024-03-09        |
| 10                      | 2024-03-10        |
| 11                      | 2024-03-11        |
| 12                      | 2024-03-12        |
| 13                      | 2024-03-13        |
| 14                      | 2024-03-14        |
| 15                      | 2024-03-15        |
| Essay on History        | 85                |
| Programming Exercise    | 92                |
| Research Paper          | 78                |
| Web Development Project | 88                |
| Mathematics Problem Set | 95                |
+-------------------------+-------------------+
20 rows in set (0.00 sec)

mysql>
mysql> SELECT assignment_name FROM assignment
    -> INTERSECT
    -> SELECT assignment_name FROM grading_system;
+-------------------------+
| assignment_name         |
+-------------------------+
| Essay on History        |
| Programming Exercise    |
| Research Paper          |
| Web Development Project |
+-------------------------+
4 rows in set (0.00 sec)

mysql>
mysql> SELECT assignment_name FROM assignment
    -> EXCEPT
    -> SELECT assignment_name FROM grading_system;
+-----------------------------+
| assignment_name             |
+-----------------------------+
| Software Design Document    |
| Operating Systems Assignment |
| Network Security Report     |
| AI Algorithm Implementation |
| Database Design Exercise    |
| Mobile App Development Task |
| Digital Marketing Campaign Plan |
| Machine Learning Project    |
| Project Management Presentation |
| Business Ethics Reflection  |
+-----------------------------+
10 rows in set (0.00 sec)
```

6) Set operations

```
5 rows in set (0.00 sec)

mysql>
mysql>
mysql>
mysql> SELECT student_id
    -> FROM registration
    -> WHERE registration_date BETWEEN '2024-03-01' AND '2024-03-15
ERROR 1146 (42S02): Table 'student.registration' doesn't exist
mysql>
mysql>
mysql> SELECT student_id, registration_date FROM registration
    -> UNION
    -> SELECT assignment_name, marks FROM grading_system;
ERROR 1146 (42S02): Table 'student.registration' doesn't exist
mysql>
mysql> SELECT assignment_name FROM assignment
    -> INTERSECT
    -> SELECT assignment_name FROM grading_system;
+--------------------------+
| assignment_name          |
+--------------------------+
| Essay on History         |
| Programming Exercise     |
| Research Paper           |
| Web Development Project  |
+--------------------------+
```

```
4 rows in set (0.00 sec)

mysql>
mysql> SELECT assignment_name FROM assignment
    -> EXCEPT
    -> SELECT assignment_name FROM grading_system;
+---------------------------------+
| assignment_name                 |
+---------------------------------+
| Software Design Document        |
| Operating Systems Assignment    |
| Network Security Report         |
| AI Algorithm Implementation     |
| Database Design Exercise        |
| Mobile App Development Task     |
| Digital Marketing Campaign Plan |
| Machine Learning Project        |
| Project Management Presentation |
| Business Ethics Reflection      |
+---------------------------------+
```

7) Select Clauses

```
mysql> SELECT registration_date, COUNT(*) as date
    -> FROM registration
    -> GROUP BY registration_date;
+-------------------+------+
| registration_date | date |
+-------------------+------+
| 2024-03-01        |    1 |
| 2024-03-02        |    1 |
| 2024-03-03        |    1 |
| 2024-03-04        |    1 |
| 2024-03-05        |    1 |
| 2024-03-06        |    1 |
| 2024-03-07        |    1 |
| 2024-03-08        |    1 |
| 2024-03-09        |    1 |
| 2024-03-10        |    1 |
| 2024-03-11        |    1 |
| 2024-03-12        |    1 |
| 2024-03-13        |    1 |
| 2024-03-14        |    1 |
| 2024-03-15        |    1 |
+-------------------+------+
15 rows in set (0.00 sec)

mysql> SELECT marks, percentage
    -> FROM grading_system
    -> ORDER BY marks ASC, percentage DESC;
+-------+------------+
| marks | percentage |
+-------+------------+
|    78 |       0.78 |
|    85 |       0.85 |
|    88 |       0.88 |
|    92 |       0.92 |
|    95 |       0.95 |
+-------+------------+
5 rows in set (0.00 sec)

mysql>
mysql> SELECT marks, percentage
    -> FROM grading_system
    -> ORDER BY marks ASC, percentage DESC;
+-------+------------+
| marks | percentage |
+-------+------------+
|    78 |       0.78 |
|    85 |       0.85 |
|    88 |       0.88 |
|    92 |       0.92 |
|    95 |       0.95 |
+-------+------------+
5 rows in set (0.00 sec)
```

Problem Description:

Five lines description about tables and their relationships that you are using.

Student table contains information about individual students enrolled in courses, including unique identifiers, names, and other relevant details. course table stores data about the courses offered, including course codes, titles, and other course-specific attributes. assignment table holds details about assignments within each course, such as assignment names, due dates, and associated course identifiers. registration table manages the registration process, linking students to the courses they are enrolled in through registration IDs and course IDs. grading system table Facilitates the grading process by storing grading criteria, grading scales, and mapping student results to specific grades. This table connects student results with the grading system, ensuring accurate assessment and recording of academic performance.

Project stage- 2 details:

Write SQL statements related to you project **SQL**

Statement

1) SELECT *

   FROM student

   WHERE student_id = 12;

2) SELECT *

   FROM course

```
WHERE course_name = 'Digital Marketing';
```

3) UPDATE student

```
SET name = 'Pratik Desai'
WHERE Student_id = 1;
```

4) UPDATE student

```
SET email = 'Pratik.desai@example.com'
WHERE Student_id = 1;
```

5) DELETE FROM assignment

```
WHERE assignment_name = 'Mathematics Problem Set';
```

6) GROUP BY-

```
SELECT registration_date, COUNT(*) as date
FROM registration
GROUP BY registration_date;
```

7) ORDER BY-

```
SELECT marks, percentage
FROM grading_system
ORDER BY marks ASC, percentage DESC;
```

8) HAVING-

```
SELECT percentage, COUNT(*)
FROM grading_system
```

```
GROUP BY percentage
HAVING COUNT(*) > 1;
```

9) SPECIAL OPERATOR-BETWEEN:

```
SELECT student_id
FROM registration
WHERE registration_date BETWEEN '2024-03-01' AND '2024-03-15';
```

10) UNION-

```
SELECT student_id, registration_date FROM registration
UNION
SELECT assignment_name, marks FROM grading_system;
```

11) INTERSECT-

```
SELECT assignment_name FROM assignment
INTERSECT
SELECT assignment_name FROM grading_system;
```

12) EXCEPT-

```
SELECT id, name FROM employees
EXCEPT
SELECT id, name FROM students;
```

13) LEFT JOIN-

```
SELECT registration.student_id, registration.course_id, registration.student_id
FROM registration
```

```
LEFT JOIN grading_system ON registration.student_id= grading_system.student_id;
```

14) RIGHT JOIN-

```
SELECT registration.student_id, registration.course_id, registration.student_id
FROM registration
RIGHT JOIN grading_system ON registration.student_id = grading_system.student_id;
```

15) SELECT * FROM registration

```
LEFT JOIN grading_system ON registration.student_id = grading_system.student_id
UNION
SELECT * FROM registration
RIGHT JOIN  grading_system ON registration.student_id = grading_system.student_id
```

Conclusion :

In conclusion, the management of data within the context of an Entity-Relationship (ER) diagram representing a student registration and grading system necessitates the use of both Data Definition Language (DDL) and Data Manipulation Language (DML) operations.DDL operations are vital for defining the structure of the database schema. DML operations are essential for manipulating the data stored within the database. Overall, the effective management of data in a student registration and grading system relies on the interplay between DDL and DML operations.