

Assignment 7

Roll no. 31311

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-- Drop tables if they already exist
DROP TABLE IF EXISTS Student_Subject;
DROP TABLE IF EXISTS Subject;
DROP TABLE IF EXISTS Student;

-- Create the Student table
CREATE TABLE Student (
    rollno INT PRIMARY KEY,
    name VARCHAR(30),
    address VARCHAR(50),
    class VARCHAR(10)
);

-- Create the Subject table
CREATE TABLE Subject (
    scode VARCHAR(10) PRIMARY KEY,
    subject_name VARCHAR(20)
);

-- Create the Student_Subject table to manage the many-to-many relationship and marks
CREATE TABLE Student_Subject (
    rollno INT,
    scode VARCHAR(10),
    marks INT,
    PRIMARY KEY (rollno, scode),
    FOREIGN KEY (rollno) REFERENCES Student(rollno),
    FOREIGN KEY (scode) REFERENCES Subject(scode)
);

-- Insert data into the Student table
INSERT INTO Student (rollno, name, address, class) VALUES
(1, 'Alice Smith', '123 Maple St', '10th Grade'),
(2, 'Bob Johnson', '456 Oak St', '11th Grade'),
(3, 'Charlie Brown', '789 Pine St', '12th Grade');

-- Insert data into the Subject table
INSERT INTO Subject (scode, subject_name) VALUES
('MATH101', 'Mathematics'),
('ENG102', 'English'),
('SCI103', 'Science');

-- Insert data into the Student_Subject table
INSERT INTO Student_Subject (rollno, scode, marks) VALUES
(1, 'MATH101', 95),
(1, 'ENG102', 85),
(2, 'MATH101', 88),
(2, 'SCI103', 91),
(3, 'ENG102', 78),
(3, 'SCI103', 82);

DELIMITER //

CREATE TRIGGER before_student_delete
BEFORE DELETE ON Student
FOR EACH ROW
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BEGIN
    SIGNAL SQLSTATE '01000' SET MESSAGE_TEXT = 'Student record is being deleted';
END //

DELIMITER ;

DELIMITER //

CREATE TRIGGER validate_marks
BEFORE INSERT ON Student_Subject
FOR EACH ROW
BEGIN
    IF NEW.marks NOT BETWEEN 10 AND 100 THEN
        SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Marks must be between 10 and 100.';
    END IF;
END //

DELIMITER ;

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MariaDB [te31311_db]> select * from Student;
+-----+-----+-----+-----+
| rollno | name       | address      | class      |
+-----+-----+-----+-----+
| 1      | Alice Smith | 123 Maple St | 10th Grade |
| 2      | Bob Johnson | 456 Oak St   | 11th Grade |
| 3      | Charlie Brown | 789 Pine St  | 12th Grade |
+-----+-----+-----+-----+
3 rows in set (0.002 sec)

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MariaDB [te31311_db]> select * from Subject;
+-----+-----+
| scode | subject_name |
+-----+-----+
| ENG102 | English      |
| MATH101 | Mathematics  |
| SCI103 | Science      |
+-----+-----+
3 rows in set (0.001 sec)

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MariaDB [te31311_db]> select * from Student_Subject;
+-----+-----+-----+
| rollno | scode  | marks |
+-----+-----+-----+
| 1      | ENG102 | 85    |
| 1      | MATH101 | 95    |
| 2      | MATH101 | 88    |
| 2      | SCI103 | 91    |
| 3      | ENG102 | 78    |
| 3      | SCI103 | 82    |
+-----+-----+-----+
6 rows in set (0.002 sec)

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MariaDB [te31311_db]>

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MariaDB [te31311_db]> -- Attempt to delete a student record (this should trigger the
notice)

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MariaDB [te31311_db]> DELETE FROM Student_Subject WHERE rollno = 1;
Query OK, 2 rows affected (0.024 sec)

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MariaDB [te31311_db]> -- Insert a record with valid marks

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MariaDB [te31311_db]> INSERT INTO Student_Subject (rollno, scode, marks) VALUES (3,
'MATH101', 95);
Query OK, 1 row affected (0.028 sec)

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MariaDB [te31311_db]>
MariaDB [te31311_db]> -- Attempt to insert a record with invalid marks (below the minimum)
MariaDB [te31311_db]> INSERT INTO Student_Subject (rollno, scode, marks) VALUES (2,
    'ENG102', 5);
ERROR 1644 (45000): Marks must be between 10 and 100.
MariaDB [te31311_db]>
MariaDB [te31311_db]> -- Attempt to insert a record with invalid marks (above the maximum)
MariaDB [te31311_db]> INSERT INTO Student_Subject (rollno, scode, marks) VALUES (2,
    'ENG102', 105);
ERROR 1644 (45000): Marks must be between 10 and 100.
MariaDB [te31311_db]>
MariaDB [te31311_db]> -- Update existing record with valid marks
MariaDB [te31311_db]> UPDATE Student_Subject SET marks = 90 WHERE rollno = 1 AND scode =
    'MATH101';
Query OK, 0 rows affected (0.001 sec)
Rows matched: 0 Changed: 0 Warnings: 0

MariaDB [te31311_db]>
MariaDB [te31311_db]> -- Attempt to update to invalid marks (below the minimum)
MariaDB [te31311_db]> UPDATE Student_Subject SET marks = 5 WHERE rollno = 1 AND scode =
    'MATH101';
Query OK, 0 rows affected (0.001 sec)
Rows matched: 0 Changed: 0 Warnings: 0

MariaDB [te31311_db]>
MariaDB [te31311_db]> -- Attempt to update to invalid marks (above the maximum)
MariaDB [te31311_db]> UPDATE Student_Subject SET marks = 105 WHERE rollno = 1 AND scode =
    'MATH101';
Query OK, 0 rows affected (0.001 sec)
Rows matched: 0 Changed: 0 Warnings: 0

MariaDB [te31311_db]>

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