

1.)

```

C:\xampp\htdocs> mysql -u root -p
mysql: [Warning] Using a password on the command line interface can be insecure.
MariaDB [(none)]> use school;
Database changed
MariaDB [(none)]> CREATE TABLE Student (
  -> Name VARCHAR(255) NOT NULL,
  -> RegistrationNumber INT NOT NULL PRIMARY KEY,
  -> GPA FLOAT NOT NULL,
  -> ConvocationRegistrationNumber INT NULL,
  -> Class VARCHAR(255) NULL,
  -> );
Query OK, 0 rows affected (1.162 sec)

MariaDB [(none)]> INSERT INTO Student (Name, RegistrationNumber, GPA)
  -> VALUES
  -> ('Samara', 425, 3.25),
  -> ('Kasun', 228, 3.48),
  -> ('Kalpa', 281, 3.38),
  -> ('Chathura', 112, 3.40),
  -> ('Lakshmi', 475, 3.75),
  -> ('Nideth', 351, 3.30),
  -> ('Ramesh', 111, 3.39),
  -> ('Nalin', 496, 3.49),
  -> ('Richard', 324, 3.39),
  -> ('Chithra', 231, 3.30);
Query OK, 10 rows affected (0.766 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [(none)]> select * from student;
+-----+-----+-----+-----+-----+
| Name | RegistrationNumber | GPA | ConvocationRegistrationNumber | Class |
+-----+-----+-----+-----+-----+
| Samara | 425 | 3.25 | NULL | NULL |
| Kalpa | 281 | 3.38 | NULL | NULL |
| Kasun | 228 | 3.48 | NULL | NULL |
| Chathura | 112 | 3.40 | NULL | NULL |
| Lakshmi | 475 | 3.75 | NULL | NULL |
| Nideth | 351 | 3.30 | NULL | NULL |
| Ramesh | 111 | 3.39 | NULL | NULL |
| Nalin | 496 | 3.49 | NULL | NULL |
| Richard | 324 | 3.39 | NULL | NULL |
| Chithra | 231 | 3.30 | NULL | NULL |
+-----+-----+-----+-----+-----+
10 rows in set (0.289 sec)

MariaDB [(none)]>

```

2.)

```

MariaDB [school]> CREATE TABLE Convocation (
  -> LastName VARCHAR(255) NOT NULL,
  -> Address VARCHAR(255) NOT NULL,
  -> Age INT NOT NULL,
  -> RegistrationNumber INT NOT NULL,
  -> ConvocationRegistrationNumber INT NOT NULL PRIMARY KEY,
  -> FOREIGN KEY (RegistrationNumber) REFERENCES Student(RegistrationNumber)
  -> );
Query OK, 0 rows affected (1.836 sec)

```

3.)

```

MariaDB [school]> DELIMITER //
MariaDB [school]>
MariaDB [school]> CREATE PROCEDURE sp_RegisterStudentForConvocation (
-> IN p_RegistrationNumber INT,
-> IN p_LastName VARCHAR(255),
-> IN p_Address VARCHAR(255),
-> IN p_Age INT
-> )
-> BEGIN
-> -- Generate a unique convocation registration number for the student.
-> DECLARE newConvocationRegistrationNumber INT;
-> SET newConvocationRegistrationNumber = COALESCE((SELECT MAX(ConvocationRegistrationNumber) FROM Convocation), 0) + 1;
->
-> -- Insert the student's details into the Convocation table.
-> INSERT INTO Convocation (
-> LastName,
-> Address,
-> Age,
-> RegistrationNumber,
-> ConvocationRegistrationNumber
-> )
-> VALUES (
-> p_LastName,
-> p_Address,
-> p_Age,
-> p_RegistrationNumber,
-> newConvocationRegistrationNumber
-> );
->
-> -- Update the Convocation Registration Number column in the Student table.
-> UPDATE Student SET ConvocationRegistrationNumber = newConvocationRegistrationNumber WHERE RegistrationNumber = p_RegistrationNumber;
-> END //
Query OK, 0 rows affected (0.888 sec)

```

4.)

```

MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA) VALUES (1, 'Sameera', 3.25);
Query OK, 1 row affected (0.127 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA) VALUES (2, 'Chathura', 3.85);
Query OK, 1 row affected (0.035 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA) VALUES (3, 'Lakmali', 3.75);
Query OK, 1 row affected (0.151 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA) VALUES (4, 'Sidath', 3.30);
Query OK, 1 row affected (0.098 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA) VALUES (5, 'Malin', 3.05);
Query OK, 1 row affected (0.042 sec)

MariaDB [school]>
MariaDB [school]>
MariaDB [school]>
MariaDB [school]>
MariaDB [school]>
MariaDB [school]> UPDATE Student SET Class =
->
-> CASE
->
-> WHEN GPA >= 3.7 THEN 'First class honors'
->
-> WHEN GPA < 3.7 AND GPA >= 3.3 THEN 'Second class honors-upper division'
->
-> WHEN GPA < 3.3 AND GPA >= 2.7 THEN 'Second class honors-lower division'
->
-> WHEN GPA < 2.7 AND GPA >= 2.0 THEN 'Third class honors'
->
-> ELSE NULL
->
-> END;
Query OK, 15 rows affected (0.054 sec)
Rows matched: 15  Changed: 15  Warnings: 0

```

Name	RegistrationNumber	GPA	ConvocationRegistrationNumber	Class
Sameera	1	3.25	NULL	Second class honors-lower division
Chathura	2	3.85	NULL	First class honors
Lakmali	3	3.75	NULL	First class honors
Sidath	4	3.30	NULL	Second class honors-upper division
Malin	5	3.05	NULL	Second class honors-lower division
Rumudu	111	3.70	NULL	First class honors
Kalpa	201	3.10	NULL	Second class honors-lower division
Kasun	210	3.40	NULL	Second class honors-upper division
Chithra	231	3.30	NULL	Second class honors-upper division
Chathura	312	3.85	NULL	First class honors
Rohani	324	3.70	NULL	First class honors
Sidath	352	3.30	NULL	Second class honors-upper division
Sameera	425	3.25	NULL	Second class honors-lower division
Malin	456	3.05	NULL	Second class honors-lower division
Lakmali	473	3.75	NULL	First class honors

15 rows in set (0.001 sec)

5.)

```
MariaDB [school]> CREATE VIEW Registered AS
-> SELECT
->     s.Name,
->     s.RegistrationNumber,
->     s.GPA,
->     c.ConvocationRegistrationNumber,
->     c.Address,
->     c.Age
-> FROM
->     Student s
-> JOIN
->     Convocation c ON s.ConvocationRegistrationNumber = c.ConvocationRegistrationNumber;
Query OK, 0 rows affected (0.192 sec)
```

6.)

```

MariaDB [school]> CREATE VIEW NotRegistered AS
-> SELECT
->   s.Name,
->   s.RegistrationNumber,
->   s.GPA,
->   s.Address,
->   s.Age
-> FROM
->   Student s
-> LEFT JOIN
->   Convocation c ON s.RegistrationNumber = c.RegistrationNumber
-> WHERE
->   c.RegistrationNumber IS NULL;
Query OK, 0 rows affected (0.144 sec)

```

```

MariaDB [school]> SELECT * FROM NotRegistered;

```

Name	RegistrationNumber	GPA	Address	Age
Sameera	1	3.25	NULL	NULL
Chathura	2	3.85	NULL	NULL
Lakmali	3	3.75	NULL	NULL
Sidath	4	3.30	NULL	NULL
Nalin	5	3.05	NULL	NULL
Kumudu	111	3.70	NULL	NULL
Kalpa	201	3.10	NULL	NULL
Kasun	210	3.40	NULL	NULL
Chithra	231	3.30	NULL	NULL
Chathura	312	3.85	NULL	NULL
Rohani	324	3.70	NULL	NULL
Sidath	352	3.30	NULL	NULL
Sameera	425	3.25	NULL	NULL
Nalin	456	3.05	NULL	NULL
Lakmali	473	3.75	NULL	NULL

```

15 rows in set (0.002 sec)

```

7.)

```

MariaDB [school]> CREATE TABLE LateRegistration (
  ->   RegistrationNumber INT NOT NULL AUTO_INCREMENT,
  ->   LastName VARCHAR(255) NOT NULL,
  ->   Address VARCHAR(255) NOT NULL,
  ->   Age INT NOT NULL,
  ->   PRIMARY KEY (RegistrationNumber)
  -> );
Query OK, 0 rows affected (0.882 sec)

MariaDB [school]> INSERT INTO LateRegistration (RegistrationNumber, LastName, Address, Age)
  -> SELECT RegistrationNumber, LastName, Address, Age
  -> FROM Convocation;
Query OK, 0 rows affected (0.003 sec)
Records: 0 Duplicates: 0 Warnings: 0

```

8.)

```

-- SQL (convocat) check - check convocatregistration
-- AFTER INSERT ON LateRegistration
-- FOR EACH ROW
-- BEGIN
--   DECLARE convocatregistration INT;
--
--   SELECT IFNULL(MAX(convocatregistration), 0) + 1 INTO convocatregistration FROM Convocation;
--
--   INSERT INTO Convocation (Convocatregistration, LastName, Address, Age, RegistrationNumber)
--   VALUES (convocatregistration, NEW.LastName, NEW.Address, NEW.Age, NEW.RegistrationNumber);
--
--   UPDATE Student SET Convocatregistration = convocatregistration WHERE RegistrationNumber = NEW.RegistrationNumber;
-- END //
Query OK, 0 rows affected (0.260 sec)

MariaDB [school]>
MariaDB [school]> DESCRIBE ;
MariaDB [school]>
MariaDB [school]> INSERT INTO LateRegistration (LastName, Address, Age, RegistrationNumber)
  -> VALUES ('LateLast', 'LateAddress', 30, 555);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails ('school', 'convocation', CONSTRAINT 'convocation_ibfk_1' FOREIGN KEY ('RegistrationNumber') REFERENCES 'student' ('RegistrationNumber'))
MariaDB [school]> SELECT * FROM Convocation;
Empty set (0.228 sec)

MariaDB [school]> SELECT * FROM Student;

```

Name	RegistrationNumber	GPA	ConvocatRegistrationNumber	Class	Address	Age
Tamara	1	3.25	90.1	Second class honors-lower division	90.1	90.1
Chathura	2	3.85	90.1	First class honors	90.1	90.1
Lathali	3	3.75	90.1	First class honors	90.1	90.1
Siddh	4	3.30	90.1	Second class honors-upper division	90.1	90.1
Nalle	5	3.65	90.1	Second class honors-lower division	90.1	90.1
Gunade	211	3.79	90.1	First class honors	90.1	90.1
Kalpa	201	3.19	90.1	Second class honors-lower division	90.1	90.1
Ratan	220	3.40	90.1	Second class honors-upper division	90.1	90.1
Chithra	211	3.30	90.1	Second class honors-upper division	90.1	90.1
Chathura	212	3.85	90.1	First class honors	90.1	90.1
Rubani	224	3.79	90.1	First class honors	90.1	90.1
Siddh	252	3.30	90.1	Second class honors-upper division	90.1	90.1
Tamara	425	3.25	90.1	Second class honors-lower division	90.1	90.1
Nalle	490	3.65	90.1	Second class honors-lower division	90.1	90.1
Lathali	470	3.75	90.1	First class honors	90.1	90.1

9.)

```

MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA, Address, Age)
-> VALUES (6, 'Kasun', 3.40, '123 Main Street', 22);
Query OK, 1 row affected (0.115 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA, Address, Age)
-> VALUES (7, 'Kalpa', 3.10, '456 Elm Street', 24);
Query OK, 1 row affected (0.044 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA, Address, Age)
-> VALUES (8, 'Kamudu', 3.70, '789 Oak Street', 23);
Query OK, 1 row affected (0.043 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA, Address, Age)
-> VALUES (9, 'Rohani', 3.70, '1001 Ash Street', 25);
Query OK, 1 row affected (0.104 sec)

MariaDB [school]>
MariaDB [school]> INSERT INTO Student (RegistrationNumber, Name, GPA, Address, Age)
-> VALUES (10, 'Chithra', 3.30, '1112 Birch Street', 26);
Query OK, 1 row affected (0.012 sec)

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```

MariaDB [school]> SELECT * FROM Student;

```

Name	RegistrationNumber	GPA	ConvocationRegistrationNumber	Class	Address	Age
Sameera	1	3.25	NULL	Second class honors-lower division	NULL	NULL
Chathura	2	3.85	NULL	First class honors	NULL	NULL
Lakmali	3	3.75	NULL	First class honors	NULL	NULL
Sidath	4	3.30	NULL	Second class honors-upper division	NULL	NULL
Hellin	5	3.05	NULL	Second class honors-lower division	NULL	NULL
Kasun	6	3.40	NULL	NULL	123 Main Street	22
Kalpa	7	3.10	NULL	NULL	456 Elm Street	24
Kamudu	8	3.70	NULL	NULL	789 Oak Street	23
Rohani	9	3.70	NULL	NULL	1001 Ash Street	25
Chithra	10	3.30	NULL	NULL	1112 Birch Street	26
Kamudu	111	3.70	NULL	First class honors	NULL	NULL
Kalpa	201	3.10	NULL	Second class honors-lower division	NULL	NULL
Kasun	210	3.40	NULL	Second class honors-upper division	NULL	NULL
Chithra	231	3.30	NULL	Second class honors-upper division	NULL	NULL
Chathura	312	3.85	NULL	First class honors	NULL	NULL
Rohani	324	3.70	NULL	First class honors	NULL	NULL
Sidath	352	3.30	NULL	Second class honors-upper division	NULL	NULL
Sameera	425	3.25	NULL	Second class honors-lower division	NULL	NULL
Hellin	456	3.05	NULL	Second class honors-lower division	NULL	NULL
Lakmali	473	3.75	NULL	First class honors	NULL	NULL

10.)

```

MariaDB [school]> DELIMITER //
MariaDB [school]>
MariaDB [school]> CREATE PROCEDURE FillClassColumn()
-> BEGIN
-> UPDATE Student
-> SET Class =
-> CASE
-> WHEN GPA >= 3.7 THEN 'First class honors'
-> WHEN GPA < 3.7 AND GPA >= 3.3 THEN 'Second class honors-upper division'
-> WHEN GPA < 3.3 AND GPA >= 2.7 THEN 'Second class honors-lower division'
-> WHEN GPA < 2.7 AND GPA >= 2.0 THEN 'Third class honors'
-> END;
-> END //

```

Query OK, 0 rows affected (0.463 sec)

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MariaDB [school]>
MariaDB [school]> DELIMITER ;
MariaDB [school]> CALL FillClassColumn();
Query OK, 5 rows affected (0.358 sec)

```

```

MariaDB [school]> SELECT * FROM Student;

```

Name	RegistrationNumber	GPA	ConvocationRegistrationNumber	Class	Address	Age
Sameera	1	3.25	NULL	Second class honors-lower division	NULL	NULL
Chathura	2	3.85	NULL	First class honors	NULL	NULL
Lakmali	3	3.75	NULL	First class honors	NULL	NULL
Sidath	4	3.30	NULL	Second class honors-upper division	NULL	NULL
Hellie	5	3.05	NULL	Second class honors-lower division	NULL	NULL
Rasan	6	3.40	NULL	Second class honors-upper division	123 Main Street	22
Kalpa	7	3.10	NULL	Second class honors-lower division	456 Elm Street	24
Romdu	8	3.70	NULL	First class honors	789 Oak Street	23
Rohan	9	3.70	NULL	First class honors	1001 Ash Street	25
Chithra	10	3.30	NULL	Second class honors-upper division	1112 Birch Street	26
Romdu	111	3.70	NULL	First class honors	NULL	NULL
Kalpa	201	3.10	NULL	Second class honors-lower division	NULL	NULL
Rasan	210	3.40	NULL	Second class honors-upper division	NULL	NULL
Chithra	231	3.30	NULL	Second class honors-upper division	NULL	NULL
Chathura	312	3.85	NULL	First class honors	NULL	NULL
Rohan	324	3.70	NULL	First class honors	NULL	NULL
Sidath	352	3.30	NULL	Second class honors-upper division	NULL	NULL
Sameera	425	3.25	NULL	Second class honors-lower division	NULL	NULL
Hellie	456	3.05	NULL	Second class honors-lower division	NULL	NULL
Lakmali	473	3.75	NULL	First class honors	NULL	NULL

30 rows in set (0.003 sec)