DBMS (LAB – 9) Creating Triggers

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Assignment-1:

Write a trigger on insert to compartment table when a new compartment gets added to a train and make sure that total number of compartments available in the train does not exceed more than 4.

```sql
DELIMITER $$

CREATE OR REPLACE TRIGGER check_compartment_count

BEFORE INSERT ON Compartment

FOR EACH ROW

BEGIN

  IF (SELECT COUNT(*) FROM Compartment WHERE Train_Number = NEW.Train_Number) >= 4
THEN

    SIGNAL SQLSTATE '50001' SET MESSAGE_TEXT = 'Cannot add more than 4 compartments to
a train';

  END IF;

END; $$

DELIMITER ;

INSERT INTO  Compartment VALUES("F01","Class I",12,8,58450);
```

```
MariaDB [(none)]> use cs634_rrs
Database changed
MariaDB [cs634_rrs]> select * from train_number;
ERROR 1146 (42S02): Table 'cs634_rrs.train_number' doesn't exist
MariaDB [cs634_rrs]> select * from train_no;
ERROR 1146 (42S02): Table 'cs634_rrs.train_no' doesn't exist
MariaDB [cs634_rrs]> select * from train_num;
ERROR 1146 (42S02): Table 'cs634_rrs.train_num' doesn't exist
MariaDB [cs634_rrs]> DELIMITER $$
MariaDB [cs634_rrs]> CREATE OR REPLACE TRIGGER check_compartment_count
    -> BEFORE INSERT ON Compartment
    -> FOR EACH ROW
    -> BEGIN
    ->   IF (SELECT COUNT(*) FROM Compartment WHERE Train_Number = NEW.Train_Number) >= 4 THEN
    ->     SIGNAL SQLSTATE '50001' SET MESSAGE_TEXT = 'Cannot add more than 4 compartments to a train';
    ->   END IF;
    -> END; $$
Query OK, 0 rows affected (0.023 sec)

MariaDB [cs634_rrs]> DELIMITER ;
MariaDB [cs634_rrs]>
MariaDB [cs634_rrs]> INSERT INTO  Compartment VALUES("F01","Class I",12,8,58450);
ERROR 1644 (45000): Too many compartments
MariaDB [cs634_rrs]> select count(Train_number) FROM compartment WHERE train_number = 25261 GROUP BY train_number;
+---------------------+
| count(Train_number) |
+---------------------+
|                   4 |
+---------------------+
1 row in set (0.001 sec)
```

```
MariaDB [cs634_rrs]> select * from compartment;
+----------------+------------------+----------+--------------+--------------+
| compartment_no | compartment_type | capacity | availability | train_number |
+----------------+------------------+----------+--------------+--------------+
| F01            | I Class          |       16 |            0 |        25260 |
| F01            | I Class          |       16 |            0 |        25261 |
| F01            | I Class          |       16 |            4 |        58450 |
| F01            | I Class          |       16 |            5 |        58451 |
| F01            | I Class          |       16 |           15 |        62620 |
| F01            | I Class          |       16 |            6 |        62621 |
| F02            | I Class          |       16 |            0 |        62620 |
| G01            | III Class        |       60 |           33 |        25261 |
| G01            | III Class        |       60 |            2 |        58450 |
| G01            | III Class        |       60 |           40 |        58451 |
| G01            | III Class        |       60 |           10 |        62621 |
| G02            | III Class        |       60 |           45 |        25261 |
| G02            | III Class        |       60 |           12 |        62621 |
| S01            | II Class         |       30 |           15 |        25260 |
| S01            | II Class         |       30 |           15 |        25261 |
| S01            | II Class         |       30 |            5 |        58450 |
| S01            | II Class         |       30 |            4 |        62621 |
| S02            | II Class         |       30 |           17 |        25260 |
| S02            | II Class         |       30 |            3 |        58450 |
| S02            | II Class         |       30 |            6 |        62621 |
+----------------+------------------+----------+--------------+--------------+
20 rows in set (0.055 sec)
```

Assignment-2:

Create a trigger to add payment information to the backup table when we try to delete some information from ticket table.

```sql
create table Back_Up(pnr varchar(10),train_number int, travel_date
date,departure varchar(30),arrival varchar(30),departure_time
time,arrival_time time, user_id varchar(20),train_type varchar(20),
compartment_type varchar(10),compartment_no varchar(10),seat_no
varchar(10),name varchar(30),age int(11), transaction_id int,bank
varchar(20),card_no varchar(20),price int);

ALTER TABLE Ticket_Passenger ADD CONSTRAINT dt FOREIGN KEY (pnr)
REFERENCES Ticket(pnr) on delete cascade;
```

```sql
ALTER TABLE Payment_info ADD CONSTRAINT dp FOREIGN KEY (pnr) REFERENCES
Ticket(pnr) on delete cascade;



DELIMITER $$

CREATE TRIGGER del_ticket

BEFORE DELETE

ON Ticket FOR EACH ROW

BEGIN

  INSERT INTO Back_Up (SELECT * FROM (Ticket NATURAL JOIN(Ticket_Passenger
NATURAL JOIN Payment_info)) WHERE pnr=old.pnr);

END; $$

DELIMITER ;
```

```
MariaDB [cs634_rrs]> select * from backup;
+--------+--------------+-------------+-----------+-----------+----------------+-------------+---------+------------+----------------+----------------+---------+-----+
| pnr    | train_number | travel_date | departure | arrival   | departure_time | arrival_time | user_id | train_type | compartment_type | compartment_no | seat_no | nam |
| e      | age | transaction_id | bank      | card_no   | price   |
+--------+--------------+-------------+-----------+-----------+----------------+-------------+---------+------------+----------------+----------------+---------+-----+
| PNR005 |        58451 | 2022-08-03  | Bengaluru | Mangaluru | 06:00:00       | 14:00:00    | USR_002 | Fast       | III Class        | G01            | S01-10  | Hem |
| a Ullal |  27 |         978098 | INDIAN BANK | 9.88733E+15 | 2012    |
| PNR005 |        58451 | 2022-08-03  | Bengaluru | Mangaluru | 06:00:00       | 14:00:00    | USR_002 | Fast       | III Class        | G01            | S01-11  | Him |
| a Ullal |  28 |         978098 | INDIAN BANK | 9.88733E+15 | 2012    |
| PNR005 |        58451 | 2022-08-03  | Bengaluru | Mangaluru | 06:00:00       | 14:00:00    | USR_002 | Fast       | III Class        | G01            | S01-12  | Ash |
| a Ullal |  21 |         978098 | INDIAN BANK | 9.88733E+15 | 2012    |
| PNR005 |        58451 | 2022-08-03  | Bengaluru | Mangaluru | 06:00:00       | 14:00:00    | USR_002 | Fast       | III Class        | G01            | S01-9   | Aji |
| t Ullal |  31 |         978098 | INDIAN BANK | 9.88733E+15 | 2012    |
+--------+--------------+-------------+-----------+-----------+----------------+-------------+---------+------------+----------------+----------------+---------+-----+
4 rows in set (0.001 sec)
```