



LAB REPORT

CSE312: Database Management System Lab

Submitted To

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LAB REPORT

03

[Report Number]

Experiment No: 03	Experiment Name: Primary and Foreign Key Constraints with Delete and Update Rules.
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Experiment Details:

1. Creates a table named Persons with columns ID, LastName, FirstName, and Age. ID is a unique identifier and is defined as the primary key, meaning each ID must be unique and cannot be null.
Code: `CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int, PRIMARY KEY (ID));`

2. Creates the Persons table without defining a primary key initially. Then, ALTER TABLE is used to add a primary key on ID afterward.
Code: `CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int);`
`ALTER TABLE Persons ADD PRIMARY KEY (ID);`

3. A **composite primary key** consists of two or more columns that, together, uniquely identify a record in a table. This ensures that the combination of values in the specified columns is unique across the table.

I)Code: `CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int, PRIMARY KEY (ID, LastName));`

II)Code: `CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int, CONSTRAINT PK_Person PRIMARY KEY (ID, LastName));`

4. If you need to add a composite primary key after creating the table, you must use the ALTER TABLE statement

Code: `ALTER TABLE Persons DROP PRIMARY KEY;`

5.

i. Create the **Persons** Table (Parent Table)

code: `CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int, PRIMARY KEY (ID));`

Create the **Orders** Table (Child Table)

Code: CREATE TABLE Orders (OrderID int NOT NULL, OrderNumber int NOT NULL, PersonID int, PRIMARY KEY (OrderID), FOREIGN KEY (PersonID) REFERENCES Persons(ID));

Adding a Foreign Key to an Existing Table

Code: CREATE TABLE Orders (OrderID int NOT NULL, OrderNumber int NOT NULL, PersonID int, PRIMARY KEY (OrderID), CONSTRAINT FK_PersonOrder FOREIGN KEY (PersonID) REFERENCES Persons(ID));

ii. Adding a foreign key constraint after table creation

code: ALTER TABLE Orders ADD FOREIGN KEY (PersonID) REFERENCES Persons(ID);

Adding a foreign key constraint with a name after table creation:

Code: ALTER TABLE Orders ADD CONSTRAINT FK_PersonOrder FOREIGN KEY (PersonID) REFERENCES Persons(ID);

6.drop foreign keys in tahe table

Code: ALTER TABLE Orders DROP FOREIGN KEY FK_PersonOrder;

7. ON DELETE CASCADE: If a Person record is deleted, all related Orders rows with the matching PersonID are automatically deleted.

ON UPDATE CASCADE: If the ID of a Person is updated, all PersonID values in Orders that reference it will also update to match the new value.

Code: CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int, PRIMARY KEY (ID));

Code : CREATE TABLE Orders (OrderID int NOT NULL, OrderNumber int NOT NULL, PersonID int, PRIMARY KEY (OrderID), FOREIGN KEY (PersonID) REFERENCES Persons(ID) ON DELETE CASCADE ON UPDATE CASCADE);

8.

Adding a Foreign Key with ON DELETE SET NULL and ON UPDATE CASCADE

Code: ALTER TABLE Orders ADD CONSTRAINT fk_pi FOREIGN KEY (PersonID) REFERENCES Persons(ID) ON DELETE SET NULL ON UPDATE CASCADE; ON DELETE SET NULL: If a record in Persons is delet

Obtained Output:

1.	Desired Output?
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```

MariaDB [(none)]> use EVS;
Database changed
MariaDB [EVS]> CREATE TABLE Persons (
    ->     ID int NOT NULL,
    ->     LastName varchar(255) NOT NULL,
    ->     FirstName varchar(255),
    ->     Age int,
    ->     PRIMARY KEY (ID)
    -> );
Query OK, 0 rows affected (0.011 sec)

```

YES/NO

2.

```

MariaDB [EVS]> CREATE TABLE Persons (
    ->     ID int NOT NULL,
    ->     LastName varchar(255) NOT NULL,
    ->     FirstName varchar(255),
    ->     Age int
    -> );
Query OK, 0 rows affected (0.022 sec)

MariaDB [EVS]> ALTER TABLE Persons ADD PRIMARY KEY (ID);
Query OK, 0 rows affected (0.027 sec)
Records: 0  Duplicates: 0  Warnings: 0

```

3 i.

```

MariaDB [EVS]> CREATE TABLE Persons (
    ->     ID int NOT NULL,
    ->     LastName varchar(255) NOT NULL,
    ->     FirstName varchar(255),
    ->     Age int,
    ->     PRIMARY KEY (ID, LastName)
    -> );
Query OK, 0 rows affected (0.016 sec)

```

3 ii.

```

MariaDB [EVS]> CREATE TABLE Persons (
    ->     ID int NOT NULL,
    ->     LastName varchar(255) NOT NULL,
    ->     FirstName varchar(255),
    ->     Age int,
    ->     CONSTRAINT PK_Person PRIMARY KEY (ID, LastName)
    -> );
Query OK, 0 rows affected, 1 warning (0.013 sec)

```

4.

```
MariaDB [EVS]> ALTER TABLE Persons DROP PRIMARY KEY;
Query OK, 0 rows affected (0.029 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

5 i.

```
MariaDB [EVS]> CREATE TABLE Persons (
-> ID int NOT NULL,
-> LastName varchar(255) NOT NULL,
-> FirstName varchar(255),
-> Age int,
-> PRIMARY KEY (ID)
-> );
Query OK, 0 rows affected (0.012 sec)

MariaDB [EVS]> CREATE TABLE Orders (
-> OrderID int NOT NULL,
-> OrderNumber int NOT NULL,
-> PersonID int,
-> PRIMARY KEY (OrderID),
-> FOREIGN KEY (PersonID) REFERENCES Persons(ID)
-> );
Query OK, 0 rows affected (0.028 sec)

MariaDB [EVS]> CREATE TABLE Persons (
-> ID int NOT NULL,
-> LastName varchar(255) NOT NULL,
-> FirstName varchar(255),
-> Age int,
-> PRIMARY KEY (ID)
-> );
Query OK, 0 rows affected (0.012 sec)

MariaDB [EVS]> CREATE TABLE Orders (
-> OrderID int NOT NULL,
-> OrderNumber int NOT NULL,
-> PersonID int,
-> PRIMARY KEY (OrderID),
-> FOREIGN KEY (PersonID) REFERENCES Persons(ID)
-> );
Query OK, 0 rows affected (0.028 sec)

MariaDB [EVS]> drop table Orders;
Query OK, 0 rows affected (0.011 sec)

MariaDB [EVS]> CREATE TABLE Orders (
-> OrderID int NOT NULL,
-> OrderNumber int NOT NULL,
-> PersonID int,
-> PRIMARY KEY (OrderID),
-> CONSTRAINT FK_PersonOrder FOREIGN KEY (PersonID) REFERENCES Persons(ID)
-> );
Query OK, 0 rows affected (0.027 sec)
```

5 ii.

```

MariaDB [EVS]> CREATE TABLE Orders (
  ->   OrderID int NOT NULL,
  ->   OrderNumber int NOT NULL,
  ->   PersonID int,
  ->   PRIMARY KEY (OrderID),
  ->   CONSTRAINT FK_PersonOrder FOREIGN KEY (PersonID) REFERENCES Persons(ID)
  -> );
Query OK, 0 rows affected (0.027 sec)

MariaDB [EVS]> ALTER TABLE Orders
  -> ADD FOREIGN KEY (PersonID) REFERENCES Persons(ID);
Query OK, 0 rows affected (0.056 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [EVS]> CREATE TABLE Persons (
  ->   ID int NOT NULL,
  ->   LastName varchar(255) NOT NULL,
  ->   FirstName varchar(255),
  ->   Age int,
  ->   PRIMARY KEY (ID)
  -> );
Query OK, 0 rows affected (0.014 sec)

MariaDB [EVS]> CREATE TABLE Orders (
  ->   OrderID int NOT NULL,
  ->   OrderNumber int NOT NULL,
  ->   PersonID int,
  ->   PRIMARY KEY (OrderID),
  -> );
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near ')' at line 7
MariaDB [EVS]> CREATE TABLE Orders (
  ->   OrderID int NOT NULL,
  ->   OrderNumber int NOT NULL,
  ->   PersonID int,
  ->   PRIMARY KEY (OrderID)
  -> );
Query OK, 0 rows affected (0.013 sec)

MariaDB [EVS]> ALTER TABLE Orders
  -> ADD CONSTRAINT FK_PersonOrder
  -> FOREIGN KEY (PersonID) REFERENCES Persons(ID);
Query OK, 0 rows affected (0.050 sec)
Records: 0 Duplicates: 0 Warnings: 0

```

6.

```

MariaDB [EVS]> ALTER TABLE Orders DROP FOREIGN KEY FK_PersonOrder;
Query OK, 0 rows affected (0.011 sec)
Records: 0 Duplicates: 0 Warnings: 0

```

7.

```

MariaDB [EVS]> CREATE TABLE Persons (
->     ID int NOT NULL,
->     LastName varchar(255) NOT NULL,
->     FirstName varchar(255),
->     Age int,
->     PRIMARY KEY (ID)
-> );
Query OK, 0 rows affected (0.013 sec)

MariaDB [EVS]> CREATE TABLE Orders (
->     OrderID int NOT NULL,
->     OrderNumber int NOT NULL,
->     PersonID int,
->     PRIMARY KEY (OrderID),
->     FOREIGN KEY (PersonID) REFERENCES Persons(ID)
->     ON DELETE CASCADE
->     ON UPDATE CASCADE
-> );
ERROR 1050 (42S01): Table 'orders' already exists
MariaDB [EVS]> drop table Orders;
Query OK, 0 rows affected (0.016 sec)

MariaDB [EVS]> CREATE TABLE Orders (
->     OrderID int NOT NULL,
->     OrderNumber int NOT NULL,
->     PersonID int,
->     PRIMARY KEY (OrderID),
->     FOREIGN KEY (PersonID) REFERENCES Persons(ID)
->     ON DELETE CASCADE
->     ON UPDATE CASCADE
-> );
Query OK, 0 rows affected (0.031 sec)

```

8.

```

MariaDB [EVS]> ALTER TABLE Orders
-> ADD CONSTRAINT fk_pi FOREIGN KEY (PersonID) REFERENCES Persons(ID)
-> ON DELETE SET NULL ON UPDATE CASCADE;
Query OK, 0 rows affected (0.065 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [EVS]>

```