



Database Management Systems

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TY Comp Div-2, T4 Batch**

Asssignment - 4

Modify the trains schema which we saw earlier to create constraints to check the following:

- The value of timein is always less than or equal to timeout

```
ALTER TABLE trainhalts  
ADD CONSTRAINT time_check CHECK (timein <= timeout);
```

```
MariaDB [(none)]> use railway  
Database changed  
MariaDB [railway]> ALTER TABLE trainhalts  
    → ADD CONSTRAINT time_check CHECK (timein ≤ timeout);  
Query OK, 19 rows affected (0.109 sec)  
Records: 19  Duplicates: 0  Warnings: 0
```

```
MariaDB [railway]> desc trainhalts;
```

Field	Type	Null	Key	Default	Extra
id	varchar(5)	NO	PRI	NULL	
seqno	int(11)	NO	PRI	NULL	
stcode	varchar(10)	YES		NULL	
timein	varchar(5)	YES		NULL	
timeout	varchar(5)	YES		NULL	

```
5 rows in set (0.021 sec)
```

```
MariaDB [railway]> |
```

- When a train is removed from service, all its halts should be deleted.

```
ALTER TABLE trainhalts  
ADD CONSTRAINT fk_train  
FOREIGN KEY (id)  
REFERENCES train(id)  
ON DELETE CASCADE;
```

```
MariaDB [railway]> ALTER TABLE trainhalts  
→ ADD CONSTRAINT fk_train  
→ FOREIGN KEY (id)  
→ REFERENCES train(id)  
→ ON DELETE CASCADE;  
Query OK, 19 rows affected (0.101 sec)  
Records: 19  Duplicates: 0  Warnings: 0
```

- Insert inconsistent data and verify the constraints.

```
MariaDB [railway]> INSERT INTO trainhalts (id, seqno, stcode, timein, timeout) VALUES ('T001', 1, 'ST001', '12:00', '10:00');  
ERROR 4025 (23000): CONSTRAINT 'time_check' failed for 'railway'.'trainhalts'
```

Write SQL Create table statements to create the following schema. Include all appropriate primary and foreign key declarations. Choose appropriate types for each attribute.

```
MariaDB [(none)]> create Database College;  
Query OK, 1 row affected (0.001 sec)
```

```
MariaDB [(none)]> use College;  
Database changed  
MariaDB [College]> |
```

remotecentre(centreId, college, town, state)

```
CREATE TABLE remotecentre (  
    centreId INT PRIMARY KEY,  
    college VARCHAR(50),  
    town VARCHAR(50),  
    state VARCHAR(50)  
);
```

```
MariaDB [(none)]> use College;  
Database changed  
MariaDB [College]> CREATE TABLE remotecentre (  
    → centreId INT PRIMARY KEY,  
    → college VARCHAR(50),  
    → town VARCHAR(50),  
    → state VARCHAR(50)  
    → );  
Query OK, 0 rows affected (0.038 sec)
```

```
MariaDB [College]> desc remotecentre;
```

Field	Type	Null	Key	Default	Extra
centreId	int(11)	NO	PRI	NULL	
college	varchar(50)	YES		NULL	
town	varchar(50)	YES		NULL	
state	varchar(50)	YES		NULL	

4 rows in set (0.023 sec)

```
MariaDB [College]> |
```

person(ID, name, email)

```
CREATE TABLE person (  
    ID INT PRIMARY KEY,  
    name VARCHAR(50),  
    email VARCHAR(100)  
);
```

```
MariaDB [College]> CREATE TABLE person (  
    → ID INT PRIMARY KEY,  
    → name VARCHAR(50),  
    → email VARCHAR(100)  
    → );  
Query OK, 0 rows affected (0.052 sec)  
  
MariaDB [College]> desc person;  
+-----+-----+-----+-----+-----+-----+  
| Field | Type      | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| ID    | int(11)   | NO   | PRI | NULL    |       |  
| name  | varchar(50) | YES  |     | NULL    |       |  
| email | varchar(100) | YES  |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
3 rows in set (0.026 sec)  
  
MariaDB [College]> |
```

programme(progId, title, fromdate, todate)

```
CREATE TABLE programme (  
    progId INT PRIMARY KEY,  
    title VARCHAR(100),  
    fromdate DATE,  
    todate DATE  
);
```

```
MariaDB [College]> CREATE TABLE programme (  
    → progId INT PRIMARY KEY,  
    → title VARCHAR(100),  
    → fromdate DATE,  
    → todate DATE  
    → );  
Query OK, 0 rows affected (0.051 sec)  
  
MariaDB [College]> desc programme  
→ ;  
+-----+-----+-----+-----+-----+-----+  
| Field | Type      | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| progId | int(11)   | NO   | PRI | NULL    |       |  
| title  | varchar(100) | YES  |     | NULL    |       |  
| fromdate | date      | YES  |     | NULL    |       |  
| todate  | date      | YES  |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
4 rows in set (0.019 sec)
```

coordinator(ID, progId, centreId)

```
CREATE TABLE coordinator (  
    ID INT,  
    progId INT,  
    centreId INT,  
    PRIMARY KEY (ID, progId, centreId),  
    FOREIGN KEY (ID) REFERENCES person(ID),  
    FOREIGN KEY (progId) REFERENCES programme(progId),  
    FOREIGN KEY (centreId) REFERENCES remotecentre(centreId)  
);
```

```
MariaDB [College]> CREATE TABLE coordinator (  
→    ID INT,  
→    progId INT,  
→    centreId INT,  
→    PRIMARY KEY (ID, progId, centreId),  
→    FOREIGN KEY (ID) REFERENCES person(ID),  
→    FOREIGN KEY (progId) REFERENCES programme(progId),  
→    FOREIGN KEY (centreId) REFERENCES remotecentre(centreId)  
→ );
```

Query OK, 0 rows affected (0.059 sec)

```
MariaDB [College]> desc coordinator;
```

Field	Type	Null	Key	Default	Extra
ID	int(11)	NO	PRI	NULL	
progId	int(11)	NO	PRI	NULL	
centreId	int(11)	NO	PRI	NULL	

3 rows in set (0.020 sec)

participant(ID, progId, centreId)

```
CREATE TABLE participant (  
    ID INT,  
    progId INT,  
    centreId INT,  
    PRIMARY KEY (ID, progId, centreId),  
    FOREIGN KEY (ID) REFERENCES person(ID),  
    FOREIGN KEY (progId) REFERENCES programme(progId),  
    FOREIGN KEY (centreId) REFERENCES remotecentre(centreId)  
);
```

```
MariaDB [College]> CREATE TABLE participant (  
    → ID INT,  
    → progId INT,  
    → centreId INT,  
    → PRIMARY KEY (ID, progId, centreId),  
    → FOREIGN KEY (ID) REFERENCES person(ID),  
    → FOREIGN KEY (progId) REFERENCES programme(progId),  
    → FOREIGN KEY (centreId) REFERENCES remotecentre(centreId)  
    → );
```

Query OK, 0 rows affected (0.049 sec)

```
MariaDB [College]> desc participant;
```

Field	Type	Null	Key	Default	Extra
ID	int(11)	NO	PRI	NULL	
progId	int(11)	NO	PRI	NULL	
centreId	int(11)	NO	PRI	NULL	

3 rows in set (0.024 sec)

```
MariaDB [College]> |
```

```
MariaDB [College]> show tables;
```

```
+-----+
```

```
| Tables_in_college |
```

```
+-----+
```

```
| coordinator |
```

```
| participant |
```

```
| person |
```

```
| programme |
```

```
| remotecentre |
```

```
+-----+
```

```
5 rows in set (0.001 sec)
```

```
MariaDB [College]> |
```

