

P5 - Create the Government of the Balearic Islands Database for telephone calls management using the shell

Using the **MySQL shell**, perform the following tasks, saving it to a sql script:

1. Create a database called "TELEFONIA".

create database TELEFONIA;

```
mysql> create database TELEFONIA;
Query OK, 1 row affected (0.01 sec)

mysql> use TELEFONIA;
Database changed
```

2. Create the tables and relationships described above.

USERS

create table USERS (
NIF varchar (9) NOT NULL,
Name varchar (20) NOT NULL,
LastName1 varchar (20) NOT NULL,
LastName2 varchar (20),
Fec_Nacim date,
UNIQUE (NIF),
CHECK (Fec_Nacim >"1900-01-01"),
PRIMARY KEY (NIF));

```
mysql> create table USERS (  
-> NIF varchar (9) NOT NULL,  
-> Name varchar (20) NOT NULL,  
-> LastName1 varchar (20) NOT NULL,  
-> LastName2 varchar (20),  
-> Fec_Nacim date,  
-> UNIQUE (NIF),  
-> CHECK (Fec_Nacim>'1900-01-01'),  
-> PRIMARY KEY (NIF));  
Query OK, 0 rows affected (0.08 sec)
```

PHONES

```
create table TELEPHONES (  
Numero varchar (13) NOT NULL,  
NIF_Usuario varchar (9) NOT NULL,  
ID_Compania int NOT NULL,  
UNIQUE (Numero),  
primary key (Numero),  
foreign key (NIF_Usuario) references USERS (NIF),  
foreign key (ID_Compania) references COMPANIES (ID_Compania) );
```

```
mysql> create table TELEPHONES (  
-> Numero varchar (13) NOT NULL,  
-> NIF_Usuario varchar (9) NOT NULL,  
-> ID_Compania int NOT NULL,  
-> UNIQUE (Numero),  
-> primary key (Numero),  
-> foreign key (NIF_Usuario) references USERS (NIF),  
-> foreign key (ID_Compania) references COMPANIES (ID_Compania) );  
Query OK, 0 rows affected (0.27 sec)
```

COMPANIES

```
create table COMPANIES (  
ID_Compania int NOT NULL,  
Name varchar (20) NOT NULL,  
Anio_Fundacion date NOT NULL,  
UNIQUE (ID_Compania),  
CHECK (Anio_Fundacion between "1900" AND "2010"),  
PRIMARY KEY (ID_Compania));
```

```
mysql> create table COMPANIES (  
-> ID_Compania int NOT NULL,  
-> Name varchar (20) NOT NULL,  
-> Anio_Fundacion date NOT NULL,  
-> UNIQUE (ID_Compania),  
-> CHECK (Anio_Fundacion BETWEEN '1900' AND '2010'),  
-> PRIMARY KEY (ID_Compania) );  
Query OK, 0 rows affected (0.07 sec)
```

CALLS

```
create table CALLS(
Num_Llamante varchar(13),
Num_Llamado varchar(13) Not null,
Date date,
Time int,
CHECK (Date >"1990-01-01"),
constraint calls_pk primary key (Num_Llamante, Num_Llamado, Date),
foreign key(Num_Llamado) references TELEPHONES(Numero),
foreign key(Num_Llamante) references TELEPHONES(Numero) );
```

```
mysql> create table CALLS(
-> Num_Llamante varchar(13),
-> Num_Llamado varchar(13) Not null,
-> Date date,
-> Time int,
-> CHECK (Date >"1990-01-01"),
-> constraint calls_pk primary key (Num_Llamante, Num_Llamado, Date),
-> foreign key(Num_Llamado) references TELEPHONES(Numero),
-> foreign key(Num_Llamante) references TELEPHONES(Numero) );
Query OK, 0 rows affected (0.39 sec)
```

3. In the PHONES relationship, modify the NUMERO attribute so that it can contain Character strings of up to 11 characters.

```
alter table TELEPHONES MODIFY column Numero varchar (11) not null;
```

```
mysql> alter table TELEPHONES MODIFY column Numero varchar (11) not null;
Query OK, 0 rows affected (0.43 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESCRIBE TELEPHONES;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Numero     | varchar(11) | NO   | PRI | NULL    |       |
| NIF_Usuario | varchar(9)  | NO   | MUL | NULL    |       |
| ID_Compania | int         | NO   | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

4. In the USERS relationship, add an attribute called ADDRESS that is after the LastName2 attribute. The new attribute will contain the user's address, it must contain Strings of a maximum of 100 characters. It may be empty.

alter table USERS ADD Address varchar (100) after LastName2;

```
mysql> alter table USERS ADD Address varchar (100) after LastName2;
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESCRIBE USERS;
```

Field	Type	Null	Key	Default	Extra
NIF	varchar(9)	NO	PRI	NULL	
Name	varchar(20)	NO		NULL	
LastName1	varchar(20)	NO		NULL	
LastName2	varchar(20)	YES		NULL	
Address	varchar(100)	YES		NULL	
Fec_Nacim	date	YES		NULL	

```
6 rows in set (0.00 sec)
```

5. In the USERS relationship change their identifier (USERS) to CUSTOMERS.

alter table USERS RENAME CUSTOMERS;

```
mysql> alter table USERS RENAME CUSTOMERS;
Query OK, 0 rows affected (0.05 sec)

mysql> DESCRIBE USERS;
ERROR 1146 (42S02): Table 'TELEFONIA.USERS' doesn't exist
mysql> DESCRIBE CUSTOMERS;
```

Field	Type	Null	Key	Default	Extra
NIF	varchar(9)	NO	PRI	NULL	
Name	varchar(20)	NO		NULL	
LastName1	varchar(20)	NO		NULL	
LastName2	varchar(20)	YES		NULL	
Address	varchar(100)	YES		NULL	
Fec_Nacim	date	YES		NULL	

```
6 rows in set (0.00 sec)
```

6. In the CUSTOMERS relationship, change the identifiers of the LastName1 and LastName2 by AP1 and AP2 respectively.

ALTER TABLE CUSTOMERS

CHANGE LastName1 AP1 varchar(20),

CHANGE LastName2 AP2 varchar(20);

```
mysql> ALTER TABLE CUSTOMERS
  -> CHANGE LastName1 AP1 varchar(20),
  -> CHANGE LastName2 AP2 varchar(20);
Query OK, 0 rows affected (0.71 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESCRIBE CUSTOMERS;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| NIF        | varchar(9)    | NO   | PRI | NULL    |       |
| Name       | varchar(20)   | NO   |     | NULL    |       |
| AP1        | varchar(20)   | YES  |     | NULL    |       |
| AP2        | varchar(20)   | YES  |     | NULL    |       |
| Address    | varchar(100)  | YES  |     | NULL    |       |
| Fec_Nacim  | date          | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

7. In the CUSTOMERS relationship, change their IDENTIFIER back to USERS.

alter table CUSTOMERS RENAME USERS;

```
mysql> alter table CUSTOMERS rename USERS;
Query OK, 0 rows affected (0.05 sec)

mysql> DESCRIBE CUSTOMERS;
ERROR 1146 (42S02): Table 'TELEFONIA.CUSTOMERS' doesn't exist
mysql> DESCRIBE USERS;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| NIF        | varchar(9)    | NO   | PRI | NULL    |       |
| Name       | varchar(20)   | NO   |     | NULL    |       |
| AP1        | varchar(20)   | YES  |     | NULL    |       |
| AP2        | varchar(20)   | YES  |     | NULL    |       |
| Address    | varchar(100)  | YES  |     | NULL    |       |
| Fec_Nacim  | date          | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```


8. In the USERS relationship, change the AP1 and AP2 attribute identifiers to Last Name1 and Last Name2.

ALTER TABLE USERS

CHANGE AP1 LastName1 varchar(20),

CHANGE AP2 LastName2 varchar(20);

```
mysql> ALTER TABLE USERS
-> CHANGE AP1 LastName1 varchar(20),
-> CHANGE AP2 LastName2 varchar(20);
Query OK, 0 rows affected (0.18 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> DESCRIBE USERS;
```

Field	Type	Null	Key	Default	Extra
NIF	varchar(9)	NO	PRI	NULL	
Name	varchar(20)	NO		NULL	
LastName1	varchar(20)	YES		NULL	
LastName2	varchar(20)	YES		NULL	
Address	varchar(100)	YES		NULL	
Fec_Nacim	date	YES		NULL	

6 rows in set (0.00 sec)

9. In the CALLS relationship add a constraint so that a number cannot be called himself.

ALTER TABLE CALLS ADD CHECK (Num_Llamante != Num_Llamado);

```
mysql> ALTER TABLE CALLS ADD CHECK (Num_llamante != Num_llamado);
Query OK, 0 rows affected (0.35 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

10. In the USERS relationship, delete the ADDRESS attribute.

ALTER TABLE USERS DROP column Address;

```
mysql> ALTER TABLE USERS DROP column Address;
Query OK, 0 rows affected (0.68 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> DESCRIBE USERS;
```

Field	Type	Null	Key	Default	Extra
NIF	varchar(9)	NO	PRI	NULL	
Name	varchar(20)	NO		NULL	
LastName1	varchar(20)	YES		NULL	
LastName2	varchar(20)	YES		NULL	
Fec_Nacim	date	YES		NULL	

5 rows in set (0.00 sec)

11. Delete all relationships from the TELEFONIA database.

Drop table USERS, TELEPHONES, COMPANIES, CALLS;

```
mysql> Drop table USERS, TELEPHONES, COMPANIES, CALLS;  
Query OK, 0 rows affected (0.13 sec)
```

12. Delete the TELEFONIA database.

Drop database TELEFONIA;

```
mysql> Drop database TELEFONIA;  
Query OK, 0 rows affected (0.04 sec)
```