

Important:

- These practical exercises focus on the DDL (Data Definition Language) category as well as some commands from the DML (Data Manipulation Language) category of SQL, which do not have equivalents in Relational Algebra. They form the foundation for creating, populating, and modifying databases according to the relational model.
- Students must keep a copy of the original database.
- These practical exercises must be carried out on Microsoft Access, as most of the commands in these exercises cannot be executed with RAT.
- After each query, the student must review the result obtained.

In MS Access, open a copy of your Blood-Donation database to execute the following SQL queries:

1. Create a table Donor_Copy1 similar to Donor, retaining only the table structure (no data).

```
SELECT * INTO Donor_Copy1  
FROM Donor  
WHERE 1=0;
```

The WHERE 1=0 condition, being always false, ensures that no data is copied and only the structure of the table is retained.

2. Create a copy of the table Donor named Donor_Copy2, including all data

```
SELECT * INTO Donor_Copy2  
FROM Donor;
```

3. Create a copy of the table Donor named Donor_Copy3, including only donors with Blood_Type = 'A+'.

```
SELECT * INTO Donor_Copy3  
FROM Donor  
WHERE Blood_Type = 'A+';
```

4. Delete the table Donor_Copy1

```
DROP TABLE Donor_Copy1;
```

5. Delete all records from Donor_Copy3

```
DELETE FROM Donor_Copy3;
```

6. Add a field **Donor_Email** to the Donor table (Text with length 50).

```
ALTER TABLE Donor ADD COLUMN Donor_Email TEXT(50);
```

7. Remove the **Donor_Email** field from Donor

```
ALTER TABLE Donor DROP COLUMN Donor_Email;
```

8. Reduce the size of the Phone field in Donor to 15 characters

```
ALTER TABLE Donor ALTER COLUMN Phone TEXT(15);
```

9. Insert a new donor into the Donor table (Kamel Yahaoui, born on 25/11/2001, blood type B–, phone number 0555 24 89 77 and with Donor_Id=22).

```
INSERT INTO Donor (Donor_ID, First_Name, Last_Name, Gender, Date_Of_Birth, Blood_Type, Phone)  
VALUES (22, 'Kamel', 'Yahaoui', 'M', '#2001-11-25', 'B-', '0555248977');
```

10. Add Donor_ID as the primary key in the table Donor_Copy2.

```
ALTER TABLE Donor_Copy2
```

```
ADD CONSTRAINT PK_Donor_Copy2 PRIMARY KEY (Donor_ID);
```

11. Add a foreign key constraint between Donor_ID in the Donation table and Donor_ID in the Donor_Copy2 table.

```
ALTER TABLE Donation
```

```
ADD CONSTRAINT FK_Donation_DonorCopy2
```

```
FOREIGN KEY (Donor_ID)
```

```
REFERENCES Donor_Copy2 (Donor_ID);
```

Note: After execution, check referential integrity by attempting to insert a non-existing Donor_ID using the following command:

```
INSERT INTO Donation (Donor_ID)  
VALUES (99999);
```