Report TP1

Subject: Postgresql
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PART 1:

Q1.1:

The following screenshots show the queries of creation some tables:

- PS: All the queries are available in the source code (GitHub or the SQL attachment file).

```sql
/* CREATE TABLE Client*/
CREATE TABLE client (
  id          serial PRIMARY KEY,
  civ         VARCHAR(255),
  last_name   VARCHAR(255),
  first_name  VARCHAR(255),
  birthday    DATE,
  address     VARCHAR(255),
  prof_phone  VARCHAR(255),
  priv_phone  VARCHAR(255),
  fax         VARCHAR(255)
);
/* CREATE TABLE Employee*/
CREATE TABLE employee (
  id          serial PRIMARY KEY,
  last_name   VARCHAR(255) NOT NULL,
  first_name  VARCHAR(255) NOT NULL,
  salary      REAL         NOT NULL,
  category    work_category  NOT NULL
);
/* CREATE TABLE Mark*/
CREATE TABLE mark (
  id       serial PRIMARY KEY,
  mark     VARCHAR(255) NOT NULL,
  country VARCHAR(255) NOT NULL
);
/* CREATE TABLE Model*/
CREATE TABLE model (
  id       serial PRIMARY KEY,
  mark_id INT          NOT NULL,
  modele   VARCHAR(255) NOT NULL,
  FOREIGN KEY (mark_id) REFERENCES mark (id)
);
```

```sql
/* CREATE TABLE Vehicle*/
CREATE TABLE vehicle (
  id         serial PRIMARY KEY,
  client_id INTEGER    NOT NULL,
  model_id  INTEGER    NOT NULL,
  immat      INTEGER    NOT NULL,
  year       INTEGER NOT NULL,
  FOREIGN KEY (client_id) REFERENCES client (id),
  FOREIGN KEY (model_id) REFERENCES model (id)
);

/* CREATE TABLE Intervention*/
CREATE TABLE intervention (
  id           serial PRIMARY KEY,
  vehicle_id   INT          NOT NULL,
  type         VARCHAR(255) NOT NULL,
  start_date   DATE         NOT NULL,
  end_date     DATE         NOT NULL,
  count_interv REAL         NOT NULL,
  FOREIGN KEY (vehicle_id) REFERENCES vehicle (id)
);

/* CREATE TABLE Intervenants*/
CREATE TABLE intervenants (
  intervention_id INTEGER NOT NULL,
  employee_id     INTEGER NOT NULL,
  start_date      DATE    NOT NULL,
  end_date        DATE    NOT NULL,
  FOREIGN KEY (intervention_id) REFERENCES intervention (id),
  FOREIGN KEY (employee_id) REFERENCES employee (id),
  PRIMARY KEY (intervention_id, employee_id)
);
```

Figure 1 Creations of tables

Q1.2:

There is a lot of problems encountered:

- The field value of birthday date of the last row in client table (M. Lamine MZEABAT) is out of the range: “09/13/1965”.
- The *NUMMARQUE = 45* is not found in table *mark,* and when try to insert it in *model* table it’s violates foreign key constraint.
- The same previous problem:
  - *NUMMODEL = 77* is not found in table *Model* when inserting on *Vehicle* table.
  - *NUMCLIENT = 80* is not found in table *CLIENT* when inserting on *Vehicle* table.
  - *NUMMODEL = 77* is not found in table *Model* when inserting on *intervention* table.
  - *NUMEMPLOYEE = 88* is not found in table *Employee* when inserting on *intervenants* table.

Q2:

When the salary of *BADI Hatem* increased by *5000DA* we must update the row in the database. We do that by execute the following query:

```sql

/* increase salary of BADI Hatem by 5000DA*/
UPDATE employee SET salary = salary + 5000 WHERE first_name = 'BADI' AND last_name = 'Hatem';

```

Figure 2 Update query

Q3:

To add a five days to the start date for February interventions, we execute the following query:

```
/* Q3: Update date by adding 5 days for february interventions*/

UPDATE intervention SET start_date = start_date + interval '5 day' WHERE DATE_PART('month', start_date) = 02;
```

Figure 3 Update date query

Q4:

We can't delete the vehicle of *Serie 5* model because that's violates **foreign key constraint**.

Detail: the row still referenced from table "vehicle".

PS: We can force delete by using *ON DELETE CASCADE*.

PART 2:

Q5:

To display all model with their mark, we execute the following query:

```
/*Q5: Display model with their marks*/

SELECT model.*, mark.mark FROM model INNER JOIN mark ON model.mark_id = mark.id;
```

Figure 4 Display model and mark

And the result of this query is:

```
interven_mec=# SELECT model.*, mark.mark FROM model INNER JOIN mark ON model.mark_id = mark.id;
 id | mark_id |       modele        |     mark
----+---------+---------------------+-------------
  2 |       1 | Diablo              | LAMBORGHINI
  3 |       2 | Serie 5             | AUDI
  4 |      10 | NSX                 | ALFA-ROMEO
  5 |      14 | Classe C            | MERCEDES
  6 |      17 | Safrane             | RENAULT
  7 |      20 | 400 GT              | VENTURI
  8 |      12 | Esprit              | LOTUS
  9 |      15 | 605                 | PEUGEOT
 10 |      19 | Previa              | TOYOTA
 11 |       7 | 550 Maranelllo      | FERRARI
 12 |       3 | Bentley-Continental | ROLLS-ROYCE
 13 |      10 | Spider              | ALFA-ROMEO
 14 |      13 | Evoluzione          | MASERATI
 15 |      16 | Carrera             | PORSCHE
 16 |      16 | Boxter              | PORSCHE
 17 |      21 | S 80                | VOLVO
 18 |       6 | 300 M               | CHRYSLER
 19 |       5 | M3                  | CADILAC
 20 |       9 | XJ 8                | JAGUAR
 21 |      15 | 406 coupe           | PEUGEOT
 22 |      20 | 300 Atlantic        | VENTURI
 23 |      14 | Classe E            | MERCEDES
 24 |      11 | GS 300              | LEXUS
 25 |       5 | Seville             | CADILAC
 26 |      18 | 95 Cabriolet        | SAAB
 27 |       2 | TT coupe            | AUDI
 28 |       7 | F 355               | FERRARI
 29 |       5 | POLO                | CADILAC
(28 rows)
```

Figure 5 Result of the above query

Q6:

To display all vehicle who have at least one intervention, we execute the following query:

```
18
19   /*Q6: display all vehicle who have at least one intervention */
20   SELECT * FROM vehicle WHERE id IN (SELECT intervention.vehicle_id FROM intervention);
21
```

And the result of this query is:

```
interven_mec=# SELECT * FROM vehicle WHERE id IN (SELECT intervention.vehicle_id FROM intervention);
 id | client_id | model_id |  immat   | year
----+-----------+----------+----------+------
  1 |         2 |        6 |        0 | 1992
  2 |         9 |       20 | 11111111 | 1993
  3 |        17 |        8 | 22222222 | 1987
  6 |        20 |        6 | 55555555 | 1997
  7 |         7 |        8 | 66666666 | 1998
  8 |        16 |       14 | 77777777 | 1986
 10 |        20 |       22 | 99999999 | 1999
 14 |        12 |       21 | 14141414 | 1992
 17 |        12 |       11 | 17171717 | 1976
 20 |        22 |        2 | 20202020 | 1997
 21 |         3 |       19 | 21212121 | 1985
 22 |         8 |       19 | 23232323 | 1998
 25 |        13 |        5 | 26262626 | 1998
 28 |        10 |        3 | 29292929 | 1999
(14 rows)
```

Figure 6 Result of displaying vehicle