Databases — Part 2 — Elements of correction

Exercise 1

A database contains two tables whose structure is the following:

- users: surname, first_name, age
- books: title, author, price

1. Add the user "Elizabeth Brown", 20 years old

```
INSERT INTO users(surname, first_name, age) VALUES ('Brown', 'Elizabeth', 20);
```

2. Add the book "Le rouge et le noir", which costs 4.99€.

```
INSERT INTO books(title, author, price) VALUES ('Le rouge et le noir', 'Stendhal
    ', 4.99);
```

Exercise 2

1. All the books.

```
SELECT * FROM books;
```

2. All the users with the surname Jones.

```
SELECT * FROM users WHERE surname='Jones';
```

3. All the books written by Hugo.

```
SELECT * FROM books WHERE author='Hugo';
```

4. All the books that cost less than 5€.

```
SELECT * FROM books WHERE price<5;
```

5. All the books that cost less than 5€ and those that cost more than 12€.

```
SELECT * FROM books WHERE price<5 OR price>12;
```

6. All the users whose first name starts with Tyler- (for example, Tyler-John or Tyler-Jay).

```
SELECT * FROM users WHERE first_name LIKE 'Tyler-%';
```

Exercise 3

1. The 5 younger users.

```
SELECT * FROM users ORDER BY age ASC LIMIT 5;
```

2. The 10 most expensive books.

```
SELECT * FROM books ORDER BY price DESC LIMIT 10;
```

3. The 10 books that follow (by price).

```
SELECT * FROM books ORDER BY price DESC LIMIT 10,10;
```

Exercise 4

A bug was found in the database: William Wordsworth was misspelled "Wordsword". What is the request we have to write to remove this bug?

```
UPDATE books SET author='Wordsworth' WHERE author='Wordsword';
```

Exercise 5

We take a database a little more evolved than in the previous exercises. This database contains the following tables:

- users: id, surname, first_name, age
- authors: id, surname, first_name
- genres: id, genre
- books: id, title, author_id, price, genre_id

(in each table, the id field is an integer identifier; in the books table, the author id is linked to the authors table and the genre id is linked to the genres table)

Write one request per question, to give:

1. The titles of the books written by Victor Hugo.

   ```
   SELECT title
   FROM books, authors
   WHERE authors.surname='Hugo' AND authors.first_name='Victor'
   AND authors.id=books.author_id;
   ```

2. All the books in the poetry genre (id 1, as in previous examples).

   If we are sure that the poetry genre is 1, then we may write the following request, as previously:

   ```
   SELECT title FROM books WHERE genre_id=1;
   ```

   But in general, this is a bad idea, because this id might change in the future, and thus to avoid any bug, the following request is better (and clearer, because it is explicitly written that we search for poetry !):

   ```
   SELECT title
   FROM books, genres
   WHERE books.genre_id=genres.id AND genres.genre='poetry';
   ```

3. All the books in the poetry genre written by Victor Hugo.

   This question is just an "And" from the two previous ones.

   ```
   SELECT title
   FROM books, authors, genres
   WHERE authors.surname='Hugo' AND authors.first_name='Victor'
   AND authors.id=books.author_id AND books.genre_id=genres.id AND genres.genre='
       poetry';
   ```

4. You have heard that the author of some books of this library has just opened an account in the library to borrow books. Give the list of all his or her books.

   ```
   SELECT *
   FROM books, authors, users
   WHERE books.author_id=authors.id AND authors.surname=users.surname
   AND authors.first_name=users.first_name;
   ```