X-Formation

RECRUITMENT TEST (JAVA DEVELOPER)

Note the following considerations before you start taking the test:

- We expect you to create a private repository on github or bitbucket and invite jobs-tests@x-formation.com as collaborators.
  Then create a pull request without reviewers with your solutions.
  Afterwards send an email with a repository link to our recruitment team - only then we will start reviewing your solution.
  Keep in mind that proper submission is also part of the test - we will reject it if it is done in any other way.
- The usage of Maven in Java projects will be considered a plus.

TASK DESCRIPTIONS

1. Food ordering system

Imagine you have to design an application for a restaurant ordering system. Please follow the requirements listed below:

Functional requirements:

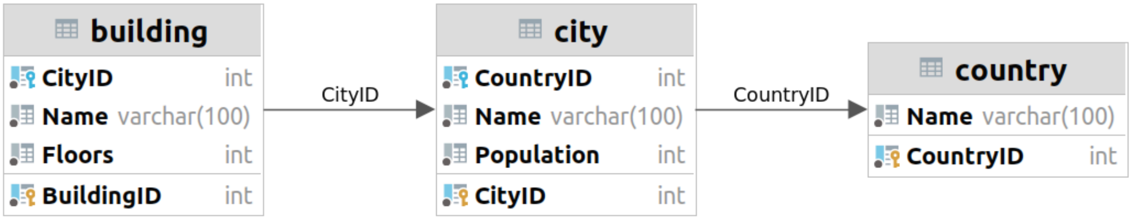
- It’s possible to order lunch and/or drink.
- Lunch consists of a main course and dessert.
- Each meal and drink must have a name and price.
- There are three cuisines available to choose from (Polish, Mexican, Italian).
- When ordering a drink, the customer can additionally ask for ice cubes or/and lemon.

Non-functional requirements:

- It should be self-contained and work “out of the box” without any additional requirements. We should be able to run it and place an order.
- Command-line interface (no UI is required).
- It should be extendable (possible to add new cuisines/dishes/additions in the future).
- It should contain unit tests.
- It should use Java 21

Present your proposal of implementation for this application.

2. Considering the following data model:



```
CREATE TABLE Country (
   CountryID INT PRIMARY KEY,
   Name VARCHAR(100) NOT NULL);

CREATE TABLE City (
   CityID INT PRIMARY KEY,
   CountryID INT NOT NULL,
   Name VARCHAR(100) NOT NULL,
   Population INT NOT NULL,
   FOREIGN KEY (CountryID) REFERENCES Country(CountryID));

CREATE TABLE Building (
   BuildingID INT PRIMARY KEY,
   CityID INT NOT NULL,
   Name VARCHAR(100) NOT NULL,
   Floors INT NOT NULL,
   FOREIGN KEY (CityID) REFERENCES City(CityID));
```

Write two MySQL queries:

1. Select countries where the total number of inhabitants (population) in all cities is greater than 400.
2. Select names of the countries that have no buildings at all.

Please use the same table and column names as shown in the diagram and provided in the CREATE queries.

Put queries in file Task2.sql in the repository.