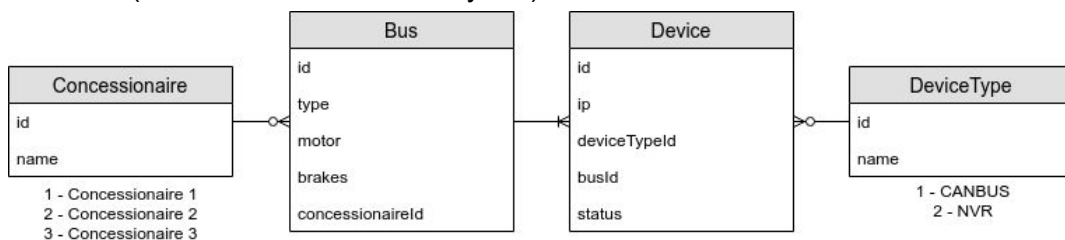


Backend Developer Test

Analytic Lab Works

This is a technical test for applying to a backend position. The solution must be developed in Java and published into a GitHub repository.

1. What data structures and algorithms can be used for storing and filtering by pattern (or regex) a set of strings? Write the code using Java 8 functions and Stream API.
2. Write a function that returns the count of distinct case-insensitive alphabetic characters and numeric digits occurring more than once in an input string. Example:
 - a. "abcde" => {}
 - b. "aabbcd" => { 'a': 2, 'b': 2 }
 - c. "aabBcd" => { 'a': 2, 'b': 2 }
 - d. "indivisibility" => { 'i': 6 }
 - e. "Indivisibilities" => { 'i': 6, 's': 2 }
 - f. "aA11" => { 'a': 2, '1': 2 }
 - g. "ABBA" => { 'a': 2, 'b': 2 }
3. Given the entity relationship diagram below, code SQL sentences for:
 - a. Get all buses for "Concessionaire 1".
 - b. Get all NVR devices for buses with type equal to "Bi-articulado".
 - c. Summarize the quantity of devices by status (Active / Inactive) and bus motor (Diesel / Gas / Electric / Hybrid).



4. Design and code an API REST for accessing the resources in the above database.
 - a. What HTTP endpoints and methods would you enable for creation, reading, modification and deletion?
 - b. How can be a hierarchical access to enable the front-end for querying devices belonging to a specific bus?
5. Test the API REST and attach the evidence. Postman is suggested.