Instituto de Pesquisas Eldorado

Backend Developer

Application Building Challenge

The goal of the challenge is to hire a professional who can understand a problem statement and apply their skills to come up with a simple but elegant solution with an effective code. Solutions, of course, have to be relevant to the real world that we live in and aligned with the skills needed for the team to solve the client's problems. The feature set selected for this challenge represents fundamental skills required in the project.

In this challenge, we will provide you with a problem statement for which you have to build a functional software, with a REST API, a database implementation and its schema. The challenge comprises the following:

- Hypothetical problem context.
- A set of endpoints the API must have.
- Instructions on how to submit.

The submission will be evaluated manually by the team members, your future coworkers. You will be evaluated in the following criteria:

- Functionality of the software - we will check if it works and what functionalities you have implemented.
- Code design and organization - we will evaluate if your code is clean, readable, easy to maintain and follows good design patterns.
- Creativity - we want to see what you can come up with given the problem statement, meaning that you have freedom to do it as you wish.

You have the freedom and flexibility to do this challenge in your time, as long as you deliver it in 7 days. We expect to hear from you **7 days** from when you receive these instructions. **Please confirm you have received it.**

Even if you can't implement all the mandatory features, don't be embarrassed to send us what you created, we will be happy to evaluate what you delivered (as long as we can execute it).

Problem Context:

In this challenge, we are interested in helping our client, a hypothetical company that hires third-party independent providers to fix and clean houses before selling them to their customers.

This company desires to have a way to keep their history and help with their decision-making process. Our stakeholder is interested in scaling their system in the future, and maybe create a platform to generate an additional revenue to their businesses.

Our client told us that their process is as follows:

- They have a set of well-defined services a building might be in need of, called phases. As an example, they provided us: Cleaning Services, Deep-Cleaning Services, Painting Services, Hydraulic Services, Electrical Services and Rooftop Services.
- They provide for their customers a package of services. For example, in January of 2022 they had 3 packages available for their clients to hire: "Start Fresh 022", which is a Deep-Cleaning Service followed by a Painting Service; "Return from the ashes 022", which is composed of Hydraulic Services, Electrical Services and Deep-Cleaning Services; and "I-can-no-longer-live-in-fear-of-the-rain-anymore 022", which is a set of Rooftop Services and Cleaning Services. These packages can be hired by anyone in the country, regardless of their location.
- For each service, the person executing the service can do two (or in the future, many) operations: Take a picture or do nothing. They use these pictures as not only a way to assure accountability, making sure they have proof of service execution, but also to run some AI models to draw insights they can present to their prospective customers.
- They told us that they also keep track of the buildings they fix. They store information such as: A unique identification, when that building was registered in their system, its zip-code and its coordinates (lat and long).
- Whenever a customer requests a pack of service, they want to keep track how the providers are executing the service. So, based on the package they hired, they also want to know, for each phase:
    - When it started
    - When it finished
    - The coordinates of the specific location they provided the service for. This is especially useful for large buildings, and they think it helps making sure the service is being applied where it is intended to.
- Therefore, each service order can contain only one service package. Keep in mind that each service package is composed of many services. Each service within the package requires that we create a correspondence in the service order.

Required API Endpoints:

We need you to provide us an API, that only exposes the following:

- An endpoint to retrieve all the procedures that happened in a specific date
- An endpoint to retrieve all the images of a certain type of service package

Submission Instructions:

We expect to receive four deliverables:

- The executable file for the API server (.jar, for example)
    - Send to us via email
- The database file (.db)
    - Keep it simple, prefer SQLite over more complex DBMS
    - Send to us via email
- The database schema
    - A diagram showing how you modeled the problem (it can be an image)
    - Send to us via email
- The code and all its assets
    - You can choose the language you're most comfortable with (JAVA or Kotlin preferred)
    - Zip and send it to us via email, or
    - Upload it to your GitHub account and send the public link via email.

Additional information:

If you may have any questions regarding this challenge, don't hesitate to contact us, we will be happy to answer you. In case you assume the information yourself – that's not a problem – please state what you took into consideration in the code.

The email to contact us is ricardo.silva@eldorado.org.br.