

Backend coding challenge

We will not ask you to design a fancy algorithm. In the end that is not what you are going to do on a daily basis if you work for us. Instead please deliver something **production-ready**. Please focus on the requirements provided here and avoid over-engineering your solution with functionalities that we are not going to review. Use the tools developers use when they work on the real thing. Focus on showing us how you would have solved a problem in your daily work.

We ask you to provide a backend solution, ideally involving Spring Boot.

Case study

George is a local travel guide who provides private hiking tours of the mountains in his locality. Hikers would contact him over the phone to go on three different hike trails: **Shire**, **Gondor** and **Mordor**. He would enter each booking request in a spreadsheet along with the hikers' information. As the number of requests for his services are increasing, he is finding it difficult to handle his business efficiently.

Business Information

Trails

```
{
  "name": "Shire",
  "startAt": "07:00",
  "endAt": "09:00",
  "minimumAge": 5,
  "maximumAge": 100,
  "unitPrice": 29.90
}
```

```
{
  "name": "Gondor",
  "startAt": "10:00",
  "endAt": "13:00",
  "minimumAge": 11,
  "maximumAge": 50,
  "unitPrice": 59.90
}
```

```
{
  "name": "Mordor",
  "startAt": "14:00",
  "endAt": "19:00",
  "minimumAge": 18,
  "maximumAge": 40,
  "unitPrice": 99.90
}
```

`minimumAge` and `maximumAge` represents the **allowed** age limits of a trail (inclusive). `unitPrice` represents the price for **one** hiker.

Conditions

- A hiker must be within the specified age limits in order to be considered eligible for the chosen trail.
- A hiker can include more than one hiker in his/her booking; provided that they are within the age limit of the chosen trail.
- Each booking should be for one trail only.

Task

The frontend team requires you to design and implement a **REST-based Backend application** that would allow hikers to perform the following tasks:

- View all the trails available for hiking
- View a selected trail
- Book a selected trail for hiking
- View a booking
- Cancel a booking

Assumptions

Given the limited amount of time to complete the task, you may assume the following:

- There are no restrictions on the number of bookings that can be made daily.
- The dates and times of bookings can overlap each other as many times as possible.
- In the scope of this challenge, any authentication/authorisation functionality is **NOT** required. **We will not be reviewing it if provided.**

Technical Requirements

The role and responsibilities of a Software Engineer at ELEMENT can be summarised as follows:

- Being able to clearly understand business requirements from stakeholders.
- Design and implement high quality features with a fast agile mindset.
- Be the driver of your feature development and architect of its infrastructure until deployment on production (DevOps).

With the above three points in mind, your application should meet the following technical requirements:

- A README file with detailed instructions/commands to run it.
- Be production-ready.
 - We leave it to you to think what it means for an application to be production-ready. In regard to that, please mention what you would add or improve if given more time in your README file.
- It should run out of the box without any installations or configurations (databases, JDKs, etc) required by us.
 - **We expect your application and dependencies to be containerised for running in a Docker environment.**
- **Bonus:** You can invest time to use a production-like database, e.g. PostgreSQL or MongoDB in your solution (optional).
 - **Note: Do not use any publicly hosted databases from an external service.**

Important

- You should invest around 7 hours on the task. Please deliver your solution within 7 days.
- Your solution will be compared against other candidates applying for the same job position, in terms of code quality and production-readiness.
- Please do not publish the solution to your public GitHub profile or something similar. You may send us your solution by sharing it as a zip file via your private cloud account (Google Drive, OneDrive, etc).