1. Booking.com Hotel API (Java)

Problems you need to solve

1. Get hotel details by ID

Problem statement

As a consumer of Hotel inventory, I want to retrieve individual hotel details, so I can display it to my customers.

API Contract:

Contract	Example

Request
GET /hotel/{id}
 	
Response 200
{
  id: integer,
  name: string,
  rating: decimal,
  latitude: decimal,
  longitude: decimal,
  address: string,
  city: {
    id: integer,
    name: string,
    cityCentreLatitude:
decimal,
    cityCentreLongitude:
decimal
	GET /hotel/10
	
	{
	  id: 10,
	  name: 'The Bank Hotel Amsterdam'
	  rating: 9.2
	  latitude: 52.37276,
	  longitude: 4.893604,
	  address: "10 Bank Street, 10110 AB",
	  city: {
	    id: 1,
	    name: "Amsterdam",
	    cityCentreLatitude:
	52.36878

Tip: think about what status codes should be returned by the endpoint
Tip: make sure you conform to the contract as the test is graded automatically

2. Delete a hotel by id

Problem statement

As a maintainer of Hotel inventory, I want to delete an individual hotel, so it's not available for display.

By "Deleted" we mean the hotel is logically deleted - not completely removed from our inventory.

API Contract:

Contract	Example
Request DELETE /hotel/{id} Response 200	DELETE /hotel/10

Tip: think about what status codes should be returned by the different endpoints
Tip: how would this affect the response of other endpoints

3. Find the 3 hotels closest to the city centre

Problem statement

As a user of Booking.com search functionality
I want to be able to find the top 3 hotels that are closest to the city centre
So I can choose my most convenient hotel

The distance will be calculated using the Haversine formula, **obtaining the distance between two points.**
Feel free to Google for 3rd party code that implements the Haversine formula, you don't need to implement it yourself.

API Contract:

Contract	Example

Request
GET /search/{cityId}/?sortBy= (distance)
 	
Response 200
[{
  id: integer,
  name: string,
  rating: decimal,
  latitude: decimal,
  longitude: decimal,
  address: string,
  city: {
    id: integer,
    name: string,
    cityCentreLatitude:
	Request
	GET /search/1/?sortBy=distance
	
	Response
	[{
	  id: 10,
	  name: 'The Bank Hotel Amsterdam',
	  rating: 9.2,
	  latitude: 52.37276,
	  longitude: 4.893604,
	  address: "10 Bank Street, 10110 AB",
	  city: {
	    id: 1,
	    name: "Amsterdam",
	    cityCentreLatitude: 52.36878,
	    cityCentreLongitude: 4.903303

```
   id: integer,                    name: "Amsterdam",
   name: string,                   cityCentreLatitude: 52.36878,
   cityCentreLatitude:             cityCentreLongitude: 4.903303
decimal,                          }
   cityCentreLongitude:        }, ... up to 3 results]
decimal
   }
}, ...]
```

Software Instructions

The objective is for you to build an API to manage Booking.com Hotels, from dealing with inventory queries to searching for the best hotel for a customer.

You're given a pre-configured Spring Boot project, with the following capabilities already implemented:

- A **/hotel GET endpoint**, listing all the hotels in our system.

- An H2 in-memory data source containing all our hotel inventory.

- A basic service implementation layer to retrieve information from the hotel and city inventory.

- Example implementations of functional tests (testing a bit of logic) and integration tests (testing an HTTP endpoint in your API). You can change these if you see fit.

If you like writing tests for your code and feel comfortable with it, we encourage you to do so, since it will contribute considerably towards improving your score.

But if you're more of a problem solver, you can focus more on solving all the problems presented without writing tests for them and that's perfectly fine!