Simpo code assignment

Welcome to Simpo's coding exercise! As you've no doubt been told, the aim of this exercise is to see how you actually write code, you don't have to cover it all with unit tests, solve all edge cases or even finish it (though it will be better)

The exercise also aims to present you with a task that is reminiscent of the sort of work we actually do at Simpo, and so you will be building a web application.

The web app

You will implement a simpl web application to analyse earthquake data,

You will use a 3rd party service for getting data of earthquakes occured world wide in the passing years, you can filter the data using a query string.

you can read about the service API in this link:
https://earthquake.usgs.gov/fdsnws/event/1/

This is a query example:
https://earthquake.usgs.gov/fdsnws/event/1/query?format=geojson&starttime=2014-01-01&endtime=2014-01-02&minmagnitude=1&latitude=37&longitude=-122&maxradiuskm=200

Where:

- Format – geojson is a standard json representation (https://earthquake.usgs.gov/earthquakes/feed/v1.0/geojson.php)
- starttime – will return earthquakes happened after this date YYYY-MM-dd
- endtime – will return earthquakes happened before this date YYYY-MM-dd
- minmagnitude – will return earthquakes with magnitude larger than the param
- Location – will return the earthquakes happened in a circle with the radius in km and centered in the given coordinates.
    - latitude – [-90,90]
    - longtitude – [-180,180]
    - maxradiuskm – radius in KM

Try the get request in the browser you will understand yourself the structure and values from the JSON

We don't like our client to send requests to 3rd party services, this is why we encapsulate the requests to external services in the BE and use our BE as a proxy to the service.

Goal

Create a form for query data of earthquakes happend in the world, it will contain several filters:

1. Start date
2. End Date
3. Min magnitude – decimal 0-10
4. Location
    - 4.1 Latitude – Decimal [-90,90]
    - 4.2 Longitude – Decimal [-180,180]
    - 4.3 Radius – Decimal (km)

The form will consist a SUBMIT button.

Based on the submitted data from the client, you should retrieve all earthquakes happened:

1. In the filled time span
2. With greater magnitude then the min magnitude
3. In the circle created by the location and radius

From the retrieved data the form should display the:

- Median magnitude of all earthquakes
- Max magnitude
- Min magnitude
- Number of earthquakes

You can show the data in a different page of in the same one.

What we want from you

We're rooting for you, we really are. Have a look at this handy list of things that your exercise should strive to have:

* Readable code
* Proper treatment of errors and at least some edge cases
* A backend
* A Frontend
* Efficiency

It is important to remember that you should solve the exercise in a way that best suits your skill set. Are you unparalleled in your backend skills? Go for a minimal frontend. Are you a phenomenal frontend developer? Put the bulk of your logic in the frontend. Anything in between also flies. We're very open minded that way.

Good luck!