**Technical challenge questions**

**Question 1:**

The first challenge of this application is that of data storage. It would be necessary to have a database capable of storing the time series and which makes it possible to make appropriate queries.

The second more apparent challenge is that of data recovery. Indeed, if the user selected an interval of n days, we would have at least n days \* 24 hours \* 60 minutes \* 60 seconds of data = 86400 n data. Knowing the size of a float and 4 bytes, the whole thing would be roughly n\*345.6 KB not taking into account the size of keys and delimiting characters.

It would therefore be necessary to find a solution that would make it possible to recover the relevant data, while not overloading either the network or the frontend in terms of the size of the data to be processed. At the same time, it will be necessary to avoid overloading the backend with untimely requests as we zoom in, to avoid denial of service.

The web socket + GraphQL combination could be a solution approach. Initially, a communication socket is opened between the client and the server, then zoom levels (step) are defined on the client from which a new request is triggered. In the end, the server will only respond with the relevant data corresponding to the day and zoom level requested thanks to GraphQL.

**Question 2:**

1. Ask some questions about the bug to the user if necessary (environment, error messages, steps to reproduce the bug, etc.)
2. Create a GitHub issue if it is not already done and assign it to myself.
3. Fork the repository.
4. Clone the repository on my computer: git clone fork-url.
5. Create a local branch for development: git checkout -b name-of-bugfix
6. Write a test that reproduces the problem. It should fail because of the bug.
7. Fix the faulty piece of code until the test passes.
8. Add changed files to git: git add changed-file.
9. Commit the changes with the issue ID: git commit -m “description issue #ID”.
10. Push my bug-fix branch to my GitHub repo: git push origin name-of-bugfix.
11. Submit a pull request on GitHub.
12. If the bug-fix passes all the CI tests, and it is accepted, it will eventually be merged.