

Logbooking Software for Science

Software for Science
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1 Preface

The preface of the research paper

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2 Abstraction

The part where we talk in short about the report

3 Introduction

Since 2017, the University of Applied Sciences of Amsterdam collaborates with CERN, Conseil Européen pour la Recherche Nucléaire, by doing research for ALICE(A Large Ion Collider Experiment). ALICE detects the collisions with Ions such as lead resulting in quark-gluon plasma which is believed to have existed just a few milliseconds after the Big Bang. After the quark-gluon plasma is resolved an enormous number of particles is emitted and detected by ALICE. The detection is transformed into data which has to be processed and made available for physicists doing research on the smallest particles imaginable.

3.1 Defining the problem

The current logbooking software is outdated on both the front-end and back-end side. For example, there are multiple databases for the log-book system. ALICE is currently under maintenance at CERN and therefore the opportunity has risen to

3.2 Research questions

The main research question + subquestions.

3.2.1 Main research question

3.2.2 Sub research questions

1. What Database API is faster in use: Postgres or MariaDb?
2. What are the benefits of using the CERN REST api compared to a custom REST api?
3. What are industrial best practices for CORS with a front-end server?
4. How to create an secured connection between a Database server and the REST server?

4 Methods and techniques

Discussing what will be needed to complete the research question.

4.1 Software stack

For the creation of the back-end for the logbook system, CERN has given requirements for the software stack. These are:

1. The logbook must be written in Javascript.
2. The existing CERN frameworks for OAUTH and any other custom CERN frameworks are used as much as possible
3. The used frameworks are open source.
4. The code is stylised according to the Google JavaScript Style Guide with the following changes:
 - a) Allow 100 characters line length with the exception of lines with require statements.
 - b) Indentation is two.
 - c) Using the var keyword is forbidden.
 - d) Binding this is forbidden.

With applying the requirements to the Logbook system software stack, the project uses the following software stack:

1. Expressjs as the JavaScript framework
2. WebGui from CERN as the REST-API
3. Mocha as the unit testing framework
4. npm as the package manager

5 Results

Discussing the results from the methods.

6 Conclusion

Concluding the report with a conclusion.

7 Recommendations

Recommendations for future use of the server.

8 Subface

9 Resource List

10 Attachments