Module 4: Facilitating software quality across EOSC services

Introduction

Back in 2016, at the inception of the EOSC, the main focus of discussions centred on data whereas the role of software was disregarded. Today, on the contrary, there is a general agreement in the research community that software is a key pillar of Open Science. Essentially, the producer of the data plays a very active and powerful role in promoting Open Science.

EOSC Synergy is therefore bridging this gap and addressing software quality by facilitating researchers and computational scientists and helping to achieve customer satisfaction with EOSC services.

That's why we have developed baseline criteria for the quality assurance of both software and services. Thanks to these criteria, our project will foster good practices of developing a source code across Europe. It will also enable us to analyse and assess the quality of any EOSC service that is based on software.

End user as priority

Compliance with good practices in software development may represent a steep learning curve for some researchers or computational scientists, especially the ones who are not used to working collectively or sharing their source code with peer researchers. In addition, setting up the infrastructure to support the validation of these practices entails getting familiar with the so-called continuous integration services.

In EOSC Synergy we aim to be one step ahead and not limit ourselves to the essential task of collecting and maintaining these quality criteria for software and services. So, our ultimate goal is to provide a platform that automates these tasks as much as possible for the end user. We call it Software Quality Assurance as a Service (SQA-as-a-Service).

Benefits

Our service covers baseline criteria in an integrated way. To illustrate, by using a web interface, the end user can select the criteria that they want to use in their software code. Based on their selection, they will have a *pipeline* as an output, containing the different stages that the code analysis has to go through. The created pattern can be stored in a code repository and be also checked by any continuous integration server.

For us, it is vital to maintain a balance between quality criteria and adoption of services. We understand that our criteria shouldn't be an obstacle to adopt new services from the EOSC service catalogue.

So, instead of demanding researchers to follow our criteria, the SQA-as-a-Service will allow the end user to customise their own baselines with the criteria they want to apply to their code, and thus, suitable for any use case.

Besides the above advantages, the end user will receive a report and a digital badge indicating the quality of the source code.

One the one hand, the badge will give them recognition for their hard work. On the other hand, the badge will provide them with confidence and trust as they will have a better understanding of the quality aspects of the services.

Challenges

Of all the challenges we face, the biggest one is cultural. Many researchers are used to working in a rather traditional way, for instance, in separate scientific silos.

However, in following Open Science practices, they will be required to do things differently and adjust accordingly to benefit from each other's work. In this respect, a cultural shift is needed to successfully embrace the values of Open Science.

Researchers also need to understand that others will only adopt their software and services if these meet the quality criteria.

Future

With the end user in mind, we are always open to suggestions and feedback from the public. Therefore, our baseline criteria are available in a GitHub repository. We expect to have the SQA-as-a-Service platform ready for external use towards the end of the project in early 2022.