



Supervisor's statement of a final thesis

Supervisor: Ing. Nikolay Barbariyskiy
Student: Artem Kravchenko
Thesis title: Unified SDK for integration with Erste group PSD2 API
Branch / specialization: Web and Software Engineering, specialization Software Engineering
Created on: 12 August 2021

Evaluation criteria

1. Fulfillment of the assignment

- ▶ [1] assignment fulfilled
- [2] assignment fulfilled with minor objections
- [3] assignment fulfilled with major objections
- [4] assignment not fulfilled

FT objectives are well defined and fully fulfilled.

2. Main written part

85 /100 (B)

FT chapter 1 provides an excellent overview and summary of quite complicated topic of PSD2 history and legislation, allowing reader to quickly understand the context of the given domain. Following chapters provide a well structured description of implemented SDK. All technological and design choices are well presented and reasoned, especially chapter 6, which deals with financial grade authorisation/authentication flows, that are based on oAuth 2.0 with PKCE extension and QWAC certificates, as, in my experience, given topic is one of the main TPP implementational changes in adoption of PSD2. From typographic perspective FT contains only minor issues like image positioning (e.g. page 33), links that are beyond main content borders in Bibliography and one of the chapter names is in Czech. FT is written in english with rare typos and grammar mistakes. FT contains a solid list of relevant Bibliography. All citations are well formatted and does not violate citation ethics.

3. Non-written part, attachments

90 /100 (A)

The overall quality of SDK code is at a good level. Code is well structured/designed and fulfils major goals of users centric design, meaning it successfully obfuscated all the internal complexity and provides clean and easy-to-use interface for end-user. SDK architecture provides clear separation of concerns and easy of scalability for given

domain. Additionally, SDK has a good unit test coverage, where unit tests fully reflects functionality and business value of SDK.

4. Evaluation of results, publication outputs and awards 95 /100 (A)

As noted in FT, implemented SDK will be published as Open Source project for PSD2 TTPs and will significantly reduce implementational expenses necessary for integration with ERSTE PSD2 API.

5. Activity of the student

- [1] excellent activity
- ▶ [2] **very good activity**
- [3] average activity
- [4] weaker, but still sufficient activity
- [5] insufficient activity

Student had a very good activity and was meeting all deadlines regardless of the time pressure.

6. Self-reliance of the student

- ▶ [1] **excellent self-reliance**
- [2] very good self-reliance
- [3] average self-reliance
- [4] weaker, but still sufficient self-reliance
- [5] insufficient self-reliance

Student has demonstrated and excellent self-reliance as he was able to quickly grasp PSD2 domain, learn OOP practices and design patterns and successfully utilise them to implement given part of SDK. Additionally student continues to work on more complex SDK part - PIS and PIS authorisation with only minor consultation and supervision, while demonstrating a great code design skills.

The overall evaluation 90 /100 (A)

Even though, SDK code may not look complex at first glance, but this is purely due to Students great understanding of complex PSD2 domain and great design decision of business flow abstraction - that leads to clean and simple SDK, that provides a user centric interface to end user.

Instructions

Fulfillment of the assignment

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

Main written part

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

Non-written part, attachments

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

Evaluation of results, publication outputs and awards

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

Activity of the student

From your experience with the course of the work on the thesis and its outcome, review the student's activity while working on the thesis, his/her punctuality when meeting the deadlines and whether he/she consulted you as he/she went along and also, whether he/she was well prepared for these consultations.

Self-reliance of the student

From your experience with the course of the work on the thesis and its outcome, assess the student's ability to develop independent creative work.

The overall evaluation

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.