Review report of a final thesis

Student: Eder Jair Tejada Ortigoza
Reviewer: Ing. Milan Dojčinovski, Ph.D.
Thesis title: Avast Cybersecurity Phishing Game
Branch of the study: Software Engineering

Date: 26. 1. 2020

1. Fulfilment of the assignment

Criteria description:
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.

Comments:
The main goal of the thesis was to implement a gamification web application for education of Web users on fake/scam websites.
The student fulfilled this goal, however one of the planned features has not been implemented (according to the provided thesis content), i.e. feature of highlighting actual errors on the fake sites.
The web application has been successfully implemented, tested, deployed and it is online available/running.

2. Main written part

Criteria description:
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. 26/2017, 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.

Comments:
In general, the thesis is well structured in relevant chapters and sections.
The work is well motivated and the background well presented.
The citations and bibliography are appropriate.

However, there are several parts which require an improvement.

- The work is poorly positioned with respect to the related work, i.e. other similar gamification applications in the context of Web security are not identified/discussed.
- The functional and non-function requirements listed on page 9 are mixed and inappropriately grouped and identified.
- Figures 3.3 until 3.8 are not accompanied with a proper description.
- The results from the use cases are presented very briefly. It would be nice to see breakdown of the results, e.g. per country, per gender, age, etc.
- The testing part is very limited.

3. Non-written part, attachments

Criteria description:
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.
Comments:
The student fulfilled the goal and the application is well implemented. The technology considered is suitable and adequate. It is unclear why a database could not be used to store the state of the game in a persistent manner. Instead, it was used Google Analytics.
When visiting the deployed application at https://phish.avast.com it takes several seconds (5-10 sec) to start the application. In the thesis (page 24) it is stated that this issue has been fixed. However, the online version does not show this.

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<tr>
<th>Evaluation criterion:</th>
<th>The evaluation scale: 0 to 100 points (grade A to F).</th>
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<td>4. Evaluation of results, publication outputs and awards</td>
<td>95 (A)</td>
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Criteria description:
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.

Comments:
The application is running online under the avast domain. The application is simple and works without any problem (besides the delay when visiting for the first time). The application has been tested/utilised at two events, which confirms the potential and the quality of the application.

Evaluation criterion: No evaluation scale.

5. Questions for the defence

Criteria description:
Formulate questions that the student should answer during the Presentation and defence of the FT in front of the SFE Committee (use a bullet list).

Questions:
Question 1: This application (idea/concept) has been previously implemented by another person in the past. On page 7 the author writes that “the implementation was not suitable for its use and required some improvement.”. Question: Explain why it wasn’t suitable and what improvements were required?

Question 2: Explain why Google Analytics has been considered instead of own tracking/state storage mechanism?

Evaluation criterion: The evaluation scale: 0 to 100 points (grade A to F).

6. The overall evaluation

Criteria description:
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.

Comments:
The student fulfilled the main goal of the thesis and implemented a working gamification web application. The student successfully applied the knowledge and skills acquired during the studies. The student had to put more attention on the written part of the thesis, however these issues do not have a significant impact on the final quality of the thesis.
Considering my comments above, I recommend grade B.

Signature of the reviewer: