

## I. IDENTIFICATION DATA

<b>Thesis name:</b>	<b>Digital shopping cart platform with facial recognition</b>
<b>Author's name:</b>	<b>Xuan Anh Nguyen</b>
<b>Type of thesis:</b>	bachelor
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering (FEE)
<b>Department:</b>	Department of Computer Science
<b>Thesis supervisor:</b>	Ing. Jan Hauser
<b>Supervisor's department:</b>	Klepněte sem a zadejte text.

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b>	<b>challenging</b>
<i>Evaluation of thesis difficulty of assignment.</i>	
<p>I find the assignment of this thesis challenging enough for purpose of a bachelor thesis. It reflects the skills that a student of Computer Science should demonstrate when applying for a bachelor's title. In fact, hybrid mobile development is quite a tempting topic nowadays because hybrid technologies allow startups and technology innovators to move fast and speed up development significantly. It becomes super-important when focusing on Minimum Viable Product (MVP). Moreover, face recognition and verification are also recent, interesting, and quickly evolving concepts that are pretty complex and widely used. Xuan Anh Nguyen firstly compared native and hybrid solutions, then made a knowledgeable selection of technology/framework, designed the architecture, implemented the MVP of the platform, and also evaluated the results. This assignment demonstrates a whole journey of the creation of digital products. I believe that this journey was challenging enough and gave Xuan Anh Nguyen so much desired experience.</p>	

<b>Satisfaction of assignment</b>	<b>fulfilled</b>
<i>Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.</i>	
Xuan Anh Nguyen fulfilled the assignment without objections.	

<b>Activity and independence when creating final thesis</b>	<b>A - excellent.</b>
<i>Assess that student had positive approach, time limits were met, conception was regularly consulted and was well prepared for consultations. Assess student's ability to work independently.</i>	
<p>Student worked very independently when creating the final thesis, considering research, implementation, and writing. All the milestones were kept as previously agreed. Xuan Anh Nguyen attended regular consultations and always raised constructive and relevant questions and topics to discuss.</p>	

<b>Technical level</b>	<b>A - excellent.</b>
<i>Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.</i>	
<p>Student successfully applied knowledge gained by study and by professional experience. He was able to independently design the architecture of a digital shopping cart platform. From a programming perspective, Xuan applied his skills in React Native (Typescript) and Python development. He also compared various face authentication frameworks and selected appropriate tech-stack, i. e. Google FaceNet, OpenCV, and Tensorflow. Last but not least, Xuan also selected various frameworks which are suitable for the MVP but won't serve efficiently in the later stages. He acknowledges this and offers meaningful reasoning in his thesis.</p>	

<b>Formal and language level, scope of thesis</b>	<b>C - good.</b>
<i>Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.</i>	
<p>Despite the excellent technical level and challenging assignment, I find some shortcomings in the scope and level of presentation of the thesis. Chapters 3, 4, and 5 should offer much more detailed insight into Xuan's work. Moreover, the citations in the bibliography do not use a uniform format which should be a standard in a bachelor thesis. Not all figures and listings are properly referenced. All these inaccuracies distract the reader and make reading this thesis and orientation in it</p>	

slightly less fluent and more difficult. In my opinion, from the experience of working with Xuan Anh Nguyen, these are caused by time pressure due to the submission deadline. Next time, I'd recommend applying the same level of attention and precision to writing as to coding.

## Selection of sources, citation correctness

**B - very good.**

*Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.*

I find the formal level of citation and its correctness as very good. However, not all articles and books from a list of recommended literature were used and cited properly in the thesis. As already mentioned above, student has not used a uniform citation style which I find quite concerning. I haven't found any breach of the citation ethics.

## Additional commentary and evaluation

*Present your opinion to achieved primary goals of thesis, e. g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.*

All the related GitHub repositories offer sufficient and straightforward README.md files. Code and tooling setup are clean, well-structured, and readable.

### III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

*I take into account and positively evaluate quite the broad scope and assignment of the thesis. Xuan Anh Nguyen also selected a real problem to solve which I personally find very interesting. He offers an alternative and innovative solution for the digital shopping cart platform to the one that was already implemented. These facts significantly overshadow the stylistic and formal shortcomings mentioned above.*

Questions for defense:

1. *In chapter 4.1.2 Face verification, you briefly describe your trial-error approach for determining the Euclidian distance threshold for the similarity of two faces. Do you know any more sophisticated method which can be used for tuning such a threshold? Could you describe how it works?*
2. *In the chapter 4.2.3 Deployment summary, you describe your approach for the app deployment. Could you elaborate on the right sizing for your current solution? What would be production-ready architecture and sizing? Briefly describe what „CI/CD“ stands for. What other cloud providers do you know? Could you compare the three most popular ones? Focus on e.g. the service offering, pricing, and scalability.*
3. *In the Conclusion of your thesis, you explain that your solution „can be refined and adapted to the needs of other similar organisations“. Let's pretend you're a startup founder. Could you draft your roadmap and business plan? Focus on e.g. what needs to happen with the app before going live, what is a viable business model, and how many users/paying customers you need to achieve positive ROI.*

I evaluate handed thesis with classification grade **B - very good**.

Date: **1.6.2022**

Signature:

