

## I. IDENTIFICATION DATA

<b>Thesis name:</b>	Application for data analysis from the world university rankings
<b>Author's name:</b>	Aziza Kuspekova
<b>Type of thesis :</b>	bachelor
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering (FEE)
<b>Department:</b>	Department of Computer Science
<b>Thesis reviewer:</b>	Caleb House
<b>Reviewer's department:</b>	Department of Development - Rectorate

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b>	<b>challenging</b>
<i>Evaluation of thesis difficulty of assignment.</i>	
<p>The project is ambitious because it has three separate elements, each with their own challenges: Understanding the types, methodologies, usages, and influence of World University Rankings, developing a way to scrape data effectively from WUR sites, and creating a useful platform for ranking comparison and analysis. Taken together, this is a significant amount of work, research, and leaning of a wide array of tools. I am not in a position to evaluate the difficulty of building the platform, but the amount of work put into foundational research and learning is significant.</p>	

<b>Satisfaction of assignment</b>	<b>fulfilled with minor objections</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>	
<p>The core mission of each of the three pillars was achieved (understand rankings, scrape data, create a platform). The student has demonstrated success in these three areas and done significant work to learn all the necessary skills and tools to achieve the final result. A few things are missing: inclusion of subject and regional rankings in the data collection and analysis, a more diverse range of analytical options on the platform (different charts, combination of indicators on one chart, comparative analysis, etc.), and a solution or work-around for the missing data in QS rankings (either a way to fill in the missing cells based on the available data and therefore reverse-engineer the real rank of each university, or a way to visualize a range as one data point in the charts).</p>	

<b>Method of conception</b>	<b>outstanding</b>
<i>Assess that student has chosen correct approach or solution methods.</i>	
<p>I am not able to assess if the student took the "correct" approach, as I do not have personal experience with the tools she selected. However, the range of tools she identified and learned to use in order to achieve the final result is impressive to me, and the experience of implementing her knowledge of all these tools on a complex and real-world problem shows admirable determination and adaptation.</p>	

<b>Technical level</b>	<b>B - very good.</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>The knowledge that the student gained was used to good effect in the finished product. The student demonstrates an understanding of ranking methodology, the needs of rankings users (university administrators and prospective students), strong command of the programming tools, and adaptability to overcome technical challenges. What would make it "excellent" is one step farther to include more flexibility in the types of comparison, analysis, or visualization in the final platform.</p>	

<b>Formal and language level, scope of thesis</b>	<b>A - excellent.</b>
<i>Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.</i>	
<p>The use of English, organization of the thesis, and clarity of the explanations was all excellent. I cannot assess the technical elements in Chapter 8, but I cannot find anything to fault.</p>	

## Selection of sources, citation correctness

**A - excellent.**

*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.*

The selection and use of sources was correct and suited to the task. Of course, there are endless articles and guides to the methodology, impact, and case studies of university rankings, but it is not possible or necessary to go deeper into this subject than the thesis did. The research material regarding the programming tools are well selected. While the description of the use of each tool could have been further explained, the important thing is the student's successful use of those tools.

## 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.*

I feel that the amount of work put into this project, the skills the student learned and implemented, and the successful creation of a functional platform with real-world applications, this clearly merits a strong grade. My recommendation of "B – Very Good", is in light of the academic value of this project to the student, and the potential value of the platform to ranking users globally. What prevents the project from being "A - Excellent" is that the platform is not yet in a state to be significantly useful for university administrators, and of limited use to prospective students. What would make it useful for prospective students is the ability to combine QS and THE ranks and/or indicator data on one chart, or to call up data by subject, country, or region (Ex: "Chart the ranks for Engineering in Germany"). What would be useful for university administrators is the ability to combine data onto a single chart (QS with THE, selection of indicator scores on one chart, etc.), rather than be limited to a separate graph for each indicator score, and to have more flexibility in the types of visualization. More functionality of this type would fulfill the full potential of the platform and would have instant and impressive real-world applications.

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

*Summarize thesis aspects that swayed your final evaluation. Please present apt questions which student should answer during defense.*

What elements of this project did you find most challenging?

Which solutions are you most proud of?

Is there a problem that you spent a lot of time on, but eventually had to give up or find a way around the problem?

How did the end-goal of this project change over the time you worked on it? How much is the end result different from what you first planned? What are the main reasons for that difference?

What prevented you from also scrapping the data from subject and regional rankings, and from including them on the platform?

While Power BI offers a rich variation of data analysis and visualization, what caused the limited options on the final platform?

Currently the data provides very limited functionality for QS data for universities below the top ranks (because of missing indicator scores that make it impossible to calculate real rank and scores within ranges). Do you think there are options for a solution, or is this a firm block to further functionality?

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

Date: **26.1.2023**

Signature: Caleb D. House