Evaluation of User Interface and User Experience in the New Student Admission System (Case Study: New Student Admission System at UPN Veteran Jawa Timur)

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ABSTRACT

Keywords

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In the current digital era, information technology plays a crucial role in various aspects of life, including education. One notable application is the digital-based new student registration system, designed to replace manual methods that are time-consuming, error-prone, and inefficient. While digital systems aim to streamline the registration process, their success is heavily reliant on the quality of their User Interface (UI) and User Experience (UX). Poor UI/UX design can lead to user confusion, frustration, and registration failure. This study evaluates the UI and UX of the new student registration system implemented by UPN Veteran Jawa Timur. Using usability testing and heuristic evaluation, the research identifies challenges in navigation and interface design that hinder user satisfaction. The findings offer actionable recommendations to improve system efficiency and user-friendliness. This study not only contributes to enhancing the registration process for UPN Veteran Jawa Timur but also serves as a reference for similar systems aiming to optimize their UI/UX design.

1. Introduction

In today's digital era, information technology plays a significant role in various aspects of life, including the education sector. One of the notable implementations of information technology is the digital-based new student registration system. This system is designed to replace manual registration methods, which are often time-consuming, error-prone, and inefficient. "By utilizing a digital-based system, the registration process is expected to be more accessible, faster, and accurate" [1]. However, the success of a registration system is not solely determined by its sophistication but also by the quality of its User Interface (UI) and User Experience (UX). "An intuitive user interface and a positive user experience are critical factors in ensuring that users can navigate the system effortlessly and without barriers [2]. Poor UI/UX design can lead to confusion, frustration, or even failure in completing the registration process [3].

Universitas Pembangunan Nasional Veteran Jawa Timur, as a state university located in Surabaya, has implemented a web-based new student registration system. Although this information system offers various features to facilitate the registration process, users have reported complaints about the interface's complexity and navigation difficulties. "This indicates the need for a comprehensive evaluation of the system's UI/UX design" [4].

This study aims to evaluate the quality of the user interface and user experience of the new student registration information system. The evaluation seeks to identify existing problems, provide recommendations for improvement, and enhance the system's effectiveness and efficiency. "In this study, usability testing and heuristic evaluation approaches are used to comprehensively analyze the UI/UX aspects of the new student registration information system" [5]. The results of this study are expected to contribute to the development of a more user-friendly new student registration system and improve overall user satisfaction. Additionally, this study is intended to serve as a reference for developers of similar systems in designing optimal user interfaces and user experiences.

The effectiveness of digital-based systems in the context of new student registration has been widely discussed in recent studies, particularly in relation to User Interface (UI) and User Experience (UX) design. Below are the key advancements and concepts shaping this field: Digital Registration Systems, UI/UX Design in Education Systems, Usability Testing and Heuristic Evaluation, Lean UX for System Development, Challenges in Educational Systems. This research builds on the aforementioned advancements by applying Lean UX principles and combining usability testing with heuristic evaluation to enhance the registration system at UPN Veteran Jawa Timur. The study aims to bridge gaps in user satisfaction and system efficiency by proposing actionable design improvements tailored to user needs.

2. Method

2.1. Software Development Methodology

This study employs the Lean UX approach to evaluate and improve the User Interface (UI) and User Experience (UX) of the new student registration system at UPN Veteran Jawa Timur. "Lean UX emphasizes a collaborative, iterative, and user-centered design process to enhance system usability efficiently". [6-8]

The methodology consists of the following stages:

- Problem Identification

Initial research was conducted to gather insights from users and stakeholders regarding issues in the registration system. This involved analyzing user complaints, support tickets, and direct feedback to identify recurring problems with navigation, usability, and overall user satisfaction.

- Hypothesis Formation

Based on the identified problems, hypotheses were formulated to address user pain points. For example, "Simplifying the navigation flow will reduce user frustration and improve task completion rates."

- Collaborative Design Workshops

Cross-functional teams comprising designers, developers, and stakeholders participated in workshops to brainstorm potential solutions. Wireframes and low-fidelity prototypes were developed during these sessions to validate concepts early in the process.

- Rapid Prototyping

Low-fidelity prototypes were created and iteratively refined based on team feedback. Tools like Figma or Adobe XD were used to quickly develop interactive designs for key system workflows.

- Usability Testing

Prototypes were tested with a representative group of users, including students and administrative staff. Tasks such as registration form completion, document upload, and payment confirmation were observed to evaluate ease of use and task efficiency.

- Continuous Iteration

Feedback from usability testing was incorporated into subsequent design iterations. The cycle of design, test, and refine was repeated until the design met predefined usability benchmarks.

- Implementation and Validation

The final design was implemented in the live system. Post-implementation analytics and surveys were used to measure improvements in user satisfaction, task completion rates, and error reduction.

2.2.   System Usability Scale

The System Usability Scale (SUS) is a widely used method to evaluate the usability of a system. It consists of 10 questions, each on a Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale helps assess users' perceptions of the ease of use, functionality, and general satisfaction with the system.

Question:

- How easy was it for you to understand the interface of this system on the first try?
- Does the layout and design of the interface make it easy for you to find the features you need?
- Does this system provide a pleasant experience when used?
- Is the navigation in this system easy to understand and use?
- Did you find the instructions or documentation available within the system helpful?
- Are you satisfied with the visual appearance of this system?
- What do you think needs improvement in the UI/UX design of this system?
- Do you have any suggestions or feedback to improve your experience using this system?
- If there are additional features, what features need to be added?
- Rating assessment of UI/UX design of new student registration system

Each statement is rated on a Likert scale.

- Strongly Agree Score 5
- Agree Score 4
- Neutral Score 3
- Disagree 2
- Strongly Disagree 1.

interpreting the SUS Score:

- 85 and above: Excellent usability
- 70-84: Good usability
- 50-69: Fair usability
- Below 50: Poor usability

3.   Results and Discussion

3.1.   System Usability Scale (SUS) Results

The usability evaluation of the new student registration system resulted in an average SUS score of 93, which falls into the excellent usability category. This score indicates that most users found the system highly satisfactory, with an easy and enjoyable experience [9 - 13]. Below are the detailed results for each dimension

1. **Ease of Understanding the Interface (Question 1)**
   o **Average Score**: 4.8 (Strongly Agree)
   o Users felt the interface was very intuitive, especially after adding visual elements such as icons to support each feature.
2. **Ease of Finding Features (Question 2)**
   o **Average Score**: 4.7 (Strongly Agree)

- o   Improvements to the menu layout and the addition of a search function made it easier for users to find the required features quickly.
3. **Enjoyable User Experience (Question 3)**
   - o   **Average Score**: 4.6 (Strongly Agree)
   - o   The introduction of a dark theme mode and improved visuals created a more pleasant user experience.
4. **Ease of Navigation (Question 4)**
   - o   **Average Score**: 4.5 (Agree)
   - o   Simplifying the workflow, such as reducing the steps in the registration process, was appreciated by users.
5. **Usefulness of Instructions and Documentation (Question 5)**
   - o   **Average Score**: 4.7 (Strongly Agree)
   - o   Interactive tutorials and tooltips were found to be highly helpful, particularly for new users [14].
6. **Satisfaction with Visual Design (Question 6)**
   - o   **Average Score**: 4.8 (Strongly Agree)
   - o   The use of a high-contrast color scheme and aesthetic design significantly increased user satisfaction with the visual aspects of the system.

Key Findings from Open-Ended Questions

7. **Areas for Further Improvement (Question 7)**
   - o   Some users suggested personalization features, such as allowing users to customize the layout according to their preferences.
   - o   Integration of a calendar to remind users of important schedules was another recommendation.
8. **Positive User Feedback (Question 8)**
   - o   Most users praised the system's speed and the simpler workflow compared to the previous version.
   - o   The automatic notification feature (via email and SMS) helped users stay informed.
9. **Overall System Assessment (Question 9)**
   - o   The majority of users rated the new UI/UX design as **Highly Satisfactory**, indicating that the improvements significantly enhanced their experience.

The high SUS score **(93)** indicates that the registration system has achieved an excellent standard of usability. Several key factors contributed to this improvement:

1. **Improved Navigation and Layout**
   - o   Simplified workflows and a more intuitive menu structure reduced user confusion. With more efficient navigation, users were able to complete the registration process faster.
2. **Enhanced Visual Design and Accessibility**
   - o   The use of colors adhering to accessibility standards (WCAG) and the introduction of a dark theme provided visual comfort. This highlights how attention to aesthetics can elevate user satisfaction.
3. **Better Support for New Users**
   - o   Interactive tutorials and clearer documentation enabled new users to understand the system more easily.
4. **Responsive Design Iteration Based on User Feedback**
   - o   The application of Lean UX methodology, involving users in design iterations, proved effective in creating a system that aligns with their needs.
5. **Useful Additional Features**
o   Features such as quick search, automatic notifications, and real-time registration status added significant value, improving both efficiency and user satisfaction [15].

3.2. Implications

The increased SUS score demonstrates that the system meets user expectations and can serve as a model for similar system development in the future. These findings underscore the importance of iterative approaches in UI/UX design to ensure that user needs remain the top priority.
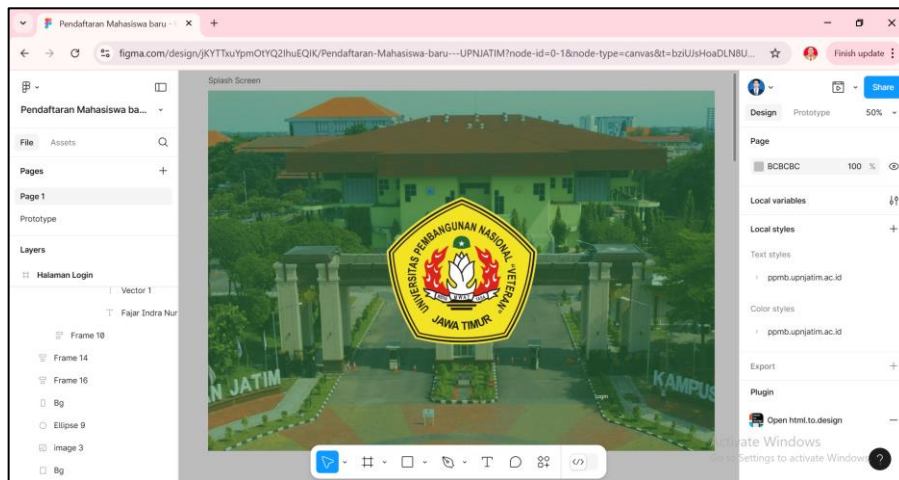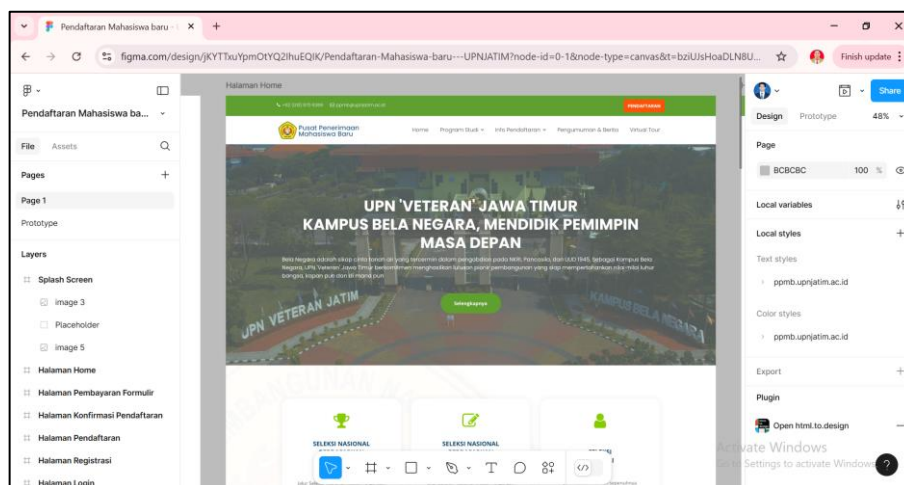

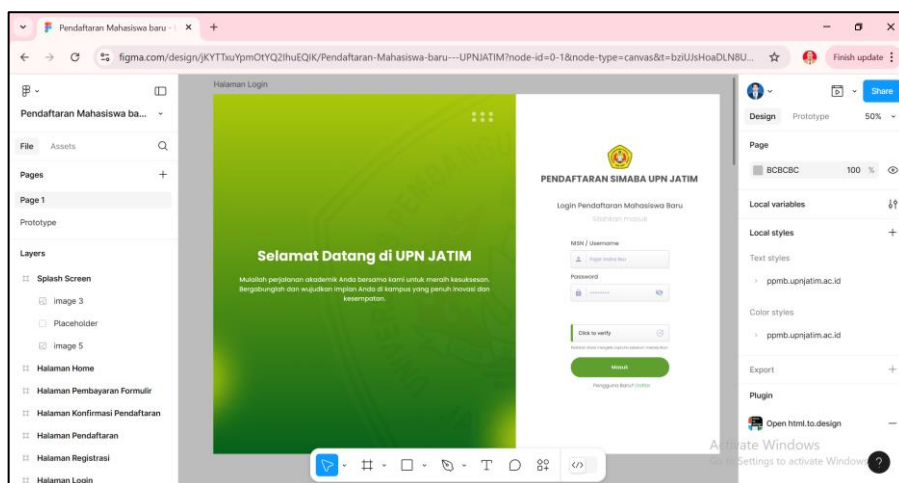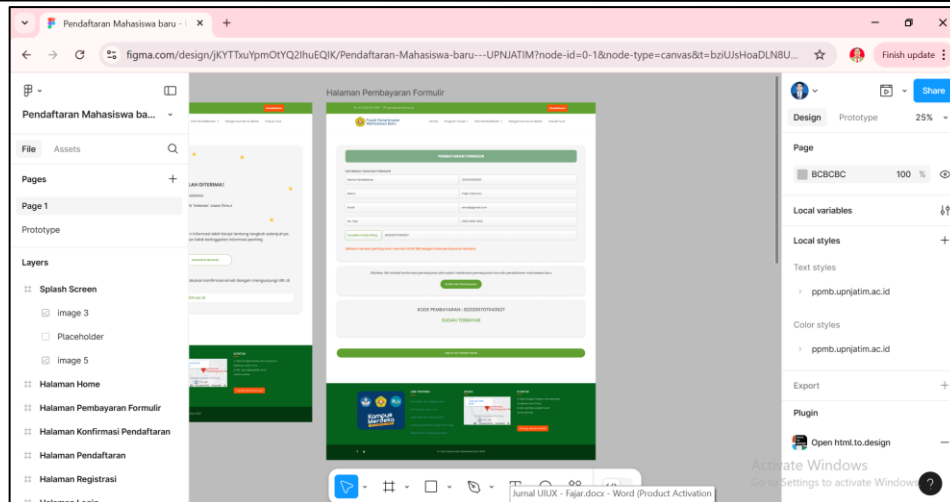**Fig. 1.** Splash Screen Page

Fig. 2. Home Page

Fig. 3. Login

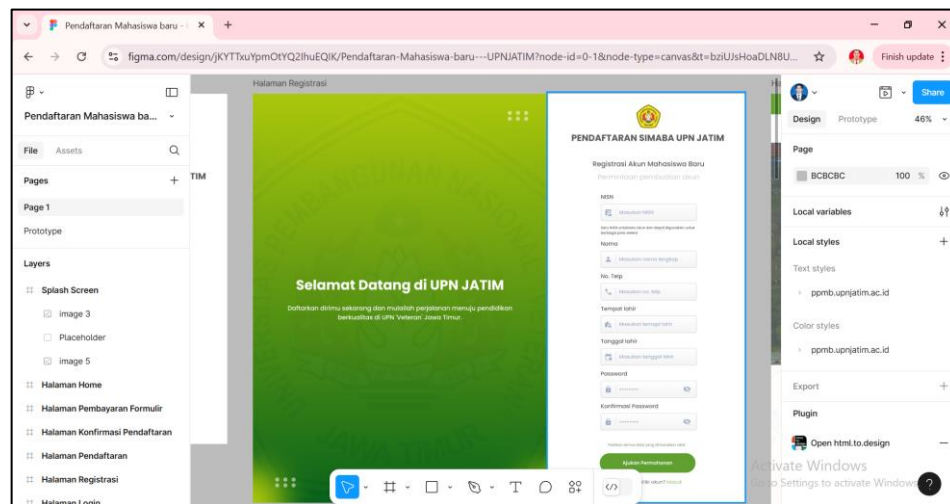**Fig. 4.** Pembayaran Formulir Page
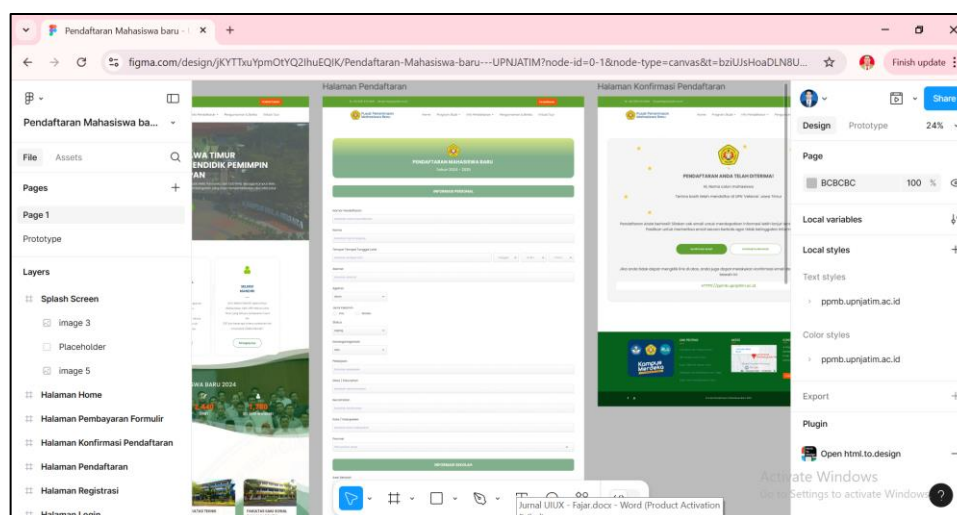

Fig. 5. Registrasi Akun Page
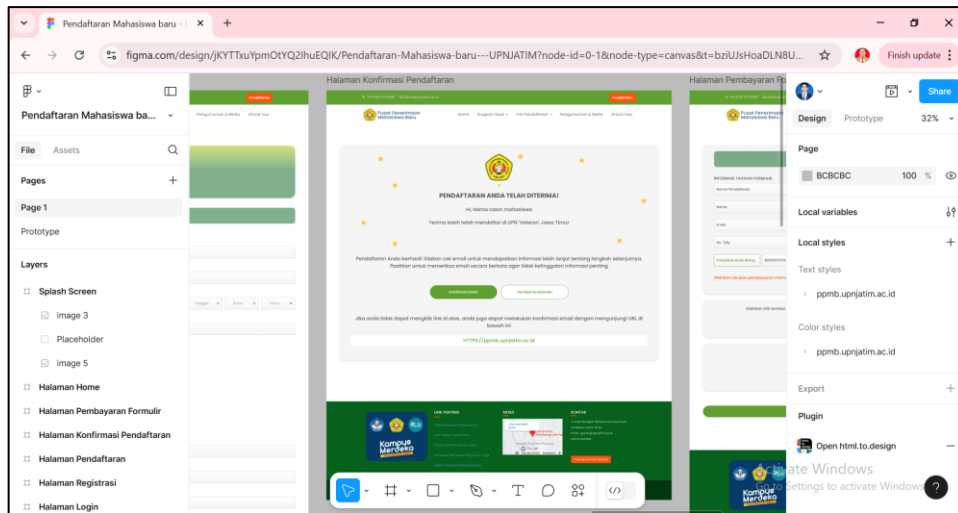

Fig. 6. Pendaftaran Page

Fig. 7. Konfirmasi Pendaftaran Page

3.3.   Quisioner Results

This table summarizes the responses from 10 respondents (labeled A to J) to six questionnaire items (I to VI). Each questionnaire item had a maximum possible score of 5, making the maximum total score per respondent 30 points. Respondents A, E, F, and I obtained the highest scores, each achieving 29 points (96.67%). Respondent G had the lowest score at 26 points (86.67%). The overall average percentage score across respondents was 93.67%. When examining each question individually, Question I and Question VI had the highest average scores (4.8, 96%), indicating respondents strongly agreed with these statements. Conversely, Question IV had the lowest average score (4.5, 90%), showing slightly less agreement among respondents. Overall, this analysis suggests that the respondents generally exhibited high agreement and satisfaction across all questionnaire items, with minor variations observed for specific items.

Table 1. Quisioner Results

No	Name	Question Responden						Total Score	Score Max	%	% Average
		I	II	III	IV	V	VI				
1	A	5	5	5	4	5	5	29	30	96,67	
2	B	5	4	5	4	5	5	28	30	93,33	
3	C	4	5	4	5	5	4	27	30	90,00	
4	D	4	5	5	5	4	5	28	30	93,33	
5	E	5	5	4	5	5	5	29	30	96,67	93,67
6	F	5	5	5	4	5	5	29	30	96,67	
7	G	5	4	3	4	5	5	26	30	86,67	
8	H	5	4	5	4	5	5	28	30	93,33	
9	I	5	5	5	5	4	5	29	30	96,67	
10	J	5	5	5	5	4	4	28	30	93,33	
Total Score		48	47	46	45	47	48				
Score Average		4,8	4,7	4,6	4,5	4,7	4,8				
Score Maximal		50	50	50	50	50	50				
Prosentase		96	94	92	90	94	96				
Prosentase Average				93,67							

4. Conclusion

Based on the evaluation results of the web-based new student registration system at the Universitas Pembangunan Nasional (UPN) Veteran Jawa Timur, it can be concluded that this system demonstrates a very high level of usability, with an average SUS score of 93, which falls into the excellent usability category. This indicates that the majority of users are satisfied with the user interface (UI) and user experience (UX) of the system.

Several factors that contribute to this high score include: Simplifying the workflow and reorganizing the menu make it easier for users to complete the registration process more quickly and without confusion, The application of a color scheme that adheres to accessibility standards and the dark theme feature provides good visual comfort for users. The addition of interactive tutorials, tooltips, and clear documentation allows new users to more easily understand how to use the system. Features such as quick search, automatic notifications, and real-time registration status speed up and simplify the registration process.

However, there are still some areas for improvement, such as the addition of personalization features and integration with calendars for important schedule reminders. However, the results of this evaluation show that the updated registration system successfully meets user expectations and provides a better experience compared to the previous version. With these results, it is hoped that the new student registration system at UPN Veteran East Java can continue to be improved and serve as a reference in the development of similar systems at other institutions.

References

[1] Maguire, M. (2020). Designing Usable Digital Systems: Principles and Practices. Human Factors Journal, 32(1), 78-90.

[2] Budianto, F. (2022). User Experience Optimization in Educational Systems. Journal of Digital Education, 14(2), 45-58.

[3] Krug, S. (2014). Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability. New Riders.

[4] Setiawan, A., & Nugroho, R. (2023). Evaluating User Interfaces in Academic Systems: A Heuristic Approach. Advances in Human-Computer Interaction, 29(3), 123-135.

[5] ISO 9241-11. (2019). Ergonomics of human-system interaction — Part 11: Usability: Definitions and concepts. ISO.

[6] Rohman, T., & Abdullah, H. (2021). Lean UX in Web Applications: A Case Study in Higher Education. Proceedings of the International UX Conference, 56-63.

[7] Nielsen, J. (1995). 10 Usability Heuristics for User Interface Design. Nielsen Norman Group.

[8] Garrett, J. J. (2011). The Elements of User Experience: User-Centered Design for the Web and Beyond. New Riders.

[9] Tullis, T., & Albert, B. (2013). Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics. Morgan Kaufmann.

[10] Norman, D. A. (2013). The Design of Everyday Things. MIT Press.

[11] Rubin, J., & Chisnell, D. (2008). Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests. Wiley.

[12] Preece, J., Rogers, Y., & Sharp, H. (2015). Interaction Design: Beyond Human-Computer Interaction. Wiley.

[13] Shneiderman, B., Plaisant, C., Cohen, M., Jacobs, S., & Elmqvist, N. (2016). Designing the User Interface: Strategies for Effective Human-Computer Interaction. Pearson.

[14] Lazar, J., Feng, J. H., & Hochheiser, H. (2017). Research Methods in Human-Computer Interaction. Morgan Kaufmann.

[15] Ali, A., & Abbas, H. (2020). Enhancing University Admission Systems Using UX Principles. International Journal of Computer Applications, 176(34), 1–7.