JPPIPA 11(4) (2025)

Jurnal Penelitian Pendidikan IPA

http://jppipa.unram.ac.id/index.php/jppipa/index

# Development of Photo Studio Reservation Website Design Using Design Thinking Method

Asty Yuliani[1*], Ariq Cahya Wardhana[2]

[1] Software Engineering, Universitas Telkom, Purwokerto, Indonesia.

Received: December 17, 2024
Revised: February 18, 2025
Accepted: April 25, 2025
Published: April 30, 2025

Corresponding Author:
Asty Yuliani
styyulian@student.telkomuniversity.ac.id

DOI: 10.29303/jppipa.v11i4.10909



**Abstract:** This research aims to design the interface of a web-based reservation system at Infokus Photo Studio using a Design Thinking approach. Obstacles in the reservation process, such as schedule conflicts, unavailability of time slot display, and late confirmation, were identified through customer questionnaires. The Design Thinking method was applied in five stages: empathize, define, ideate, prototype, and test. The research was conducted by identifying user needs, designing ideas, creating prototypes, and conducting tests. Testing using the System Usability Scale (SUS) involved eight respondents and resulted in an average score of 87, which is classified as acceptable in the acceptability range, a B on the Value Scale, and very good on the Adjective Rating. These results show that this system design successfully simplifies the reservation process, reduces operational errors, and improves service quality and smooth studio operations.

**Keywords:** Design thinking; Reservation; System usability scale; UI/UX; Website

## Introduction

The photography industry as part of the creative industry sector has an important role in fulfilling people's visual documentation needs for personal, business, and social media purposes (Gunawan et al., 2024; Werthi et al., 2024). Photo studios not only offer quality services but also ensure easy service access and well-managed service delivery (Arifin, 2024; Fitriani et al., 2022; Muzakki et al., 2022). The utilization of digital platforms allows customers to place orders at any time by obtaining clear and detailed information.

One of the businesses in the field of photography services is Infokus Photo Studio located in Purwokerto. This studio provides various photo packages with various themes and requires a reservation process in advance before the photo shoot is carried out. Currently, the reservation process is done directly at the location or via WhatsApp. However, this system often causes problems such as delays in schedule confirmation, scheduling conflicts, and customer difficulties in accessing information on studio schedule availability. This has the potential to reduce operational performance and customer satisfaction levels.

To further identify these issues, a survey was conducted in April 2024 to 60 respondents who are Infokus Studio customers. The results showed that 91.5% of respondents had experienced scheduling conflicts, 85% had difficulty in viewing available studio schedules, and 78.3% experienced delays in confirming reservations. Interestingly, 95% of respondents expressed the need for a web-based system that can be used to make reservations more easily.

These problems indicate the importance of developing a reservation system that is supported by an easy-to-understand user interface (UI) and optimal user experience (UX). The design of the website display needs to be considered to attract the attention of users (Khalfani et al., 2024; Kumoro et al., 2023; Subarjah et al., 2022; Willi, 2021).

On scheduling conflicts and difficulties in viewing schedule availability, it is necessary to emphasize the need for a UI that can display schedules in an up-to-

**How to Cite:**
Yuliani, A., & Wardhana, A. C. (2025). Development of Photo Studio Reservation Website Design Using Design Thinking Method. *Jurnal Penelitian Pendidikan IPA*, *11*(4), 624–629. https://doi.org/10.29303/jppipa.v11i4.10909

date and easy-to-understand manner. In addition, a good UX will support a fast and error-free reservation process, thereby increasing customer satisfaction (Ardila et al., 2022).

This research uses the Design Thinking approach, which is a method that emphasizes the human aspect aimed at creating creative solutions through five stages: empathize, define, ideate, prototype, and test (Fariyanto et al., 2021; Zamakhsyari et al., 2023). Design thinking involves a step-by-step process of creating creative designs, starting with identifying specific problems and user needs, then generating relevant solutions (Ardi et al., 2024).

In this case, System Usability Scale (SUS) is one way that can be used well to measure how useful a website is. System Usability Scale (SUS) testing provides a measurement tool that is not only fast, but also reliable for measuring user satisfaction. thinking also involves testing to ensure that the resulting solution can be used easily by users (Budiarto et al., 2023). The development of this photo studio reservation website interface design is expected to help improve user convenience and satisfaction, as well as support the improvement of service quality and strengthen sustainable competitiveness in the photography industry.

## Method

Design thinking is a method used in the design process to produce an innovation that can solve problems faced by users (Cai et al., 2023; Hendarto et al., 2024). The focus of this approach is on the user, facilitating the understanding of their needs, and producing products that can solve the problems they face (Syaflita et al., 2024; Yusuf et al., 2023). According to Hasso Plattner at Stanford in the design thinking method, this process consists of five stages which include empathize, define, ideate, prototype, and test (Plattner, 2021). In its application, design thinking is applied with a flexible method, which can be implemented sequentially, in parallel, or iteratively. The advantage of the design thinking method lies in its ability to generate creative ideas that allow the creation of products that truly meet the expectations and needs of users (Puspitasari, 2024).


**Figure 1.** Stages design thinking

## Results and Discussion

*Design Thinking*

*Empathize*

The empathize stage involved interviews with Infokus administrative staff as well as the distribution of questionnaires and interviews to customers. The results obtained were then analyzed and summarized in an empathy map (Figure 2) to understand user needs and experiences in depth.

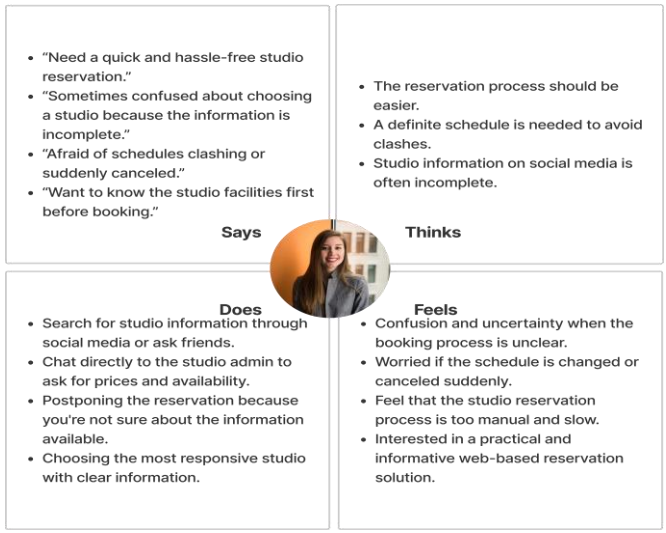


**Figure 2.** Empathy map

*Define*

In this stage, the Point of View (POV) approach is used to formulate the problem from the user's perspective. By transforming the problem into a user-oriented statement, the solution search process becomes more focused. Table 1 displays the POV results that will be used as a guide in designing solutions that meet user needs.

**Table 1.** Point of View

| User | Need | Insight |
|---|---|---|
| Customers aged 17 - 45 years | Requires a platform with easy navigation, structured time selection, complete photo category information, and easy reservation with schedule matching features according to preferences. | Patients aged 17-45 tend to have busy schedules, so they appreciate the ease, speed, and clarity of booking studio photography. |

*Ideate*

At the Ideate stage, a userflow is created to describe the steps that users go through, starting from login until the order is complete. This diagram helps facilitate a more structured system design userflow can be seen in Figure 3.

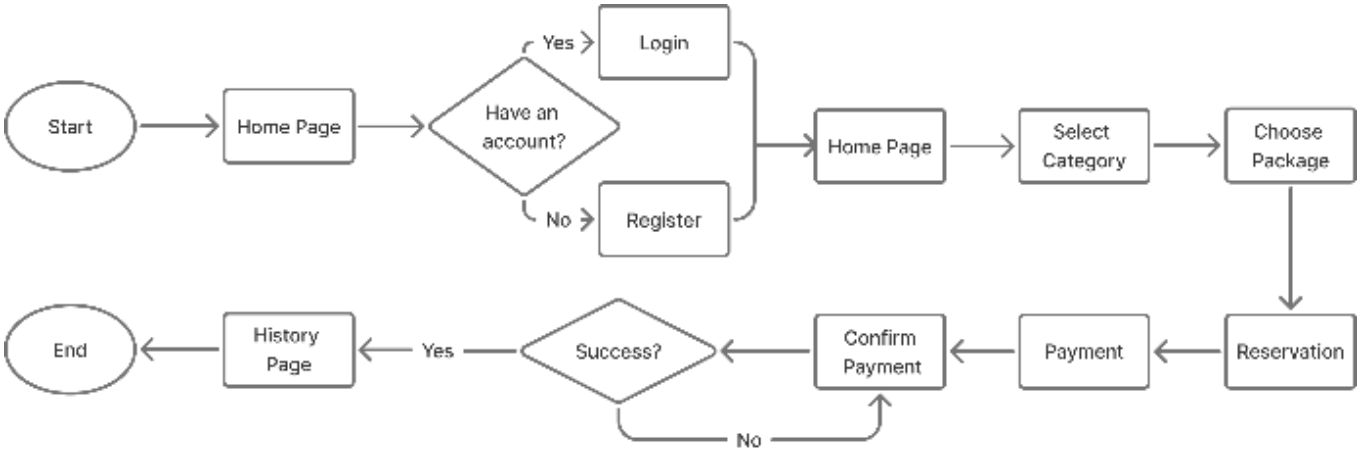


**Figure 3.** Userflow

*Prototype*

The process begins with the creation of wireframes, which are preliminary designs of the user interface that depict the flow of interaction in a simple manner. Next, this wireframe is developed into a high-fidelity design using Figma software. The appearance of the customer reservation website in wireframe form can be seen in Figure 4.

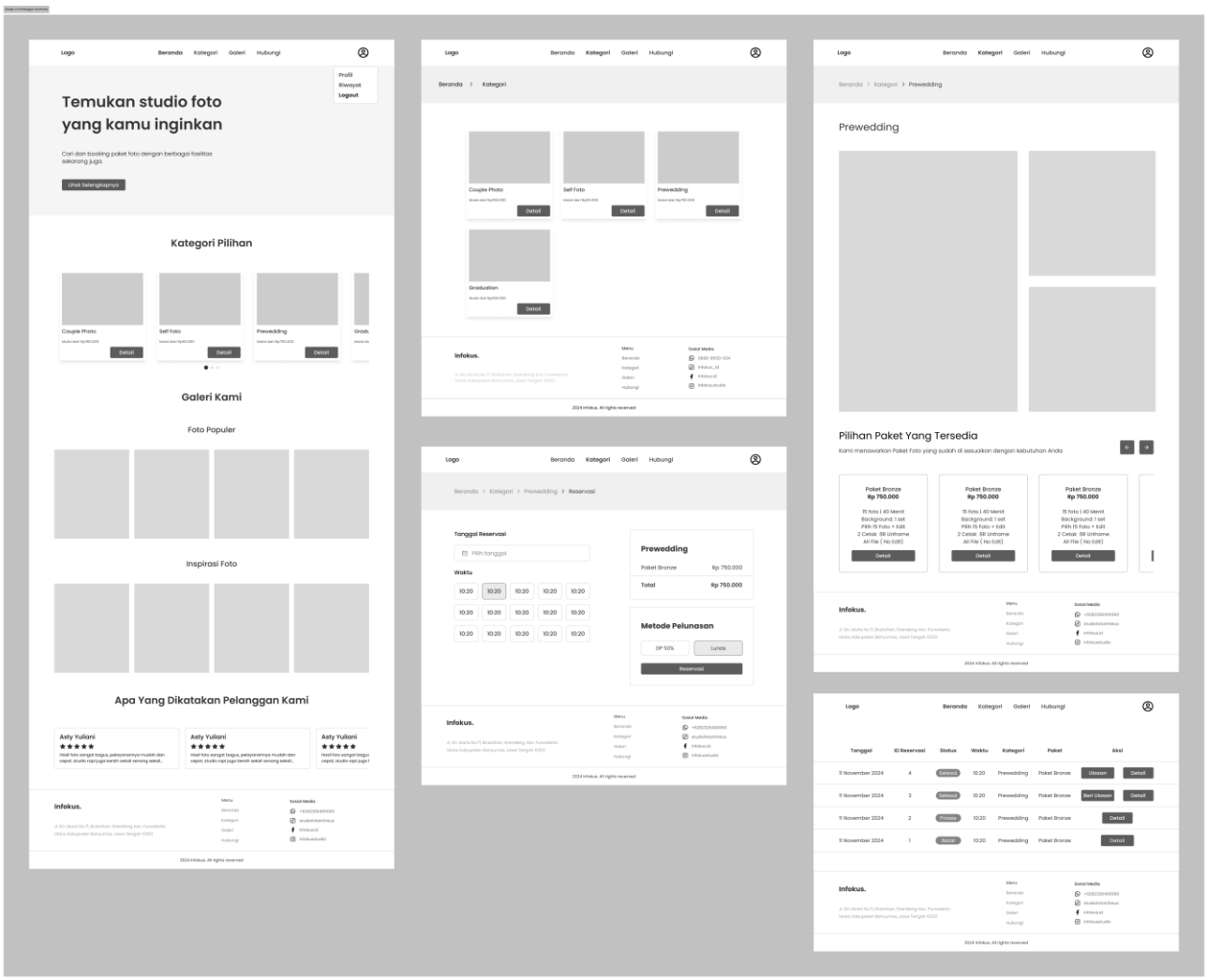


**Figure 4.** Wireframe

The next step high-fidelity design features a colorful interface and realistic details as a preview before development begins. See Figure 6-7 for an example of such a design. This design helps visualize the user experience in a more tangible way and serves as a reference in the system implementation process.

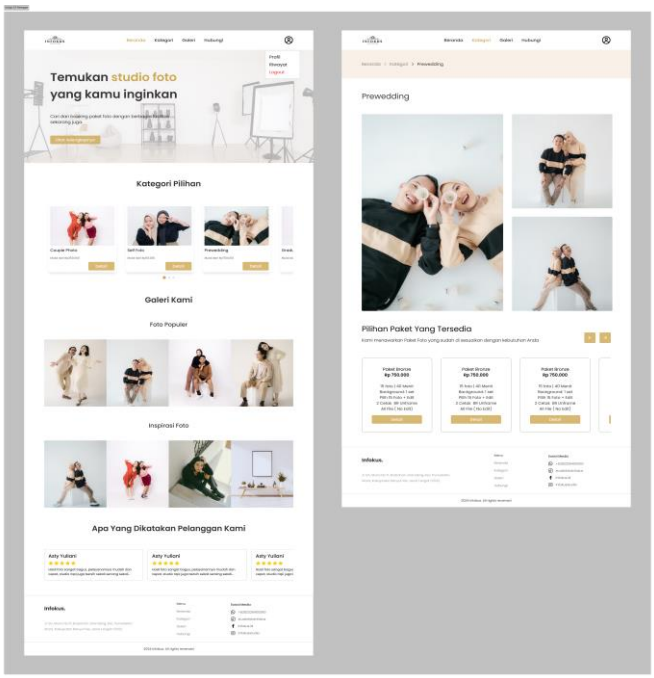


**Figure 5.** High fidelity design

*Test*

The test stage is carried out by testing the website prototype that has been developed to obtain the usability value of the system. This test is carried out based on the task scenario that has been prepared, as shown in Table 3.

**Table 2.** Task Scenario User

| Scenario ID | Task Make Customer Reservation |
|---|---|
| T1 | Customers can view the home page. |
| T2 | Customers register and log in. |
| T3 | Customers determine the category according to their needs. |
| T4 | Customers choose a package in one of the categories. |
| T5 | Customers determine available dates and times. |
| T6 | Customers choose a payment method. |
| T7 | Customer makes a reservation. |
| T8 | Customers view payment details. |
| T9 | Customers upload and send proof of payment. |
| T10 | Customers view payment status history. |
| T11 | Customers view payment status details. |

The next step is testing the prototype using the System Usability Scale (SUS) to measure the usability of the system. Based on Jakob Nielsen's opinion, involving five to fifteen respondents is sufficient for testing, because five people can find 85% of usability problems, and eight people can find up to 95%.

**Table 3.** SUS Score

| Respondent | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 | Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R1 | 4 | 4 | 4 | 2 | 4 | 4 | 4 | 4 | 4 | 2 | 90 |
| R2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 100 |
| R3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 98 |
| R4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 78 |
| R5 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 83 |
| R6 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 83 |
| R7 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 4 | 3 | 80 |
| R8 | 3 | 4 | 3 | 2 | 3 | 4 | 4 | 3 | 3 | 3 | 80 |
| Total | - | - | - | - | - | - | - | - | - | - | 86.5 |

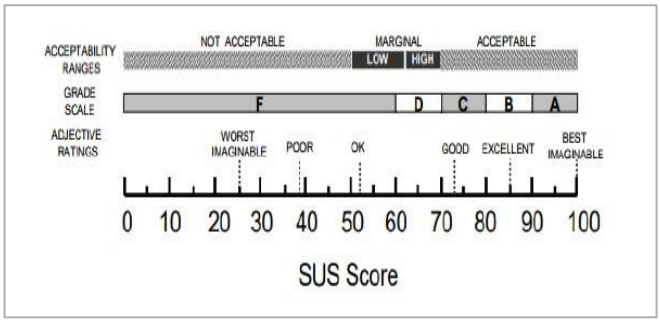


**Figure 6.** System usability criteria

Table 3 shows the usability score using the System Usability Scale (Nazar et al., 2022; Setiawan et al., 2025); the average score obtained is 86.5, rounded to 87, which indicates that the prototype design has met the desired expectations. The SUS assessment is grouped into three level categories as shown in Figure 6: the user acceptability level ranges in the acceptable category, the user grade scale level is in the B category, and the user adjective rating level is in the excellent category. With a score of 87, which falls into the acceptable category, users are satisfied and accept the design that has been made. This shows that the prototype has a good level of acceptance and can be used in real conditions without constraints. A score of B on the grade scale indicates that the prototype is at a good level of usability. Although it has not yet reached

category A, this value indicates that users are satisfied with the experience provided, although there are some aspects that can be improved. In the excellent category based on adjective rating, the system is rated as excellent by users, which means that the design is easy to use and able to meet user needs well. These evaluation results reinforce that the interface design has followed the principles of optimal usability and is feasible to use.

## Conclusion

This research successfully designed a reservation website for Infokus Photo Studio using the Design Thinking method. This approach helps in understanding user needs deeply and generating the right design solution through the five stages of Design Thinking: Empathize, Define, Ideate, Prototype, and Test. This method has been proven to be able to produce designs that are in accordance with the problems faced by users. The developed website aims to overcome problems in the reservation process, such as schedule conflicts, late confirmations, and difficulties in viewing time availability. Therefore, the design focuses on ease of navigation, clarity of information, and comfortable user experience. Test results using the System Usability Scale (SUS) showed an average score of 87, indicating a good level of usability. Based on the evaluation, this website falls into the acceptable category on the acceptability ranges, grade B on the Grade Scale, and excellent on the Adjective Rating. This shows that users are satisfied, comfortable, and accept the design. Thus, website design is considered capable of meeting user needs. This website is expected to improve the smoothness of the reservation process, reduce operational errors, and provide better service quality in the long run.

**Acknowledgments**
We would like to express our gratitude to all for their invaluable support during the development of this work.

**Author Contributions**
Conceptualization, A.Y and A.C.W; methodology, A.Y and A.C.W.; software, A.Y and A.C.W; validation,A.Y and A.C.W.; formal analysis, A.Y and A.C.W; investigation, A.Y and A.C.W; resources, A.Y and A.C.W; data curation, A.Y and A.C.W; writing—original draft preparation, A.Y and A.C.W; writing—review and editing, A.Y and A.C.W; visualization, A.Y and A.C.W; supervision, A.Y and A.C.W project administration,A.Y and A.C.W; funding acquisition, A.Y and A.C.W. All authors have read and agreed to the published version of the manuscript.

**Funding**
This research received no external funding.

**Conflicts of Interest**
The authors declare no conflict of interest.

## References

Ardi, Yanti, D., & Istikoma. (2024). Perancangan UI/UX Sistem Informasi Pemesanan Jasa betukang.id Menggunakan Metode Design Thinking. *Jurnal Penelitian Sistem Informasi (JPSI)*, *2*(1), 229–241. https://doi.org/10.54066/jpsi.v2i1.1668

Ardila, E., Aminuallah, C., & Informasi, S. (2022). Perancangan User Experience Aplikasi Pesan Antar Dalam Kota Menggunakan Metode Design Thinking. *Teknologiterkini.Org*, *2*(12), 2022–2023. Retrieved from https://jim.teknokrat.ac.id/index.php/sisteminformasi/article/view/1597

Arifin, R. (2024). Tinjauan Hukum Tentang Pengaturan Perlindungan Hak Cipta Dalam Industri Kreatif Di Indonesia. *Tugas Mahasiswa Fakultas Hukum*, 1–12. Retrieved from https://coursework.uma.ac.id/index.php/fakum/article/view/850%0Ahttps://coursework.uma.ac.id/index.php/fakum/article/download/850/413

Budiarto, S. P., & Yulian R. L., D. Y. (2023). Evaluasi Usability pada Aplikasi Jemput Sampah Online Desa Rejosari Menggunakan Metode System Usability Scale (SUS). *Jurnal Eksplora Informatika*, *13*(1), 100–112. https://doi.org/10.30864/eksplora.v13i1.822

Cai, Y., Lin, J., & Zhang, R. (2023). When and how to implement design thinking in the innovation process: A longitudinal case study. *Technovation*, *126*(December), 102816. https://doi.org/10.1016/j.technovation.2023.102816

Fariyanto, F., Suaidah, & Ulum, F. (2021). Perancangan Aplikasi Pemilihan Kepala Desa Dengan Metode Ux Design Thinking (Studi Kasus: Kampung Kuripan). *Jurnal Teknologi Dan Sistem Informasi (JTSI)*, *2*(2), 52–60. Retrieved from http://jim.teknokrat.ac.id/index.php/JTSI

Fitriani, D., & Risah Subariah. (2022). Perancangan Aplikasi Form Pelayanan Jasa Pada Studio Foto Produk Unik Berbasis Web Menggunakan Metode Prototype. *Jurnal Publikasi Teknik Informatika*, *1*(3), 24–34. https://doi.org/10.55606/jupti.v1i3.592

Gunawan, M. E., & Firdaus, U. (2024). Optimalisasi Penggunaan HTML, CSS, dan JavaScript dalam Implementasi Desain UI/UX pada Situs Web Profil Perusahaan. *Karimah Tauhid*, *3*(11), 12256–12264. https://doi.org/10.30997/karimahtauhid.v3i11.15404

Hendarto, A. R., Werdiningsih, I., & Kartono, K. (2024). Evaluation and User Interface Design Improvement Recommendations of the Immigration Service Application Using Design Thinking. *BAREKENG: Jurnal Ilmu Matematika Dan Terapan*, *18*(1), 0001–0018. https://doi.org/10.30598/barekengvol18iss1pp0001-0018

Khalfani, A., Kurdiana, I., Apriani, D., Agustiranti, T., Hendrowati, R., Studi, P., Informatika, T., Rekayasa, F. I., Paramadina, U., Subroto, G., Prapatan, M., & Jakarta, K. (2024). Development of Book Nook Online Bookstore Application With. *Klik - Kumpulan Jurnal Ilmu Komputer*, *11*(1), 50–59. https://doi.org/10.20527/klik.v11i1.665

Kumoro, D. T., & Ardhana, V. Y. P. (2023). Perancangan Antarmuka Aplikasi Mobile SIM UNIQHBA Menggunakan Metode User-Centered Design UCD. *TIN: Terapan Informatika Nusantara*, *4*(2), 121–128. https://doi.org/10.47065/tin.v4i2.4171

Muzakki, A. N., Rahman, Y., & Yudiarti, D. (2022). Perancangan Website Studio Fotografi "Weldphotograph." *EProceding of Art and Design*, *8*(5), 3806–3818. Retrieved from https://openlibrarypublications.telkomuniversity.ac.id/index.php/artdesign/article/view/18872

Nazar, M., Nurmalahayati, N., Rusman, R., Puspita, K., & Haris, A. (2022). Introducing Chemical Instruments through Quick Response Code (QR-Code) Based Website. *Jurnal Penelitian Pendidikan IPA*, *8*(3), 1083–1088. https://doi.org/10.29303/jppipa.v8i3.1361

Plattner, H. (2021). *An Introduction to Design Thinking Process Guide*. Institute of Design at Stanford.

Puspitasari, F. (2024). Perancangan Desain Ui/Ux Tempo Store Berbasis Website E-Commerce Dengan Metode Design Thinking. *Creativa Scientia*, 44–64. https://doi.org/10.70429/creativascientia.v1i1.84

Setiawan, M. R., Mutiara, D., Nugraheni, K., & Nurhayati, O. D. (2025). *User Satisfaction Analysis of SUS Method of Virtual Tours Website for Semarang Chinatown Tourism Experience*. *11*(1), 1224–1233. https://doi.org/10.29303/jppipa.v11i1.9891

Subarjah, V. A., & Ari Purno Wahyu. (2022). Analysis and Design of User Interface and User Experience of Regional Tax Enterprise Resources Planning System with Design Thinking Method. *Inform : Jurnal Ilmiah Bidang Teknologi Informasi Dan Komunikasi*, *7*(2), 96–106. https://doi.org/10.25139/inform.v7i2.4729

Syaflita, D., Efendi, R., Muslim, & Azhar. (2024). Implementation of Design Thinking to Support Creativity-Oriented Learning: A Literature Review. *Jurnal Penelitian Pendidikan IPA*, *10*(4), 188–197. https://doi.org/10.29303/jppipa.v10i4.6788

Werthi, K. T., Agung, A., Agung, G., & Perwira, N. (2024). Penguatan Literasi Digital di Era Digital Ekonomi Sebagai Program Penguatan Peran Perempuan Sebagai Penopang Ekonomi Keluarga. *BERNAS: Jurnal Pengabdian Kepada Masyarakat*, *5*(1), 606–610. https://doi.org/10.31949/jb.v5i1.7560

Willi, S. H. (2021). *Pengaruh Desain Website , Foto Produk , Dan Program Flashsale Terhadap Keputusan Pembelian Pada E-Commerce Shopee*. STIE Mahardhika Surabaya. Retrieved from http://repository.stiemahardhika.ac.id/3271/

Yusuf, D. A., & Qoiriah, A. (2023). Rancang Bangun Ulang Website Learning Management System PT Berau Coal Menggunakan Metode Design Thinking (Studi Kasus: Sintesis+). *Journal of Informatics and Computer Science (JINACS)*, *5*(02), 223–231. https://doi.org/10.26740/jinacs.v5n02.p223-231

Zamakhsyari, F., & Fatwanto, A. (2023). A Systematic Literature Review of Design Thinking Approach for User Interface Design. *JOIV : International Journal on Informatics Visualization*, *7*(4), 2313–2320. https://doi.org/10.30630/joiv.7.4.1615