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Level Up Your Front-End Skills with React JS

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ABSTRACT

A limited understanding of Front End Web Development remains a significant obstacle for many students and the general public, particularly in mastering modern frameworks like ReactJS. To address this issue, the community service team from the Informatics Engineering Study Program at the University of Muhammadiyah Jakarta organized a webinar and workshop titled "Level Up Your Front-End Skills With React JS" as part of their community service initiative. This activity combines an online approach to delivering material with hands-on practice to provide participants with a comprehensive understanding. The training material covers basic web development concepts, React JS component structure, state management, and implementing a simple mind mapping application. The effectiveness of the activity was evaluated through pre-tests, post-tests, and participant feedback surveys. The evaluation results showed a significant improvement in participants' understanding, with an average pre-test score of 79.5% increasing to 89.7% on the post-test. Additionally, feedback indicated positive responses to the quality of material delivery and the relevance of the content. This activity successfully expanded access to Front-End Web Development technology learning and contributed to developing digital talent adaptable to current industry needs.

Keterbatasan pemahaman terhadap pengembangan Front-End Web Development masih menjadi kendala utama bagi banyak mahasiswa dan masyarakat umum, terutama dalam penguasaan framework modern seperti React JS. Untuk menjawab permasalahan tersebut, tim pengabdi dari Program Studi Teknik Informatika Universitas Muhammadiyah Jakarta menyelenggarakan kegiatan Webinar dan Workshop bertajuk "Level Up Your Front-End Skills With React JS" sebagai bagian dari pengabdian kepada masyarakat. Kegiatan ini menggabungkan pendekatan penyampaian materi secara daring dengan praktik langsung untuk memberikan pemahaman menyeluruh kepada peserta. Materi pelatihan mencakup konsep dasar pengembangan web, struktur komponen React JS, manajemen state, serta implementasi aplikasi mind mapping sederhana. Evaluasi efektivitas kegiatan dilakukan melalui pre-test, post-test, dan survei umpan balik peserta. Hasil evaluasi menunjukkan peningkatan signifikan dalam pemahaman peserta, dengan rata-rata nilai pre-test sebesar 79,5% yang meningkat menjadi 89,7% pada post-test. Selain itu, umpan balik

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menunjukkan respons positif terhadap kualitas penyampaian materi dan relevansi konten. Kegiatan ini berhasil memperluas akses pembelajaran teknologi Front-End Web Development dan memberikan kontribusi terhadap pengembangan talenta digital yang adaptif terhadap kebutuhan industri saat ini.

A. INTRODUCTION

The Magang Studi Independen Bersertifikat (MSIB) program is one of the flagship programs of the Merdeka Belajar Kampus Merdeka (MBKM) policy launched by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. This program provides students with the opportunity to engage in independent learning within the industrial sector or non-university institutions for one to two semesters, with the aim of enhancing practical skills relevant to the workplace(Sulistyaningrum et al., 2022). Through this scheme, students are expected to enhance both their hard and soft skills, making them better prepared to tackle challenges in the digital transformation era (Simanjuntak et al., 2024). MSIB has become one of the most sought-after programs due to its real-world experience and its ability to facilitate collaboration between the education sector and the technology industry in cultivating top-tier digital talent (Saweho et al., n.d.).

In line with the rapid advancement of digital technology, the need for interactive, responsive, and user-friendly user interface (UI) developers continues to grow. In this context, Front-End Web Development has become a highly sought-after skill across various industries (Jonathan & Suprihadi, 2023). One of the standout technologies in Front-End Web Development is React JS, a JavaScript library that enables the development of web applications using a component-based approach. React JS supports the efficient Single Page Application (SPA) architecture and has been widely adopted in modern Front-End Web Development projects (Chen, 2025).

Although React JS is very popular and widely used, mastering it remains a challenge for most students and beginners in web development (Kinanti et al., 2023). However, various React JS workshops and training sessions have been held, but most of them only emphasize the introduction of basic concepts or the development of simple applications. As a result, there is still a lack of research and learning activities that specifically focus on developing applications with a specific contextual approach, such as React JS-based mind mapping applications that can train critical thinking, idea mapping, and visual problem-solving skills. Thus, there is a research gap that needs to be bridged, namely how React JS project-based learning can be directed towards the development of thematic applications such as mind mapping, which not only improves technical skills but also supports the development of participants' collaborative soft skills.

The mismatch between the skills possessed by graduates and industry expectations is an issue that must be addressed immediately. To address this issue, various practice-based educational approaches have been developed, including through webinars and workshops.

These approaches have proven effective in providing technical and theoretical understanding to enhance material retention, as well as building participants' confidence in developing real-world projects (Nurollahian et al., n.d.).

Hands-on learning methods, such as interactive simulations and project-based training, have also been proven to increase participant engagement and motivation to learn. For example, educational escape rooms are effective in reinforcing understanding of programming concepts (Gordillo & Lopez-Fernandez, 2024). In addition, collaborative activities such as hackathons and capstone projects are considered capable of training critical thinking and team problem-solving skills (Affia et al., 2022).

In response to these needs, as part of the Community Service Program and MSIB Batch 8 program, a webinar and workshop were held with the theme "Level Up Your Front-End Skills With React JS." This activity aims to introduce React JS comprehensively to participants from various backgrounds, including students and the general public. The material presented covers basic understanding of component structure, state management, and hands-on practice in building a mind mapping application based on React JS. Such activities are not only informative but also provide a contextual and applied learning space (Raina et al., n.d.).

This activity not only serves as a learning experience about Front-End Web Development technology, particularly React JS, but also as a systematically designed research material. This research aims to evaluate the entire process of conducting webinars and workshops, measure the impact of material delivery and learning approaches on participants' understanding and skills, and provide suggestions for improvements and development of similar programs in the future. Given the growing demand for increasingly innovative and evolving Front-End Web Development, this activity is expected to expand opportunities for learning relevant technologies, promote the growth of competent digital resources in Indonesia, and reduce the skills gap between the education sector and the needs of the technology industry.

B. METHODS

In carrying out the planned activities, the community service team systematically organized the implementation stages as a guide for running the entire series of events. These activities were divided into two primary forms, namely community service through webinars and training through workshops. To support the smooth running of the activities, these stages were summarized in a flowchart, which can be seen in Figure 1 below.

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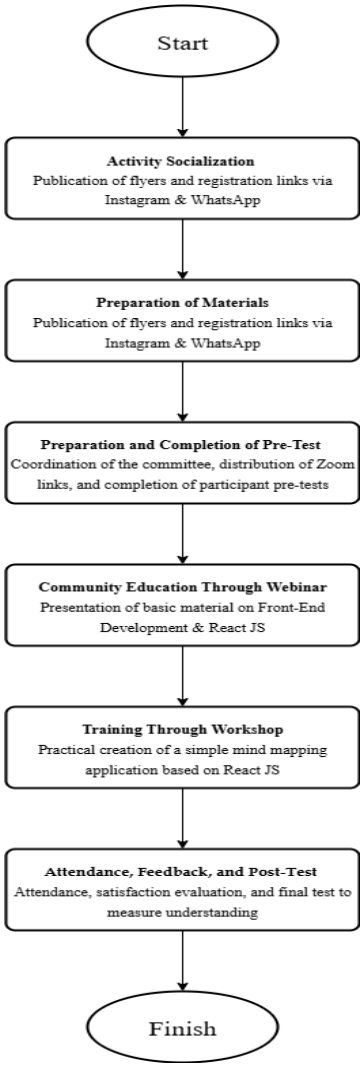

Figure 1. Research Activity Flow

Based on the diagram above, it can be understood that the implementation of activities began with socialization to the community, followed by the preparation of materials, technical preparations, and pre-tests for participants. After that, the main activity is carried out through a webinar to introduce the basic concepts of React JS, followed by a workshop that emphasizes the hands-on practice of creating mind mapping applications. In the final stage, participants fill out attendance sheets, provide feedback, and take a post-test to evaluate the effectiveness of the activity and measure the increase in understanding gained. A more detailed description of each stage of the activity implementation can be explained as follows.

Stage 1 (Activity Socialization)

At this stage, the service team conducted socialization through social media by sharing flyers and registration links via the URL https://forms.gle/zGFfNotPeHCB1z7x8 regarding the Webinar and Workshop activities. Flyers were posted on Instagram, and broadcast messages were sent to WhatsApp groups.

Stage 2 (Preparation of Materials)

At this stage, the service team prepares the materials to be used in the Webinar and Workshop. The materials were compiled in to learning modules and presentations (PPT) that would be delivered directly by the presenters during the event.

Stage 3 (Preparation and Completion of Pre-Test Activities by Participants)

On Wednesday, July 2, 2025, the event will begin with a preparation session by the organizing committee from 12:00 PM to 1:00 PM WIB. During this stage, the organizing committee will coordinate and distribute the Zoom Meeting link, virtual background link, and pre-test link via the participants' Whats App group. The purpose of this distribution is to ensure all participants can participate smoothly in the activity and use the virtual background as a form of support for the event. Before the session begins, participants are asked to complete a pre-test accessible via the URL https://forms.gle/zkea7FL2AZ3wML6v5 , which contains questions related to the webinar and workshop materials. This pre-test is designed to measure participants' initial understanding level, which will later be compared with post-test results to determine the extent of knowledge gained during the activity.

Stage 4 (Community Education Through Webinar)

In this webinar, the service team presented one main topic that focused on the basics of the React JS Framework. The goal of this stage was to give participants a thorough introduction so they could understand the basic concepts that are the foundation of web development using React JS. The material presented covers various important topics, including an introduction to Front-End Web Development, modern architecture and framework structures, the application of the SDLC method in Front-End Web Development, as well as the challenges and complexities often encountered. Additionally, participants are introduced to the basic concepts of React JS, its history, advantages and disadvantages, supporting tools and technologies, and the general functioning of React JS.

Stage 5 (Training Through Workshop)

This workshop is the implementation stage of the material presented in the webinar session, focusing on the practice of creating a simple mind mapping Website. Before beginning, participants are given a brief explanation of the Website development process, including the features to be made, the system workflow, the tools and libraries used, and the basic project structure. As part of the preparation, participants are encouraged to install the necessary supporting software beforehand to ensure they can follow each step explained during the session.

Stage 6 (Attendance, Feedback, and Post-Test by Participants)

At the end of the session, participants are asked to provide feedback to evaluate their level of satisfaction with the material presented by the speakers. In addition, participants are also asked to fill out an attendance and feedback form via the URL https://forms.gle/joRGRg3fbrawuzHo7. To measure participants' understanding after participating in the activity, a post-test is also provided and can be accessed via the URL https://forms.gle/iShDUaB13ZZ2wTa46. The results of this post-test will be compared with the results of the pre-test conducted earlier to assess the extent of improvement in participants' understanding of the material presented during the Webinar and Workshop.

C. RESULTS AND DISCUSSION

The webinar and workshop titled “Level Up Your Front-End Skills With React JS” was organized by students from the Computer Science Program, Faculty of Engineering, Muhammadiyah University of Jakarta. The event was conducted online via the Zoom Meeting

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Conference platform at the URL https://s.umj.ac.id/FTUMJ-02 on Wednesday, July 2, 2025, from 1:00 PM to 3:30 PM WIB. A total of 47 participants attended, representing various institutions, including students from the University of Muhammadiyah Jakarta, University of Singaperbangsa Karawang, University of Pembangunan Jaya, and the general public. The agenda for the webinar and workshop is outlined in Table 1 below.

Tabel 1. Event Agenda

Time	Activity	Person in Charge
12.30 - 13.00	Event Preparation	Muhammad Daffa Saptrian
13.00 - 13.05	Opening by MC	Muhammad Daffa Saptrian
13.05 - 13.10	Recitation of the Quran	Fauzan Azima
13.10 - 13.15	Singing of the Indonesian National Anthem and Muhammadiyah March	Bintang Al-Fizar
13.15 - 13.18	Presenting of the Webinar Speaker's CV	Muhammad Daffa Saptrian
13.18 - 13.48	Webinar	Muhammad Haikal Syauqi
13.48 - 13.58	Question and Answer Session	Muhammad Daffa Saptrian
13.58 - 14.01	Presenting of the Workshop Speaker's CV	Muhammad Daffa Saptrian
14.01 - 15.11	Workshop	Muhammad Thoriq Ramadhan
15.11 - 15.21	Question and Answer Session	Muhammad Daffa Saptrian
15.21 - 15.25	Photo Session	Muhammad Haikal Syauqi
15.25 - 15.30	Closing by MC	Muhammad Daffa Saptrian

Based on the schedule in Table 1, the activities proceeded according to the planned schedule, starting from the opening session to the closing session. Each part of the event was carried out by the organizing committee and presenters in accordance with their respective roles and responsibilities, and proceeded smoothly and orderly. The entire series of activities involved active interaction between participants and presenters, both during the presentation sessions and discussions. The following are the steps taken by the organizing team to implement and support the smooth running of the Webinar and Workshop.

Stage 1 (Activity Socialization)

At this stage, the service team socialized the activity to students and the general public through social media by distributing registration links and flyers, which can be seen in Figure 2 below.

Figure 2. Activity Flyer

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Stage 2 (Activity Material Preparation)

At this stage, the presenter prepares materials in the form of PowerPoint (PPT) presentations that are designed to be easily understood by participants. The materials focus on the topics of Front-End Web Development and React JS. During the webinar session, the materials cover the definition of Front-End Web Development in the modern era, an introduction to commonly used architectures and frameworks, and the stages of software development using the SDLC method. Additionally, common challenges encountered in user interface development are explained. Participants also receive an explanation of the history of React JS, its advantages and limitations, supporting tools, and how React JS works in general. In the workshop session, the material covers an overview of mind mapping, the purpose of creating a Website, Website features, tools and libraries, project structure, Website workflow, and Website mind mapping creation. The complete materials used in the activity can be seen in Figures 3 and 4 below.

Figure 3. Webinar Materials

Figure 4. Workshop Materials

Stage 3 (Pre-Test Completion by Participants)

At this stage, participants are asked to complete the Pre-Test prepared by the service team. The questions in the pre-test cover topics related to Front-End Web Development and React JS, aimed at assessing participants' initial understanding before the material is presented. Out of the total 47 participants present in the Zoom Meeting, 45 participants completed the pre-test. The results of the participants' pre-test can be seen in Figure 5 below.

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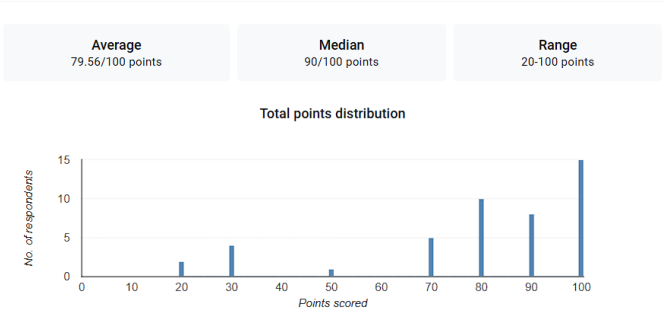

Figure 5. Participants' Pre-Test Results

Figure 5 shows the pre-test results obtained from 45 participants, with the average level of understanding of the participants at 79.56%.

Stage 4 (Community Education Through Webinar)

In this stage, the webinar presentation was delivered by Muhammad Haikal Syauqi. The material presented focused on Front-End Web Development and React JS. The participants consisted of students from various universities and the general public. The presentation was interactive, with participants allowed to ask questions either through the chat box or directly during the session. Documentation of the presentation can be seen in Figure 6 below.

Figure 6. Presentation of Front-End Development and React JS Material

In Figure 6, the presenter explains material about Front-End Web Development and React JS. This explanation is provided so that participants can understand the basics of modern Website development and the role of React JS in building modern and interactive websites.

Stage 5 (Training Through Workshop)

At this stage, the workshop training sessions were delivered by Muhammad Thoriq Ramadhan as the presenter. In its implementation, the presenter used Visual Studio Code and Node.js as the primary tools, which had been previously informed to participants to install before the activity began. The workshop materials covered an introduction to mind mapping concepts, the purpose of creating a mind mapping Website, the features to be developed, as well as explanations of the tools and libraries used, project folder structure, and the development workflow. The presenter guided participants step-by-step through the process of creating a simple mind mapping Website so that participants could understand the practical implementation of React JS in building a functional and structured web interface. Documentation of the workshop activity can be seen in Figure 7 below.

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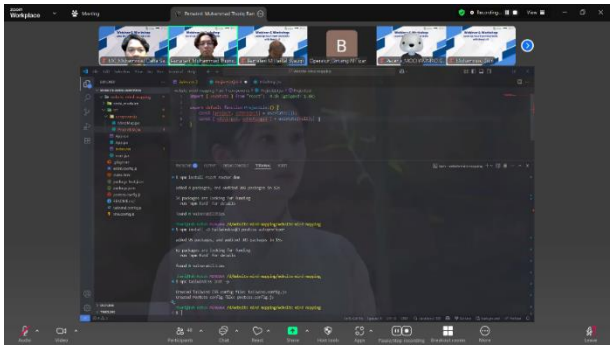

Figure 7. Mind Mapping Website Creation Workshop Training

Stage 6 (Feedback and Post-Test Completion by Participants)

At this stage, participants are asked to fill out an attendance form and provide feedback using the same form distributed via Google Forms. To measure participant satisfaction with the activity, a Likert scale method is used, consisting of several answer options that describe the level of agreement of participants with several statements presented. In this questionnaire, five rating levels are used: (5) Strongly Agree, (4) Agree, (3) Neutral, (2) Disagree, and (1) Strongly Disagree. The list of questions and statements asked in the questionnaire is as follows:

1. The webinar & workshop materials were well designed
2. The webinar & workshop materials were easy to understand
3. The webinar & workshop materials provided you with insights
4. The presenter explained the materials and answered every question well
5. The presenter delivered the materials using effective methods & tools
6. What is your overall opinion of the presenter's performance?
7. The webinar & workshop ran on time
8. The webinar & workshop ran smoothly
9. The duration of the webinar & workshop was appropriate for the material presented
10. On a scale of 1-5, how would you rate this event?

The enthusiasm of the participants during the webinar and workshop sessions was evident from the responses provided in the feedback forms distributed at the end of the event. Based on the results obtained, the majority of participants expressed satisfaction with the presentation of the material by the speakers. This was reflected in the respondents' answers, which showed positive assessments of all aspects of the event. The results of the questionnaire can be seen in Figure 8 below as a form of evaluation of the event's implementation.

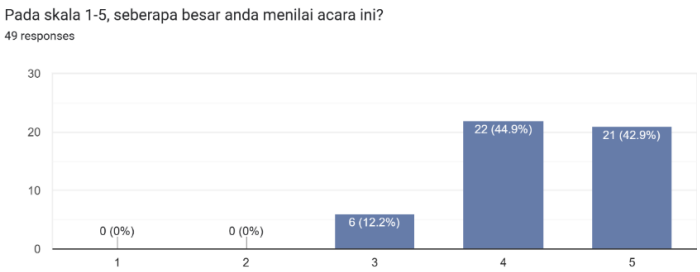

Figure 8. Participant Satisfaction Levels with Webinars and Workshops

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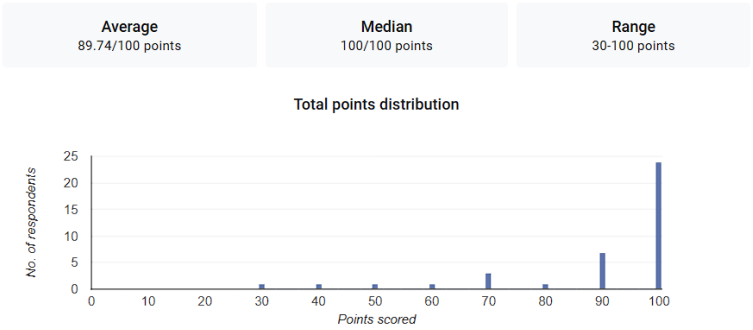
In Figure 8 above, it can be seen that 44.9% of participants stated that they were satisfied, and 42.9% stated that they were delighted in assessing the event as a whole on a scale of 1–5. This shows that the Webinar and Workshop activities were considered successful and left a positive impression on participants, both in terms of material delivery, interaction, and overall technical implementation.

After completing the feedback form, participants were asked to take a post-test at the end of the activity. The purpose of this post-test was to measure the improvement in participants' understanding after attending the series of materials in the Webinar and Workshop. Out of a total of 47 participants who participated at the Zoom Meeting, 39 participants completed the post-test. The results of the participants' post-test can be seen in Figure 9 below.



Based on Figure 9, it can be seen that the level of understanding of participants after participating in the webinar and workshop activities reached a score of 89.7%. This figure shows a significant increase compared to the previous pre-test results. This reflects that the material presented during the activities was able to increase the knowledge and understanding of the participants effectively. This increase also serves as an indicator that the delivery methods, tools used, and materials presented were aligned with the participants' needs, thereby ensuring that the objectives of this educational activity were successfully achieved.

D. CONCLUSION

Based on the implementation of the Webinar and Workshop with the theme "Level Up Your Front-End Skills With React JS" on July 2, 2025, it can be concluded that this activity ran smoothly and successfully. A total of 47 participants from various institutions and the general public attended the series of events, which consisted of theoretical material on Front-End Web Development and React JS with a practical session on creating a mind mapping Website. Evaluation results showed a significant improvement in participants' understanding. The average post-test score reached 89.7%, up from the pre-test score of 79.5%. Additionally, the majority of participants provided positive feedback regarding the quality of the material, the delivery method, and Time Management during the event. Overall, this activity successfully enhanced participants' technical skills in Front-End Web Development using React JS, while also motivating them to continue learning and developing their skills in this field. It is hoped that similar activities can be organized on a larger scale to reach more participants and contribute to shaping an adaptive and innovative digital generation in the development of Front-End Web Development.

E. ACKNOWLEDGEMENTS

The service team would like to express their gratitude to the alumni and the Computer Science Program at the Faculty of Engineering, Muhammadiyah University of Jakarta, for their assistance and support in organizing the webinar and workshop titled "Level Up Your Front-End Skills with React JS." We also extend our appreciation to all committee members and organizers for their dedication and hard work in planning and executing this event successfully. Last but not least, we would like to thank all participants who actively participated and provided valuable feedback and suggestions that were highly meaningful for the success of this event.

F. AUTHOR CONTRIBUTIONS

In the webinar and workshop titled "Level Up Your Front-End Skills with React JS," all team members had clear roles and contributions to ensure the smooth implementation of the event and the preparation of scientific articles. Muhammad Daffa Saptrian, as the event coordinator, is responsible for developing the concept and theme of the event, ensuring that the entire KKN process runs according to plan, creating promotional materials such as flyers and posters, managing participant registration, collecting feedback from participants through forms, compiling the logbook and final activity report, and serving as the emcee (MC) and moderator to guide the event's proceedings. Muhammad Haikal Syauqi served as a presenter during the webinar session and was responsible for preparing the activity modules, as well as creating pre-test and post-test questions to assess participants' understanding. Muhammad Thoriq Ramadhan acted as a presenter during the workshop session, was responsible for creating participant certificates, and compiled the scientific article. Meanwhile, Yana Adharani served as the supervising lecturer, providing guidance, supervision, and accompanying the implementation process of the activity up to the preparation of the scientific article. All members of the service team collaborated to ensure the success of the activity's implementation and to ensure that the quality of the scientific article produced meets publication standards.

G. REFERENCES

Affia, A. O., Nolte, A., & Matulevičius, R. (2022). *Integrating Hackathons into an Online Cybersecurity Course*. https://doi.org/10.1145/3510456.3514151

Chen, K. (2025). *Improving Front-end Performance through Modular Rendering and Adaptive Hydration (MRAH) in React Applications*. http://arxiv.org/abs/2504.03884

Gordillo, A., & Lopez-Fernandez, D. (2024). Are Educational Escape Rooms More Effective Than Traditional Lectures for Teaching Software Engineering? A Randomized Controlled Trial. *IEEE Transactions on Education*, *67*(5), 660–668. https://doi.org/10.1109/TE.2024.3403913

Jonathan, R., & Suprihadi. (2023). Development of Front-End Web Applications Utilizing Single Page Application Framework and React.js Library. *International Journal Software Engineering and Computer Science (IJSECS)*, *3*(3), 529–536. https://doi.org/10.35870/ijsecs.v3i3.1943

Kinanti, V. S., Setyadi, R., & Widiasari, L. (2023). Implementasi React JS dalam Mengembangkan Front-End Website PT XYZ. *Jurnal Ilmu-Ilmu Informatika Dan Manajemen*, *17*(2).

Nurollahian, S., Keuning, H., & Wiese, E. (n.d.). *Teaching Well-structured Code: A Literature Review of Instructional Approaches*.

Raina, A. N., Utama, N. I., & Suakanto, S. (n.d.). *React Js Development On Website Frontend Complaints And Public Services Using Scrum Method (Case Study West Java DPRD)*.

Saweho, F. F., Celia, V., & Handoko, T. W. (n.d.). *Program Magang dan Studi Independen Bersertifikat (MSIB): Efektivitas dalam Meningkatkan Kapabilitas Mahasiswa Sebelum Memasuki Dunia Kerja*. http://Jiip.stkipyapisdompu.ac.id

Simanjuntak, J. F. G., Muji, Adillah, R., Rahmawati, W. Y., & Maesaroh, S. S. (2024). *Pengaruh Program MSIB terhadap Kesiapan Karir Mahasiswa Bisnis Digital Universitas Pendidikan Indonesia*. *4*(2).

Sulistyaningrum, A. N. B., Nirwana, N. A., Januar, D. R., & Hilalia, N. N. (2022). Performa Kebijakan Kampus Merdeka pada Program Magang dan Studi Independen Bersertifikat. *Jurnal Multidisiplin Madani*, *2*(6), 2771–2786. https://doi.org/10.55927/mudima.v2i6.489