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Accelerating & Optimizing: Making Organization Website Using React.js & Node.js

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ABSTRACT

In the digital transformation era, many local and student organizations still face issues related to the lack of professional websites, low digital visibility, and limited IT personnel. This community service project aimed to support these organizations by accelerating and optimizing the development of organizational websites using React.js for front-end interface creation and Node.js as the server-side runtime. Through a series of workshops and technical mentoring conducted during the KKN program at Universitas Muhammadiyah Jakarta, the team implemented a step-by-step approach: from system requirement analysis, project initialization using React CLI, component-based user interface development, integration with Tailwind CSS for styling, to deployment via GitHub Pages. The program enabled participants to directly practice developing responsive, maintainable, and scalable websites that reflect modern web standards. The outcomes show that React.js significantly increases development speed and modularity, while Tailwind CSS enhances visual consistency and ease of use. Community partners gained new skills and were able to independently manage and expand their organizational websites post-program. This activity contributes to improving the digital competency of grassroots organizations and promoting technology adoption for sustainability.

A. INTRODUCTION

Kuliah Kerja Nyata (KKN), or Community Service Program, is an academic initiative in Indonesian higher education that embodies the third principle of Tri Dharma Perguruan Tinggi – community service. This program provides students with the opportunity to apply the knowledge and skills they acquire in university directly within communities. KKN is conducted in groups and emphasizes interdisciplinary collaboration to solve community-based problems. According to the Panduan Kuliah Kerja Nyata Kebangsaan (Purba et al., 2024), KKN is a collaborative academic activity focused on participatory and solution-oriented approaches that aim to build creative, caring, and innovative students capable of addressing local issues based on regional potential.

As Sinulingga et al. (2023) note, KKN not only contributes to community empowerment but also strengthens students' soft skills in areas such as communication, leadership, and project management. It serves as a platform for self-actualization and creates synergy between universities and society. In response to modern technological needs and post-pandemic shifts, KKN is increasingly implemented through digital methods such as webinars and online workshops.

In 2025, Group 8 of Universitas Muhammadiyah Jakarta implemented their KKN program through a fully online format, using webinars and workshops as the core approach. The initiative was designed to assist local and student organizations facing challenges in digital transformation, including the lack of professional websites and IT personnel. This program provided a practical solution through the use of React.js for front-end interface development and Node.js for runtime environment support.

A significant portion of the group members had previously participated in the MSIB Mandiri program (Magang dan Studi Independen Bersertifikat), an independent internship and learning scheme under the Merdeka Belajar Kampus Merdeka (MBKM) policy. This experience enabled them to create a practical curriculum based on real-world needs and industry practices (Kampus Merdeka, 2024).

Webinars were used to deliver theoretical and motivational content regarding the digital transformation of organizations, while workshops served as a platform for technical implementation and guided learning. According to Sivaramalingam et al. (2025), webinars effectively facilitate two-way interaction and digital education by allowing real-time Q&A sessions, polls, and discussions. Workshops, on the other hand, emphasize hands-on learning, which provides contextual and problem-solving experiences (Wibowo, 2024).

React.js, an open-source JavaScript library developed by Meta, was introduced for building dynamic and modular front-end components. Its component-based structure and use of Virtual DOM enable efficient user interface updates and simplified integration of logic and layout through JSX syntax (Siahaan & Vianto, 2022; Firnando & Sekarwati, 2023). Several case studies also show that React.js enhances scalability and maintainability in front-end development (Kinanti et al., 2023; Sekarwati, 2023).

Node.js was utilized primarily as a runtime environment and build tool, supporting modern JavaScript development workflows. It enables the use of npm (Node Package Manager) for project initialization, dependency management, and local development servers (Suryadi & Nasirudin, 2022). Workshop participants were guided through project setup using Vite – a modern build tool faster than Create React App – where they executed commands such as npm create vite@latest and npm run dev to simulate real-world development environments.

Ultimately, the project empowered participants with practical skills in building responsive and scalable websites and provided partner organizations with tools to sustain their digital presence. This model of digital-based KKN demonstrates a significant step forward in aligning community service with contemporary technological capabilities.

B. METHODS

To ensure the effective implementation of the website development training for the student organization CORE IT, the team structured the activities into a well-planned sequence. The initiative was carried out through two key modes: structured technical

mentoring and practical workshops. The following steps were executed by the team to support the community engagement efforts:

1. **Activity Socialization**

   The team began the engagement by promoting the program through multiple communication channels. The event was socialized using digital posters and registration links, which were distributed via WhatsApp groups and student networks within the Faculty of Engineering. The aim was to attract participants who were active in organizational development and interested in improving their web development skills.

2. **Development of Learning Materials**

   To support the implementation of the technical sessions, the team prepared comprehensive learning materials in the form of PowerPoint slides and a downloadable starter project. The materials covered the basic concepts of React.js, the use of Tailwind CSS, and step-by-step coding instructions for building modular UI components such as Navbar, Hero Section, About, and more. These modules were designed for delivery across multiple sessions: orientation, coding, and deployment (Modul Bab 3.3–4.5).

3. **Pre-Test Administration**

   Before the technical sessions began, participants were given a pre-test to assess their understanding of modern front-end development tools. This test served as a diagnostic tool to evaluate their baseline knowledge related to React.js, Tailwind CSS, and website component structure. The pre-test results were later compared to post-test scores to measure the effectiveness of the training.

4. **Webinar and Workshop Implementation**

   The technical workshop was conducted over several days, combining lecture-based delivery and guided coding sessions. Participants learned how to initialize a React project, install necessary dependencies, and build various website components using JSX and utility-first styling. Emphasis was placed on applying responsive design principles, organizing project structure, and using GitHub Pages for deployment (Modul Bab 4.3–4.5).

5. **Post-Test and Feedback Collection**

   At the conclusion of the program, participants were invited to complete a post-test. The results showed significant improvements compared to the pre-test scores. The team also distributed a feedback form to gather participants' opinions on the clarity of materials, the usefulness of the session, and suggestions for future activities. These insights were used to evaluate the impact of the program and identify areas for enhancement in similar future engagements.

C. RESULTS AND DISCUSSION

the webinar and workshop activities were conducted by students from the Department of Computer Engineering, Faculty of Engineering, Muhammadiyah University of Jakarta. These activities were held online via Zoom Meeting Conference on Sunday, July 15, 2025, from 13:00 to 16.00 Atotal of 46 participants attended, the majority of whom were students of the Computer Engineering program at Muhammadiyah University of Jakarta.

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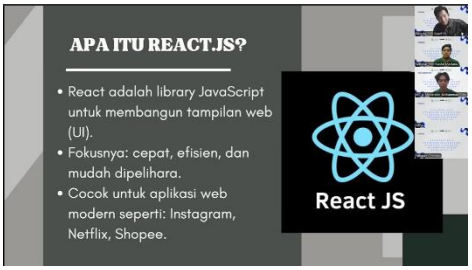
1.1. Socialization of the Activity

In this stage, the community service team conducted socialization to the generalpublic via social media platforms, aiming to attract participants by distributing flyers, as shown in Figure 1 below:

During this phase, the team engaged with the public through social media to attract interested participants by distributing flyers and sharing campus activity news

1.2. Preparation of Activity Materials

At this stage, the speakers prepared a PowerPoint presentation that covered the basics of using React Js, Node Js, and the reasons for using React Js. The material discussed included what React is, why it is widely used, and examples of well-known applications that use it. Node Js, which is described as a JavaScript-based backend platform, and explained the reasons why React is worth choosing.



The materials were presented during the webinar and workshop sessions to provide insights and hands-on training to participants. Documentation of the materials can be seen in Figures 2 and 3.

1.3.Pre-Test Completion by Participants

In this phase, participants completed a pre-test on their understanding of React JS, Node JS, and the reasons for using React in website development. This test assessed participants' initial understanding before the webinar and workshop. The results showed varying levels of understanding among the 44 participants. The following details the points earned by these participants :

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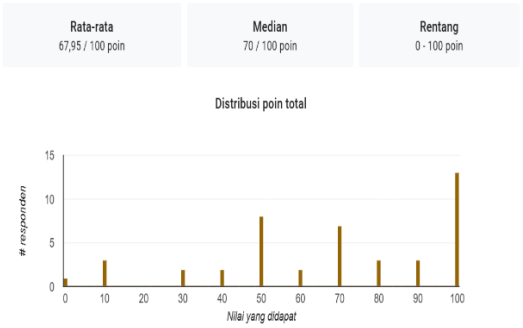

Based on the Pre-Test results, the average score obtained by participants was 6.79 out of 10 points, with a median of 7 points, and a range of scores ranging from 0 to 10 points.

1.4.Learning the Materials through Webinar

In this session, Fikri Naufal Maulana delivered the webinar material, discussing the importance of organizational digital transformation, an introduction to the React.js framework as a JavaScript library for building user interfaces, and an explanation of the component structure in React. The session also included a question-and-answer session, allowing participants to clarify their understanding.

In Figure 3, the speaker explains the importance of organizational digital transformation, introduces the React.js framework as a JavaScript library for building user interfaces, and explains the component structure in React. This explanation aims to help participants understand how to create efficient and responsive websites.

1.5.Organizational Website Creation Training using React.js and Tailwind CSS through Workshop

The workshop, led by Putra Pebriano Nurba, taught participants how to create an organizational website using React.js and Tailwind CSS, starting from the initial development stages, starting from creating a folder structure, configuring Tailwind CSS. The navbar component was designed responsively using utility classes from Tailwind CSS and JSX structures from React, so it can adjust the appearance for various devices. This training is expected to help participants create their websites more effectively.

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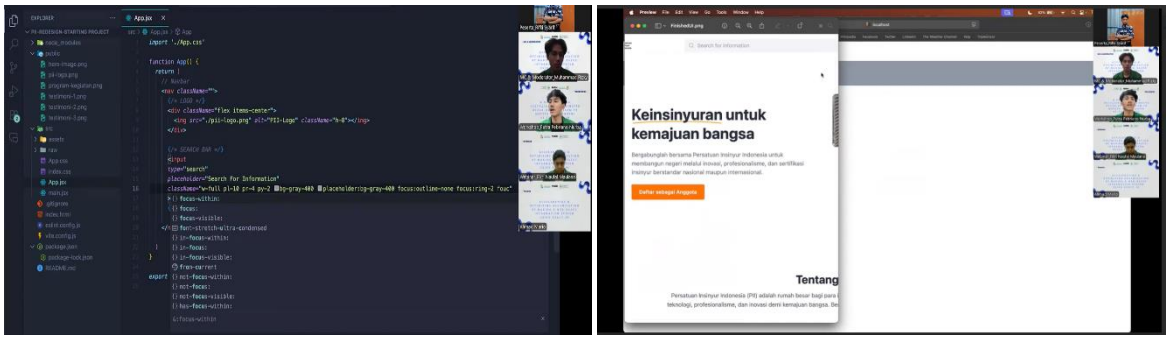
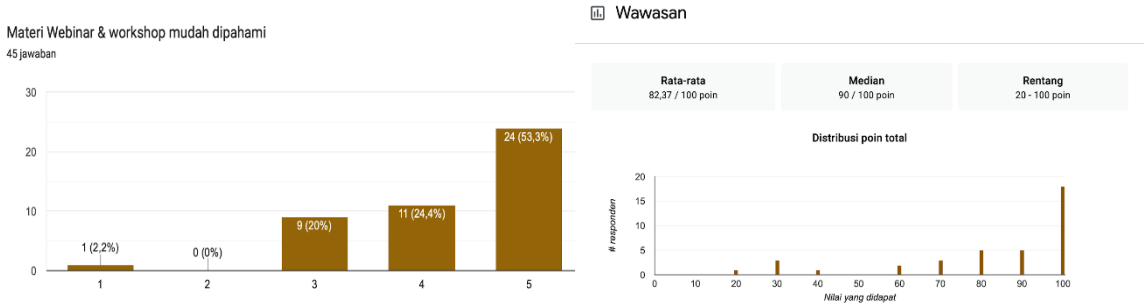


In Figure 4, the speaker demonstrates how to create an organizational website using React Js and Tailwind CSS, including functions and features that enhance the design's visual appeal.

1.6.Post-Test,Attendance, and Feedback by Participants

In this stage, participants completed a post-test, an attendance form, and a feedback survey. The attendance form was used to record participant attendance, while the feedback was intended to gauge their satisfaction with the webinar and workshop. After the event, participants who attended all sessions received a certificate approved by the Head of the Computer Engineering Department, Faculty of Engineering, University of Muhammadiyah Jakarta(UMJ). The following table shows the post-test results, which indicate the participants' level of understanding after attending the event.



D. CONCLUSION

Based on the results of the webinar and workshop "ACCELERATING & OPTIMIZING: CREATING AN ORGANIZATIONAL WEBSITE USING REACT.JS & NODE.JS," held on July 15, 2025, from 1:00 PM to 4:00 PM WIB (Western Indonesian Time) via Zoom, it can be concluded that the event was a success and achieved its intended objectives. It attracted 44 participants from various institutions, who enthusiastically learned about creating organizational websites with React and Node.js.

Participant feedback indicated a high level of satisfaction with the material presented. This was also reflected in the comparison of pre-test and post-test scores, which indicated an increase in participants' understanding of the material. Based on the evaluation results, the average participant score was 82.37 out of 100, with a median of 90 and a range of 20–100. The majority of participants achieved high scores, especially on the 100 mark, which was the highest. Compared to the pre-test results, where many participants scored below 60, there was

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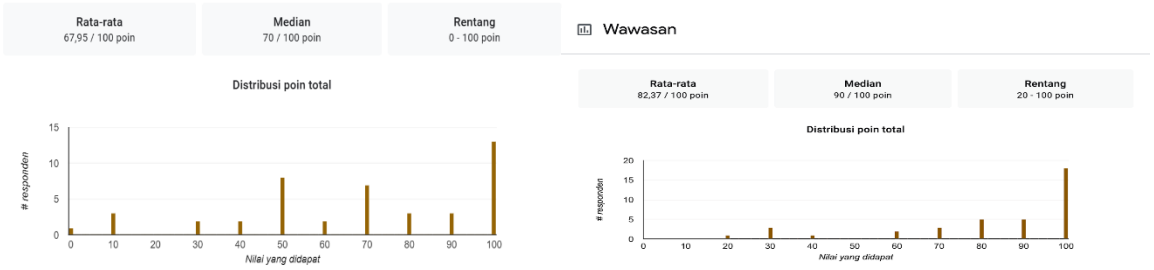
a significant improvement. After the activity, most participants scored above 80, indicating that the delivery method, hands-on practice, and interactive approach proved effective in increasing understanding.



The positive response to the presenters and the materials presented further strengthens the conclusion that this webinar and workshop were successfully conducted. One of the best suggestions came from Rifki Syarif Hidayat, who recommended adding a participant name rule during the webinar and provide time during the organization's website creation sessiont, which would create a more interactive and in-depth atmosphere.

E. ACKNOWLEDGEMENTS

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F. AUTHOR CONTRIBUTIONS

In the webinar and workshop "ACCELERATION & OPTIMIZATION: ORGANIZATIONAL WEBSITE CREATION USING REACT.JS & NODE.JS", each team member had clear contributions and responsibilities to ensure the smooth running of the event and the preparation of scientific articles. Fikri Naufal Maulana, as the event chair, was responsible for overseeing the entire process and supervising the tasks of team members, as well as acting as a webinar presenter and contributing to the preparation of journals, learning modules. Putra Pebriano Nurba was responsible for making the Community Service Report and also as a Workshop Speaker. Muhammad Rizky contributed to the creation of flyers and the creation of pre-test, post-test, and feedback forms to assess the learning achievements of participants and acted as a moderator, facilitating the webinar and workshop sessions. Hendra acted as a supervising lecturer, providing guidance, supervision, and support to ensure the smooth implementation of the webinar and workshop, as well as reviewing scientific articles. All team members collaborated to ensure the success of the event and the quality of the resulting publications.

G. REFERENCES

Direktorat Jenderal Pendidikan Tinggi, Riset, dan Teknologi. (2024). Panduan Kuliah Kerja Nyata Kebangsaan 2024. Available: https://www.dikti.kemdikbud.go.id/epustaka/panduan-kuliah-kerja-nyata-kkn-kebangsaan-2024/

Firnando, M., & Sekarwati, A. K. (2023). Pembuatan website inventaris Toko Berkah Lestari menggunakan React JS dan Firebase. Jurnal Pengembangan Rekayasa dan Teknologi, 1(1). Doi: https://doi.org/10.26623/jprt.v8i2.10690

Kinanti, V. S., Setyadi, R., & Widiasari, L. (2023). Implementasi React JS dalam mengembangkan front-end website PT XYZ. Infoman's: Jurnal Ilmu-Ilmu Informatika dan Manajemen, 17(2). Available: https://ejournal.lppmunsap.org/index.php/infomans/article/view/1022

Arif, S., Ali, A. A., Chandani, S., & Shafi, Z. (2025). Exploring the effectiveness of student-led webinars and workshops as teaching strategies using Kirkpatrick model among MSN students. Journal of Asian Development Studies, 14(1), 399–405. Doi: https://doi.org/10.62345/jads.2025.14.1.30

Chen, S., Thaduri, U. R., & Ballamudi, V. K. R. (2019). Front-end development in React: An overview. Engineering International, 7(2), 117–126. Doi: https://doi.org/10.18034/ei.v7i2.662

Naresvari, E., & Susetyo, Y. A. (2025). Penerapan JavaScript React pada perancangan front-end website UMKM Jemari Ragil. IT-Explore: Jurnal Penerapan Teknologi Informasi dan Komunikasi, 4(1), 16–32. Doi: https://doi.org/10.24246/itexplore.v4i1.2025.pp16-32

Pusat Informasi Kampus Merdeka. (2024). Pengenalan magang mandiri untuk mahasiswa. https://pusatinformasi.kampusmerdeka.kemdikbud.go.id/hc/id/articles/24258768050457

Suryadi, A. N., & Nasirudin. (2022). Rancang Bangun Sistem Informasi Penyewaan Kontrakan Mutiara Berbasis Web. Jurnal Informatika Teknologi dan Sains (JINTEKS), 4(3), 215–219. Doi: https://doi.org/10.51401/jinteks.v4i3.1937

Sekarwati, C. F. A. (2023). Pengembangan front-end website platform survey online menggunakan metodologi Agile Scrum dan React.js. Prosiding Seminar Implementasi Teknologi Informasi dan Komunikasi. Doi: https://doi.org/10.31284/p.semtik.2024-2.6239

Sinulingga, A. R., Sitompul, E. T., & Sitorus, R. (2023). Pemberdayaan masyarakat melalui KKN di Desa Deli Makmur. Jurnal Ilmiah Pengabdian Kepada Masyarakat, 3(1), 12–19. Doi: https://doi.org/10.57248/jilpi.v1i3.97

Siahaan, M., & Vianto, V. O. (2022). Comparative analysis study of front-end JavaScript frameworks performance using Lighthouse tool. Jurnal Mantik, 6(3), 2462–2468. Doi: https://doi.org/10.35335/mantik.v6i3.3131

Wibowo, A. H., Mohamad, B., Djatmika, & Santosa, R. (2024). Designing and assessing experiential learning pedagogy for an intercultural communicative competence training module: a quasi-experimental study. Frontiers in Education, 9, 1470209. Doi: https://doi.org/10.3389/feduc.2024.1470209