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Chatbots Made Easy: A Practical Workshop on Generative AI

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ABSTRACT

Chatbots powered by Generative AI have become a rapidly evolving technological innovation, enabling users to interact with AI-based systems in a more natural way. However, the implementation of these chatbots still faces many challenges, especially for beginners who lack a deep technical background. This study aims to develop a more accessible and understandable approach for those new to Generative AI. Through webinars and workshops, participants were introduced to the fundamentals of language models, the use of tools such as Google Colab, as well as various challenges and opportunities in AI chatbot development. Some of the main obstacles encountered included complex materials, limited access to data and computational resources, and varying levels of understanding among participants. Nevertheless, these activities provided beginners with the opportunity to grasp the basics of Generative AI and even develop their own chatbots. With a more practical and inclusive approach, this study contributes to introducing Generative AI-based chatbot technology to a broader audience. Evaluation results showed positive feedback from 77 participants from diverse backgrounds, with 51.9% stating they were very satisfied, 37.7% satisfied, and 10.4% neutral. Additionally, Pre-Test and Post-Test results indicated an improvement in participants' understanding of building simple chatbots. This initiative successfully provided a strong foundation for beginners to enter the field of Artificial Intelligence, particularly Generative AI.

A. INTRODUCTION

Generative AI-based chatbots have become one of the most rapidly developing applications of technology in recent years. This technology allows chatbots to provide relevant and meaningful answers automatically, which can be applied in various fields, such as education, customer service, and health. However, despite its many potentials, developing generative AI chatbots still feels difficult, especially for those who do not have a deep technical background.

In this regard, Chang et al. (2023) noted that the integration of AI chatbots in education can be very helpful in supporting self-directed learning. This technology can be optimized through pedagogical approaches such as goal setting, feedback, and personalization for each student. However, they also cautioned that to be successful, this approach needs to be designed in a simple and targeted manner, so that students can more easily manage their own learning process. Generative AI technologies, such as large language models, can make chatbots more interactive and relevant to user needs, thus having a major impact on the learning process (Nambiar & Sreedevi, 2023).

The "Chatbots Made Easy: A Practical Workshop on Generative AI" webinar is designed to address these challenges by providing a basic introduction and practical application of this technology. The goal of this activity is to help participants understand how to implement generative AI simply and easily. For example, Allen et al (2024) show how generative AI-based systems, such as Q-Module-Bot, have successfully improved student engagement in virtual learning. This inspiration can be applied in webinars, which aim to provide a clear and easy-to-understand understanding for participants, even for those who are new to this technology.

The workshop will also address technical challenges such as "AI hallucination," where chatbots sometimes give incorrect but seemingly convincing answers. As a solution, Nambiar & Sreedevi (2023) propose the use of consensus strategies between chatbot models to improve the accuracy and quality of responses provided. This is important to ensure that participants can overcome technical issues such as these when developing their own chatbots.

Finally, this webinar also focuses on showing the opportunities for developing chatbots as practical applications of generative AI in various fields. For example, Zhang et al. (2020) highlighted how AI chatbots can be used to drive positive behavioral change, such as promoting a healthy lifestyle, through persuasive and interactive communication. This reveals that generative AI chatbot technology can not only function as an effective communication tool, but can also have a real impact on the daily lives of its users.

This webinar and workshop have a bigger goal than just teaching how to use generative AI chatbots. Another main goal is to open up inclusive learning access, where participants from various backgrounds can gain skills and insights in this technology, as well as overcome existing technical challenges. This practical approach is expected to encourage further development in chatbot applications, especially for beginners who want to start their journey in the world of AI.

Through these webinars and workshops, participants were not only introduced to basic concepts but also engaged in in-depth practical sessions. This allowed them to directly apply the new knowledge they had acquired. Thus, it is hoped that this journal will reflect the hard work, dedication, and achievements of the participants in mastering the basics of knowledge for chatbot development.

B. METHODS

In realizing the activities that have been explained previously, the author and team designed a series of steps to be taken. This activity was carried out in two main stages, namely public education through Webinars and training in the form of Workshops. To organize both activities, the author and team followed a number of planned stages.

1. Stage 1 (Activity Socialization)

At this stage, the author and team carried out outreach on social media by sharing flyers and registration links on the URL. https://bit.ly/webinarworkshop5 regarding Webinar and Workshop activities. Posters are posted on WhatsApp group broadcast messages.

2. Stage 2 (Creating Activity Materials)
   At this stage, the author and team create activity materials for the Webinar and Workshop that will be held. The materials are presented in PPT format and will be presented by the speakers during the activity.
3. Stage 3 (Completing the Pre-Test by Participants)
   Before the activity begins, participants are asked to fill out a pre-test on the URLhttps://forms.gle/bMp7KPsj8doy6kPc8which contains materials about Webinars and Workshops. The purpose of making a pre-test is to determine the level of participants' understanding of the material that will be given. The results will later be compared with the post-test given after the activity takes place.
4. Stage 4 (Community Education Through Webinars)
   In this Webinar, the author and team present basic materials so that participants can understand well about Artificial Intelligence and Basic Chatbot Development with Large Language Model. The output of this stage is an introduction to the material on Artificial Intelligence, Machine Learning, Neural Network, Deep Learning, Chatbot, Natural Language Processing, and also Large Language Model. The Webinar material begins with Understanding Artificial Intelligence, Basic Concepts of AI, Understanding Machine Learning, Neural Network, Deep Learning, Chatbot, Understanding Natural Language Processing, How Chatbots Work, Chatbot Design, LLM model Chatbot, How LLM Works, Advantages and Disadvantages of Chatbots with LLM, and Chatbot Implementation.
5. Stage 5 (Training Through Workshops)
   This workshop is an implementation of the Chatbot with LLM material. The participants were previously briefly explained the design mechanism and how the Chatbot works. The participants made a chatbot on Google Colab. This creation was done by finding a model that would be used to create a chatbot on Google Colab. The participants were previously advised to prepare a sufficient internet connection and quota before the activity began and to be able to follow the steps explained when the activity took place.
6. Stage 6 (Feedback and Post-Test Completion by Participants)
   At the end of the activity, participants were asked to fill in feedback to find out how satisfied they were with the presentation of the material delivered by the speakers and participants were also asked to fill in the Post-Test. Participant feedback and Post-Test can be accessed at the urlhttps://forms.gle/XHF2VAkb171jb9Am7. The results of the Post-Test will be compared with the Pre-Test to see how well the participants understand the material presented.

C. RESULTS AND DISCUSSION

This Webinar and Workshop activity was carried out by students of the Informatics Engineering study program, Faculty of Engineering, Muhammadiyah University of Jakarta. The result is that this activity was carried out online via Zoom Meeting Conference with the url link https://s.umj.ac.id/FTUMJ-02 on Tuesday, January 21, 2025 at 13:00 - 15:00 WIB.

Participants who attended this activity amounted to 77 people from various institutions, the majority of whom were students of the Informatics Engineering study program at the University of Muhammadiyah Jakarta. This activity was carried out online via Zoom Meeting Conference and there were interactive sessions such as QnA during its implementation. The following is the schedule of the Webinar and workshop events:

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Table 1. Event Schedule Table

TIME	ACTIVITY	PIC
11.00-13.00	Gather the Committee and Share the Zoom Link and VG Link (pre test)	English: Dimas Septiana
13.15 - 13.20	Opening By MC	English: The story of Alfiana Rahmawati Gunawan
13.20 - 13.24	Recitation	The Prophet
13.24 - 13.35	Singing the Indonesian National Anthem, Muhammadiyah March	Muhammad Daffa Fadhillah
	Greetings from the Head of the KKN Group	Mochammad Rizqi Aulia
13.35 - 13.40	Reading of Webinar Speaker CVs by Moderator	Mochammad Rizqi Aulia
13.40 - 14.20	Webinar	Muhammad Daffa Fadhillah
14.20-14.30	Webinar Q&A Session	Mohammad Rizqi Aulia
14.30-14.35	Reading of CVs of Workshop Speakers by Moderator	Mochammad Rizqi Aulia
14.35-15.25	Workshop	The Prophet
15.25-15.35	Workshop Q&A Session	Mohammad Rizqi Aulia
15.35-15.40	Documentation Session, Post-Test, Attendance Link, Feedback	English: The story of Alfiana Rahmawati Gunawan
15.40-16.00	Closing	English: The story of Alfiana Rahmawati Gunawan

Stage 1 (Activity Socialization)

At this stage, the author and team conducted outreach to the general public via social media as well as to attract interested participants by distributing flyers that had been created as shown in Figure 1 below.

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Figure 1. Activity Flyer

Stage 2 (Creating Activity Materials)

At this stage, the presenter prepares the material to be presented in PPT format. The material is arranged in such a way that it is easy for participants to understand. In this material, there are several points such as Artificial Intelligence, Machine Learning, Neural Network, Deep Learning, Chatbot, Natural Language Processing, and also Large Language Model. The activity material can be seen in figures 2 and 3 below.

Figure 2. Webinar Activity Materials

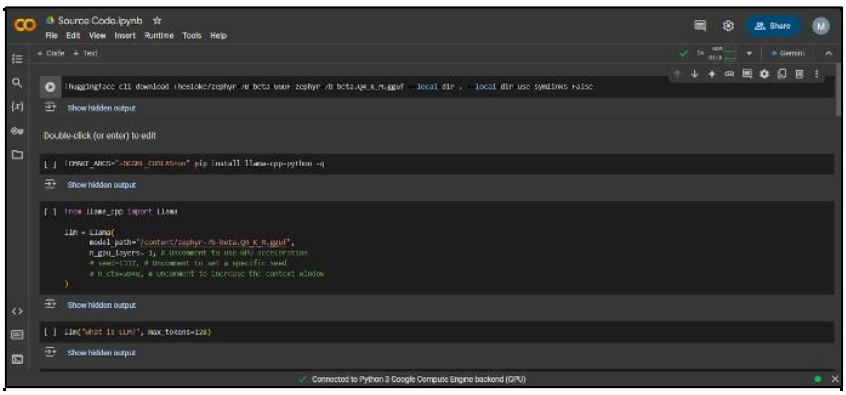

Figure 3. Workshop Activity Materials

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Stage 3 (Pre-Test Completion by Participants)

At this stage, participants are asked to work on the Pre-Test given by the author and team. This Pre-Test consists of questions containing questions about Machine Learning, Artificial Intelligence, Deep Learning, Natural Language Processing, Large Language Models, and Chatbots with LLM. The purpose of filling out this Pre-Test is to see how far the participants understand before the author and team hold this activity. The result is that this Pre-Test was filled out by 56 participants with sufficient understanding.

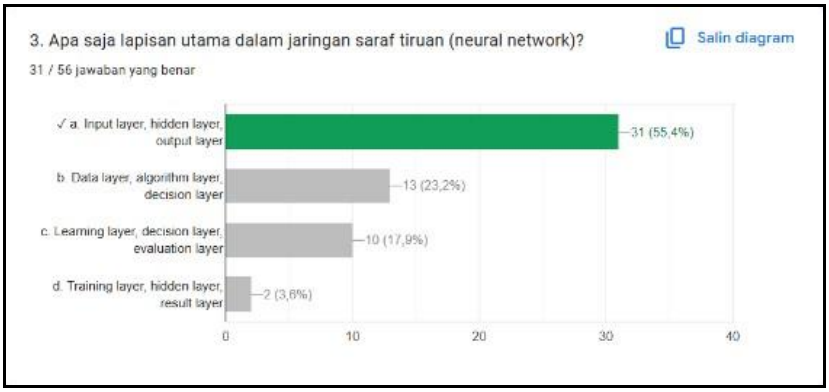

Figure 4. Participants' Pre-Test Regarding Neural

In Figure 4 above, it can be seen that in the pre-test on neural networks, the percentage of participants who answered the questions correctly was 55.4%.

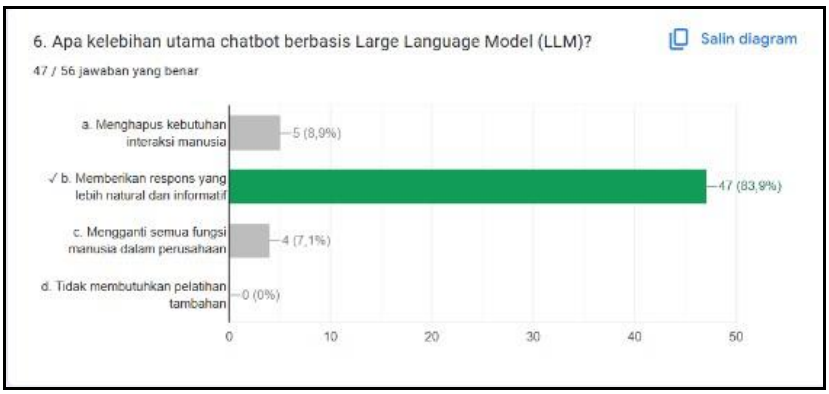

Figure 5 Participant Pre-Test Regarding Large Language Model-Based Chatbot

In Figure 5 above, it can be seen that in the pre-test regarding chatbots with LLM, the percentage of participants who answered the questions correctly was 83.9%.

Stage 4 (Public Education Through Webinars)

At this stage, the Webinar speaker presented by Muhammad Daffa Fadhillah, explained the material that had been previously created in stage 3 above to the participants, namely the general public. The presentation of the material presented includes Artificial Intelligence, especially Generative AI. The output of this stage is an introduction to the material on Machine Learning, Artificial Intelligence, Deep Learning, Natural Language Processing,

Large Language Model, and Chatbot with LLM. The Webinar material starts with

Understanding Artificial Intelligence, Basic Concepts of AI, Machine Learning, Neural Network, Deep Learning, Chatbot, Natural Language Processing and also Chatbot with LLM.

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At this stage, there is also an interactive session for participants such as questions given by the presenter and also participants via chat zoom meeting conference. The result is that participants understand in depth about artificial intelligence, especially in chatbots.

Figure 6 Presentation of Webinar Material

In Figure 6 above, the material explains Artificial Intelligence. This introduction aims to enable participants to first understand the Artificial Intelligence technology available in chatbots.

Figure 7 Presentation of Webinar Material

In Figure 7 above, the material explains about Chatbot based on Large Language Model.

Stage 5 (Training Through Workshops)

At this stage, the Workshop speaker, Khoirul Umam, provided a direct implementation of the Webinar material that had previously been presented. In the implementation of this Workshop, the speaker used the Google Colab tools which were operated in a browser. Participants had previously been advised to prepare adequate quota and internet network before the activity began. The speaker explained the stages of finding a simple and free model that would be used and installed on Google Colab. As a result, the speaker showed that making a simple Chatbot does not have to use a computer or laptop with high specifications, making Chatbots can be done only with a browser and the internet. With this implementation, it is hoped that participants will better understand how LLM-based Chatbots work.

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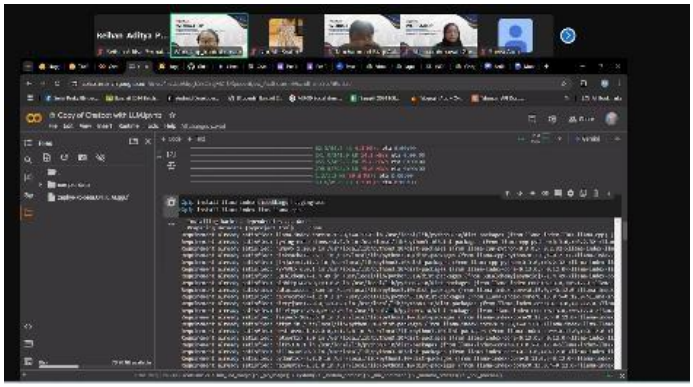

Figure 8 Presentation of Workshop Material

In Figure 8 above, the speaker explains the steps that need to be taken in the simple Chatbot coding process.

Stage 6 (Filling in Feedback and Post-Test by Participants)

At this stage, participants are asked to fill in the attendance, feedback and PostTest in the same form distributed via Google Form. For feedback, in measuring participant answers, a Likert scale is used. The Likert scale is a scale consisting of several answer choices that define participant agreement with existing statements or statements with adjusted answer choices. In this questionnaire, 4 score assessments are used with the following provisions: (4) Strongly Agree, (3) Agree, (2) Neutral, (1) Disagree. The questionnaire questions asked are as follows:

1. Is the material presented by the webinar presenter clear enough?
2. Is the material presented by the workshop speaker clear enough?
3. Overall, how satisfied are you with this event?

The post-test given is a question similar to the pre-test, the results of which can be used as a comparison of the participants' understanding before and after participating in this Webinar and Workshop. The following are the results of the feedback and post-test filled out by the participants.

In each Webinar and workshop session, the participants were very enthusiastic about the presentations given by the speakers. This can be seen from the feedback questionnaire form that was given at the end of the event session to the participants. In the feedback questionnaire form, the answers to the statements given to the participants on average stated that they were satisfied with the presentation of the material.

Figure 9 Level of Participants' Understanding of the Webinar Material Presented

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In Figure 9 above, it can be seen that the feedback given by participants stated that they strongly agreed with a percentage of 44.2% and 49.4% stated that they agreed.

Figure 10 Level of Participants' Understanding of the Workshop Material Presented

In Figure 10 above, it can be seen that the feedback given by the participants stated that they strongly agreed with a percentage of 45.5% and 49.4% stated that they agreed. In the next statement, the feedback results also showed positive numbers as in the figure below:

Figure 11 Level of Satisfaction with Activity Implementation

In Figure 11 above, it can be seen that 51.9% of participants felt very good with this activity and 37.7% of participants felt good, and 10.4% felt neutral. Based on the questions given to the participants and then the participants filled out the questionnaire, it can be seen that the participants gained an understanding of the new material according to the theme of the activity. The response of participants who expressed satisfaction with the material presented indicated that the delivery of the material by the speaker was quite good and easy to understand so that they could learn and understand new knowledge. In other words, this activity went well and could be understood by the general public.

In addition to the feedback questionnaire, participants were also asked to fill out a post-test given when the activity had ended with the aim of knowing the increase in participants' understanding after participating in this activity. The following are some of the results of filling out the post-test from participants:

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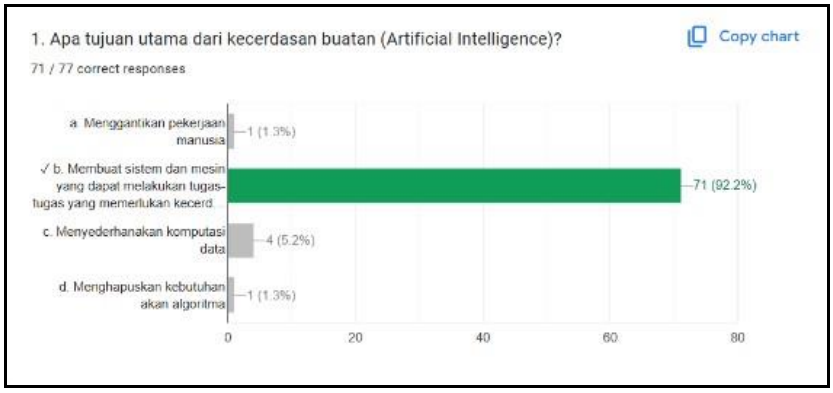

Figure 12. Post-Test Regarding Artificial Intelligence

In Figure 12 above, the results of the post-test of participants on question number 1 are 92.2% filled by 77 participants. In terms of percentage, there was a small increase which means that participants can understand Artificial Intelligence.

Figure 13. Post-Test Regarding Machine Learning

In Figure 13 above, the results of the post-test of participants on question number 2 are 74% filled by 77 participants. In terms of percentage, there is a small increase which means that participants can understand Machine Learning.

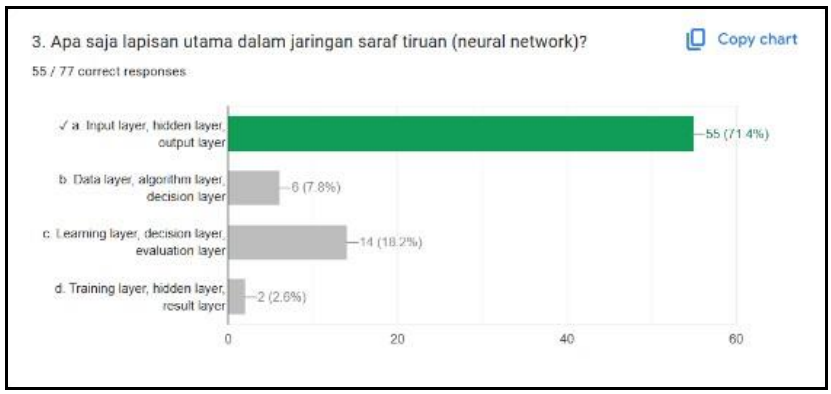

Figure 14. Post-Test Regarding Neural Networks

In Figure 14 above, the results of the post-test of participants on question number 3 are 71.4% filled by 77 participants. In terms of percentage, there was a small increase which means that participants can understand Machine Learning.

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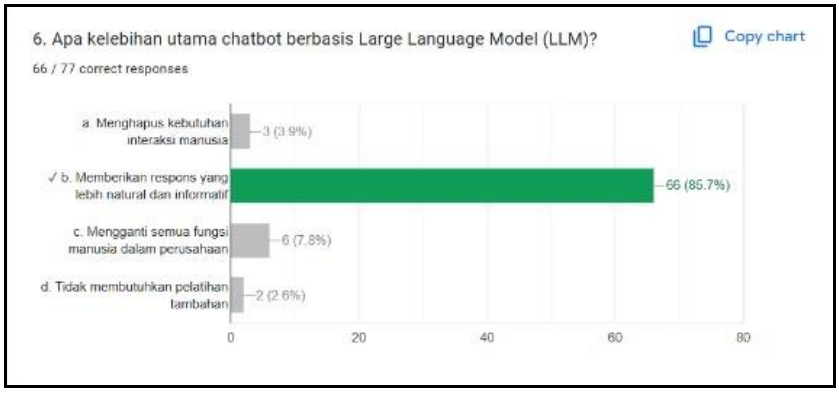

Figure 15 Participant Post-Test Regarding Large Language Model-Based Chatbot

In Figure 15 above, the results of the post-test of participants on question number 6 are 85.7% filled by 77 participants. In terms of percentage, there is a small increase which means that participants can understand Machine Learning.

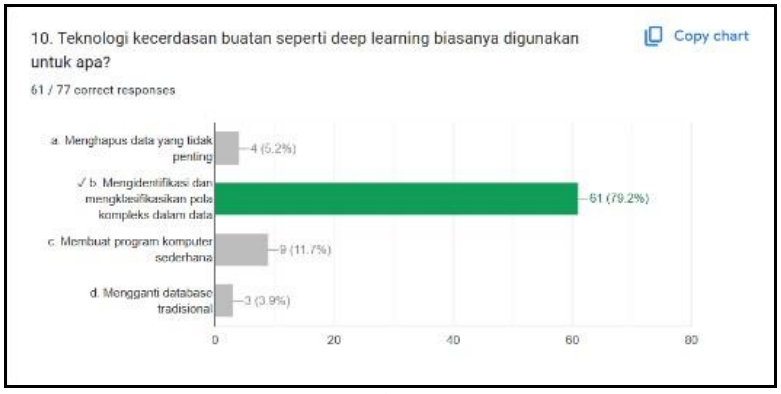

Figure 16. Post-Test Regarding Deep Learning

In Figure 16, there is a decrease in percentage to 79.2%, however, this post-test was attended by more participants than the pre-test, which was 77 participants. After all activities have been carried out, participants who have attended the Webinar and Workshop activities will receive a certificate that has been approved by the Head of the UMJ Informatics Engineering Study Program.

D. CONCLUSION

Based on the results of the implementation of the Webinar and Workshop "Chatbot Made Easy: A Practical Workshop On Generative AI" which was held on January 21, 2025 via Zoom conference from 13.00 - 15.00 WIB, it can be concluded that this activity was successful and smooth. A total of 78 participants from various agencies participated in this activity with high enthusiasm to learn about developing simple chatbots. Feedback from participants showed a high level of satisfaction with the material presented, as well as an increase in understanding and abilities of participants as seen from the results of the post-test. It is hoped that the next webinar and workshop activities, or similar events, can continue to be held to further improve participants' abilities in developing chatbots using LLM.

E. ACKNOWLEDGEMENTS

The author and team would like to thank the Alumni and Informatics Engineering Study Program, Faculty of Engineering, Universitas Muhammadiyah Jakarta for the support and facilities provided in organizing the Webinar and Workshop themed "Chatbot Made Easy: A Practical Workshop On Generative AI." We also express our appreciation to fellow committee members and organizers who have worked well together in planning and implementing this activity. Last but not least, thank you to the participants who have participated and provided valuable input during the activity.

F. AUTHOR CONTRIBUTIONS

In the webinar and workshop titled "Chatbot Made Easy: A Practical Workshop On Generative AI," each team member has a clear contribution and responsibility to ensure the smooth implementation until the preparation of the scientific article. Mochammad Rizqi Aullia as the chief executive who is responsible for the overall course of the activity and supervises the tasks of the team members, and acts as a moderator. Muhammad Daffa Fadillah is in charge of the webinar speaker, compiling the module, and compiling the report. Khoirul Umam acts as a workshop speaker, creating pre-test, post-test, and feedback forms to measure the learning outcomes of the participants, and also contributes to the preparation of the report. Alfiana Rahmawati Gunawan acts as the Master of Ceremony during the event and also helps compile the journal. Dimas Septiana is in charge of compiling the KKN report, creating e-certificates, and creating virtual backgrounds. All authors work together to ensure the success of this activity and the quality of the publication of the articles produced. Jumail acts as a supervising lecturer who provides direction, supervision, and support so that the implementation of the webinar and workshop runs smoothly until the checking of the scientific article. All authors work together to ensure the success of this activity and the quality of the resulting published articles.

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