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Asking a Chatbot for COVID-19 Food and Nutrition

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ARTICLE INFO	ABSTRACT
	Coronavirus 19 (COVID-19) is a disease caused by a new coronavirus called severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2; previously known as 2019-nCoV). On March 11, 2020, WHO declared COVID-19 a global pandemic, the first pandemic since H1N1 influenza was declared a pandemic in 2009. The disease has hit almost every country in the world and so far, no medicine nor antiviral was found. In some countries where the death rate is high, the number of patients continues to increase. On May 20, 2020, the number of patients exceeded 4.8 million and the toll is 318,000 (6.6 percent). Although the number of new patients in many countries declined after the access rights lockdown (lockdown), the second attack returned to the area where the first attack occurred. The COVID-19 case in Indonesia still shows an increasing trend even though various efforts have been made by the state and society. This research is intended to discuss us regarding the use of chatbots to provide guidance on food and nutrition during the COVID-19 pandemic. The results showed that a review of maintaining a healthy lifestyle by adhering to health protocol during the pandemic of COVID-19, shows that the higher the rating, the more effective it is to reduce the transmission of the corona virus in the future.

I. Introduction

COVID-19 is a disease caused by the SARS 2 virus, a virus that causes acute respiratory failure in humans. Virus attacks in humans are indicated by symptoms of fever, fatigue, and dry cough (European Centre for Disease Prevention and Control, 2020). Other symptoms that may appear are pain and pain, nasal congestion, colds, sore throat, and diarrhea. Some infected people show mild symptoms and others show no symptoms. Some people with congenital diseases such as heart disease, high blood pressure, diabetes, etc. show more severe symptoms (Mian & Khan, 2020).

The coronavirus is spread through droplets of water from saliva and nose that come out when an infected person speaks, sneezes, or coughs (Shrestha & Shrestha, 2020). People who inhale or touch these splashes, either directly or through other objects, run the risk of catching them when they rub their hands on their mouth, nose and nose (Ahn et al., 2020; Khan et al., 2020). The safety distance from splash water is 1 meter. WHO states that this method of transmission is still under investigation, including airborne spread?

COVID-19 is a deadly disease that is mild and has spread widely, so it is classified as a pandemic. shows that the number of people affected by COVID-19 is more than 4.8 million as of May 20, 2020 and 318 thousand more have died (Ahn et al., 2020; Porcheddu et al., 2020). This number tends to continue to rise, corresponding to the persistently high number of new cases per day, which continues to increase (Sulistiawati & Linnan, 2020). Figure 1 shows the development of new cases of COVID-19 sufferers in Indonesia. COVID-19 also affects all sectors of human life so efforts to prevent its spread are very important alongside efforts to cure it. The prevention efforts recommended by the Indonesian government, listed in the COVID-19 Prevention Protocol adopted by the WHO, are maintaining physical distance, decreasing interactions, wearing masks during activities outside the home, washing hands with soap and keeping the environment clean (Centers for Disease Control and

Prevention (CDC), 2020).This prevention effort will have a positive impact if it is carried out in a disciplined manner by the entire community so that its implementation must be monitored in real time (Al Farizi & Harmawan, 2020). Independent monitoring can be done by using a smartphone with a monitoring app and processing the data intelligently and quickly. The results of the monitoring are informed to the interested parties (Ranoliya et al., 2017). In order to take the necessary preventive measures, another technology-based solution must be provided to fix the problem, and one of the solutions to the problem is a chatbot (Dharwadkar & Deshpande, 2018).

Chatbots are smart programs that simulate human dialogue with users via text chat messages (Dutta, 2017; Yan et al., 2016). Their important role is to help users find answers to their questions. Chatbots are rule-driven and often driven by artificial intelligence. Services can take on a wide variety of subjects, from practical to fun (Wijaya & Zoromi, 2020).

This study aims to provide a chatbot with information about supplement and nutrition for people during the spread of the corona virus, developed using the Extensions Program (XP) (Sudarsono et al., 2020). The XP method is a development method that is easy to use, fast and straightforward, especially for developing small applications such as chatbots (Sharma et al., 2017). This consists of several parts, such as explaining the research method, findings, and discussion.

II. Method

A. AILM (Artificial Intelligence Markup Language)

AIML, an artificial intelligence markup language, is used to build chatbots. It is an XML-based markup language used to create interfaces while maintaining simple software applications that are easy to understand and maintain (Ranoliya et al., 2017; Satu et al., 2017). AIML content is a set of questions and answers that can be useful for chatbots to find answers to each user's suggestions. AIML is used to get input and find answers to AIML documents (Mhatre et al., 2016).

We are using extreme programming (XP) (Sudarsono et al., 2020). The development method is Extreme Programming (XP) for systems development (Rumpe & Schröder, 2014). XP is a software development approach or model that seeks to simplify the various stages of development to make them more flexible and adaptive (Sadath et al., 2018). XP not only focuses on scripting, but also covers the entire software development environment (AbuShawar & Atwell, 2016).
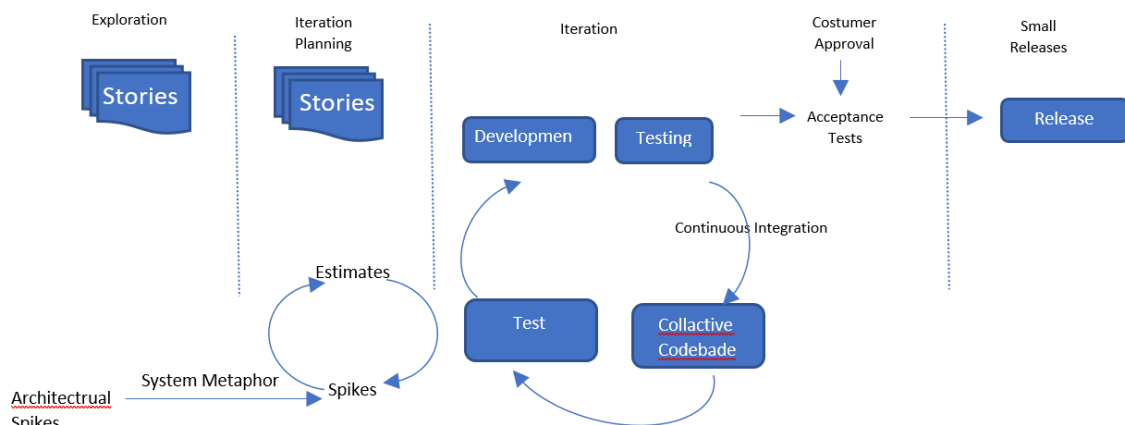

Fig. 1. Development Process

Table 1. Example of Question and Response

No	Context	Text Response
1	What foods should be consumed to support the immune system?	The immune system requires the support of many nutrients. It is recommended to consume a variety of foods for a healthy and balanced diet, including whole grains, legumes, vegetables, fruits, nuts, and animal source foods. There is no single food that will prevent you from catching COVID-19.
2	Are vitamin D supplements needed if individuals are not exposed to sunlight due to lockdowns?	Vitamin D can be made in the skin by exposure to sunlight or obtained through the diet from natural sources (e.g., fatty fishes such as salmon, tuna and mackerel, fish liver oils, beef liver, cheese, and egg yolks), or from vitamin D-fortified foods or vitamin D-containing supplements. In situations where individuals' vitamin D status is already marginal or where foods rich in vitamin D (including vitamin D-fortified foods) are not consumed, and exposure to sunlight is limited, a vitamin D supplement in doses of the recommended nutrient intakes (200-600 IU, depending on age) or according to national guidelines may be considered.
3	Can adding pepper to your soup or other meals help prevent or cure COVID-19?	No. There is no evidence that adding hot peppers to your food can prevent or cure COVID-19.
4	Can probiotics help prevent COVID-19?	No. Probiotics are live microorganisms that are generally added to foods or used as a supplement to the diet to confer a health benefit. However, there is currently no evidence to support the use of probiotics to help prevent or cure COVID-19.

Source: https://www.who.int/news-room/q-a-detail/coronavirus-disease-COVID-19-food-safety-and-nutrition

B. UEQ (User Experience Questionnaire)

UEQ (User Experience Questionnaire) is a tool or questionnaire that can be used to easily and effectively measure user experience (UX) (Kirana et al., 2020; Schrepp et al., 2017). The UEQ contains six rating scales: attractiveness, attractiveness, efficiency, reliability, stimulation, and novelty.

Fig. 2. Shows The Process

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UEQ has twenty-six question components and seven answer choices. The multiple-choice question or UEQ questionnaire is shown in Figure 2. The collected data is then analyzed using the data analysis tools on the official UEQ website (Abrahamsson & Koskela, 2004).

III. Results and Discussion

The design phase begins by identifying the problem described in the previous chapter regarding the importance of reliable information about the corona virus and how to prevent it. At the system requirements analysis stage, a literature study on chatbots was carried out and collected data related to research such as what the corona virus is, how to prevent it, about vaccines, and how the corona virus is transmitted. The design stage carries out the interface design process and designs the chatbot. The next coding stage is implementing the Artificial Intelligence Markup Language (AIML) method and entering data into the system being built. Lastly is testing where the system is evaluated using a method and a questionnaire is distributed to obtain ratings from various users. The chatbot UI is shown in Figure 3. The chatbot responds to user greetings.
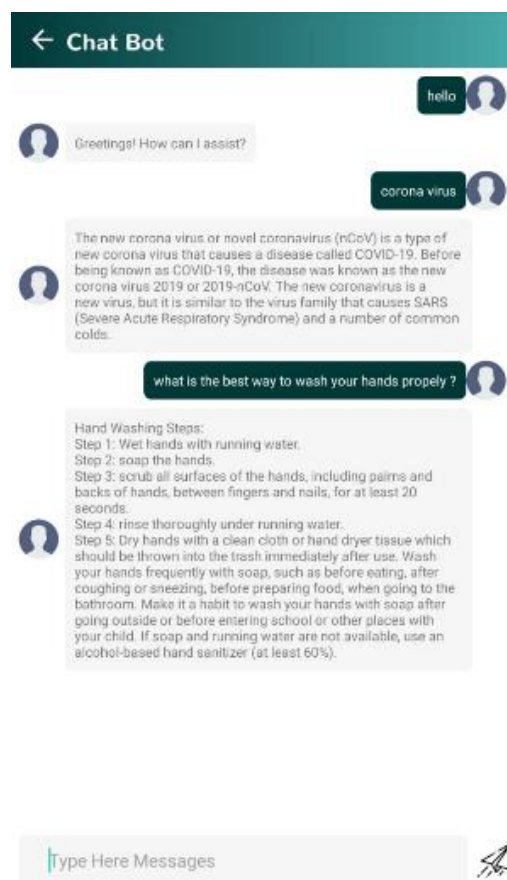
Fig. 3. Chatbot Greating

A test was performed to verify the suitability of the system with the expected results. The user inquired about the corona virus in the system and saw the output that the chatbot responded to (Table 2 and Figure 4).

Table 2. ChatBot Interface Testing

No	Testing	Results expected
1	Input Greetings	Can reply to greetings and explain the bot chat system
2	Input corona Virus	Can Reply to the Corona virus information
3	Input the word Thank You	Can Reply and explain the application
4	Incompatible Word Input	Can Reply and explain the chatbot system

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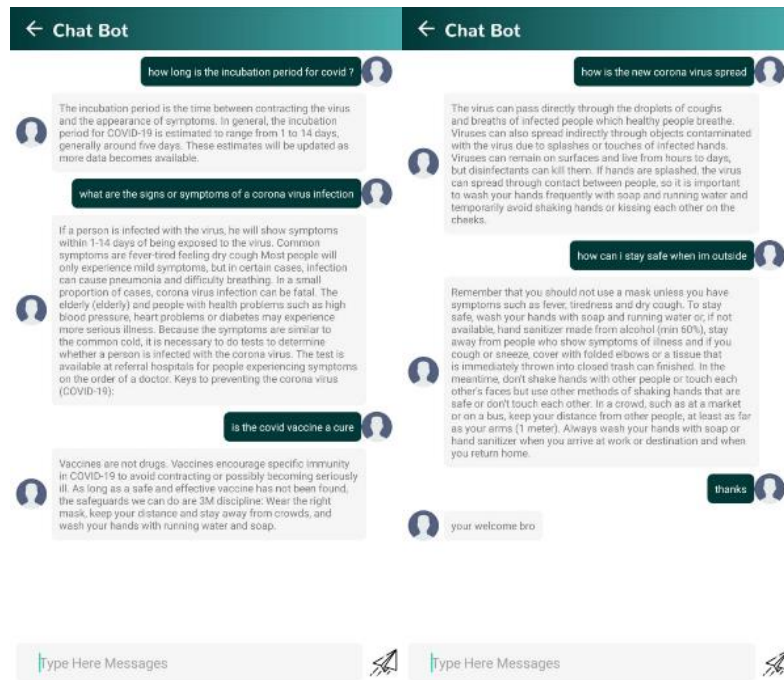
Fig. 4. Chatbot Response Testing

Table 3. Recapitulation of User Questionnaire

No	Questions	Very Bad (%)	Not Good (%)	Neutral (%)	Good (%)	Very Good (%)
1	Easy to use	6,7	0	16,6	30	46,7
2	Creative	0	6,7	20	23,3	50
3	Past Response	0	2,7	13,8	31	48,5
4	Enjoyable	0	10	13,3	16,7	60
5	Helpful	6,7	0	3,3	16,7	73,3
6	Correct Answer	6,7	3,3	7,3	31	51,7
7	Attractive	6,7	3,3	13,3	30	46,7
	Average	3,828571	4,285714	12,51429	25,52857	53,84282

Table 3 shows that the user response rate using 7 variables, a score of 1 or very poor, is 3.828571%. This score is the lowest overall score. In addition, there is an increase in the ratings "bad", "neutral" and "good". - The highest position in the ranking, where users consider it very good 53.84286%. In other words, users believe that the chatbot is reliable over a period, attributing this to the halal status of the food ingredients.

IV. Conclusion

The results of the study concluded that the chatbot system designed and implemented using Artificial Intelligence Markup Language (AIML) and developed with the Extreme Programming (XP) method has been able to help the public in providing information about the good nutrition in corona pandemic. The expected results can produce an overall suitability and provide an extraordinary level of satisfaction rating for 40 respondents. For further research, evaluate user satisfaction and increase the number of respondents in the current rating system and develop a system according to user needs using the developed method.

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