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Designing Application-Based COVID-19 Patient Track Records

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ABSTRACT

Track record is a record of the success of objects from the past until now and also can be said to be a record of the past community. Information about the track record is data in both individuals and organizations. The world is being stirred up by the Corona Virus Disease pandemic (COVID-19) and in its spread through touching bodies. A powerful way to break the COVID-19 chain is that every country or region does a Lockdown. However, in some countries lockdown steps cannot be taken so it is recommended to carry out isolation independently. So we need a system that monitors a person's track record from the previous 14 days to record and record someone interacting with patients affected by COVID-19. At this time the data collection is done independently by the local government by reporting to the health sector, with the development of technology at the present time, the authors are interested in making an electronic information media about the track record of patients with Covid-19. Based on the test results on the Trace Record application, the application is designed to successfully display information about the Trace Track of COVID -19 patients so that it is expected that this application will facilitate the public and researchers to study the track record and data of COVID-19 patients can be used in the field of big data, data science and data training and testing.

Keyword : Track Record, Covid-19, Application, Data.

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1. INTRODUCTION

The progress of the development of information technology and the internet that is so fast and fast has changed the way of life of people in the world in running their daily activities. The existence and role of information technology and the internet in all sectors of life entering the era of globalization is faster than imagined. The impact is not only affecting the economic and political sectors of the entire country, it has even entered the social and cultural aspects of humans and even education [1] [2]. It is not strange to us that the development of computers in this case information technology and the internet has brought the world to a new era, namely the age of information, not only for the fulfillment of information but also for solving problems in daily life. One problem that can be dealt with is in the field of education. Where information technology and the internet have played a role in advancing the field of education, especially universities [3] [4].

The use of the internet in Indonesia continues to grow with a focus on the internet of things [5]. Utilization of the internet is not only for education, but also developed in any personal activity where the use of information technology can provide a track record. Where the track record is all the things a person or organization has done in the past, showing how good they are at doing work, overcoming problems and others [6].

In 2020 the World is experiencing a pandemic Corona Virus Disease (COVID-19) [7]. Corona virus can cause mild disturbances to the respiratory system, severe lung infections, to death [8]. In many cases, this virus only causes mild respiratory infections, such as flu. However, this virus can also cause severe respiratory infections, such as lung infections (pneumonia). Early symptoms of Corona virus infection or COVID-19 can resemble flu symptoms, namely fever, runny nose, dry cough, sore throat, and headache. After that, the symptoms can disappear and heal or even aggravate. Patients with severe symptoms can experience high fever, cough with phlegm and even bleeding, shortness of breath, and chest pain. These symptoms appear when the body reacts against the Corona virus [9].

Some countries have a way to break the COVID-19 chain by doing Lockdown. However, in some countries lockdown steps cannot be taken so it is recommended to carry out isolation independently. So that the isolation step is independently needed a system that monitors a person's track record from the previous 14 days to record and record someone interacting with patients affected by COVID-19. At present the data collection is carried out independently by the local government by reporting to the health sector. Based on this introduction the design of the COVID-19 Patient Record application, the application designed will display information about the COVID-19 Patient Record so that it is expected that this application will facilitate the public and researchers to study the COVID-19 patient's track record and data. Because according to reference [10] processing with applications can be used in the fields of big data, data science and training and testing data.

2. MATERIAL AND METHOD

The research methodology used in the construction of this application is a qualitative methodology. Qualitative Methodology is a research method based on the philosophy of postpositivism, used to examine the condition of natural objects. The stages undertaken in conducting research are the stages of data collection and software development models, as follows [11] [12]:

A. Data Collection Stage

Data collection method that will be used in this research is data collection by collecting basic theories and supporting theories from various sources that are related to the research title.

B. Software Development Model

The development model in making this software uses the waterfall model, which includes several processes including:

1. Requirements analysis and definition: Gathering complete requirements then analyzed and defined needs that must be met by the program to be built. This phase must be done in full to be able to produce a complete design.
2. System and software design: Design is done after the complete requirements are collected in full.
3. Implementation and unit testing: program design is translated into codes using predetermined programming languages. The program that was built immediately tested both units.
4. Integration and system testing: The uniting of program units is then tested as a whole (system testing).
5. Operation and maintenance: operate the program in its environment and perform maintenance such as adjustments or changes due to adaptation to the actual situation.

3. RESULTS AND DISCUSSION

A. Current System Analysis

The system analysis carried out is intended to describe the information system into more detailed components to facilitate the system design. The system is studied in accordance with the object of research, so it can be seen which parts have gone well or needed an improvement. Based on this analysis, the system is made in the form of a web which is made about information management.

The current data entry process in the Track Record is sourced from COVID-19 patient data and COVID-19 patient activities. The data transaction process that occurs starts conventionally with a certificate to disseminate information on COVID-19 patient track records such as data collection on COVID-19 patient activities. Existing reporting systems about the COVID-19 patient's track record are still very minimal, especially in unclear statements and evidence. The lack of available information regarding COVID-19 patient data and COVID-19 patient track record data is still very difficult to obtain. This is due to the lack of interest in COVID-19 patients to open up openly.

The purpose of this paper is to develop an information system so that it can be used to provide information to the public about the track record of COVID-19 patients, so that with this web-based information system it is expected to be one form of information delivery for people who want to know it.

B. System planning

The design that will be presented by the author is the design by describing the system architecture, UML (Unified modeling language), database design, menu design to interface design that will be elaborated in the development phase of COVID-19 patient's Trace Engineering engineering. Design is the process of applying various techniques and principles that aim to define an equipment, a process or a system in

detail that allows physical realization. This phase is the technical core of the software engineering process.

In this phase the elements of the analysis model are converted. By using one of a number of design methods, the design phase will produce UML (Unified modeling language), Database, Database Relations. The purpose of system design is to meet user needs with a clear picture of the system design that will be created and implemented.

Unified modeling language is a standard language used to explain and visualize artifacts from object-oriented analysis and design processes. Use case diagrams illustrate the activities carried out on a system with events that occur when someone or something interacts with the system.

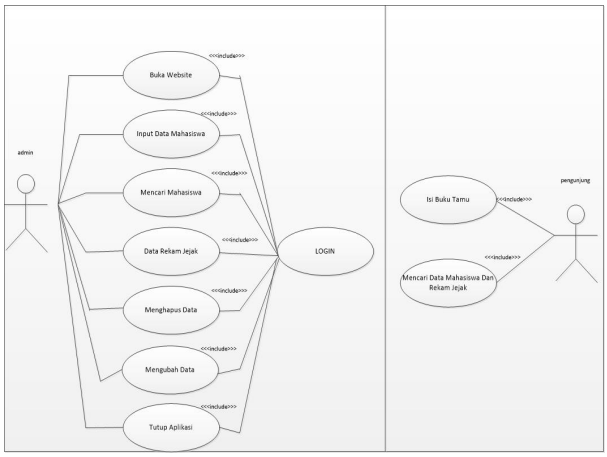

Figure 1 Use Case Track Record

Use case diagram COVID-19 patient's Track Record above presents the interaction between use case and actor. Sequence Diagram is one that explains how an operation is performed; message (message) is sent and when it is implemented. This diagram is set according to time. The objects related to the operation process are sorted from left to right based on the time they occur in ordered messages.

Sequence diagrams display interactions between objects in two dimensions. The vertical dimension is the time axis, where time goes downward. Whereas the horizontal dimension represents individual objects. Each object (including the actor) has an active time represented by a vertical column called a lifeline.

Class diagram is the core of the object modeling process both forward engineering and reverse engineering utilizing this diagram. The class diagram in the COVID-19 patient's track record is illustrated in Figure 2.

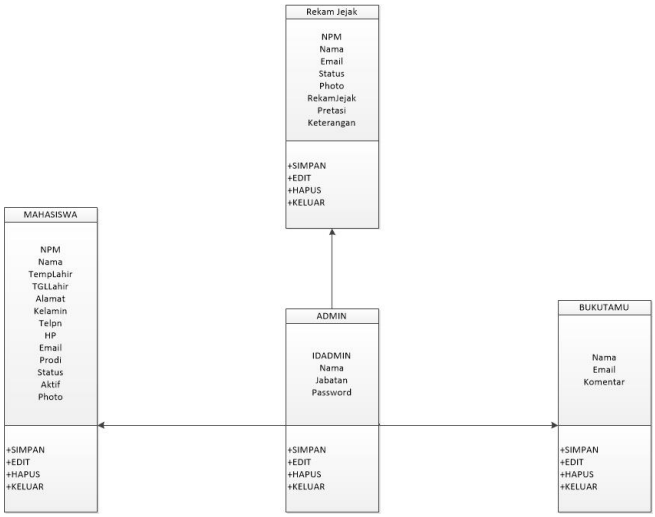

Figure 2 Class Diagram of Track Record

Testing is done when the user accesses or browsing to the website address, for example, the first time that appears is the main page consisting of Home, COVID-19 patient data, track record, guest book and admin. Main page is the first page that appears on visitors on this main page, there is a menu of student data, track records, guest books and admins. The main page display as follows:

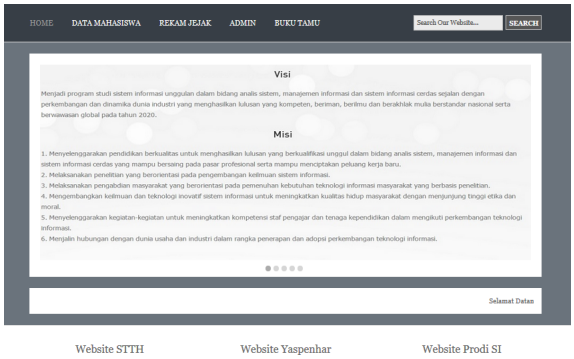

Figure 3 Home Menu

The COVID-19 patient data page is a list of active patients that are shown to visitors, this COVID-19 patient data page displays only name and location, address and history. The patient data display COVID-19 as follows:

Figure 4 COVID-19 Patient Data

The Track Record is a search page for COVID-19 patient data and a track record for COVID-19 patients. On this page, visitors only fill in the name of the area to be searched, the results will come out.

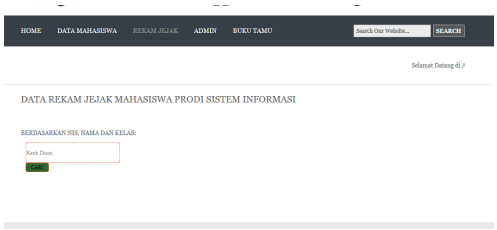

Figure 5 COVID-19 Patient Track Records

On this page, when a visitor has searched for a track record by name or location, COVID-19 patient data and COVID-19 patient's track records will appear. The appearance is as follows.

Figure 6 Result of COVID-19 Patient Track Records

On this page visitors are expected to fill in the guest book by commenting. The appearance is as follows.

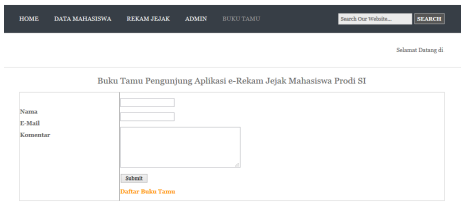

Figure 7 Guest Book

For this system to be more perfect, further development is needed, especially in more complete web facilities such as e-mail, chart-room, and video streaming. The need to develop a security system, so that the web that has been provided can be protected from things that are not desirable. In the web-based computerized system used in this Student's Track Record, a resident anti-virus program needs to be used. This is intended to prevent damage to programs or important data.

4. CONCLUSION

With the COVID-19 patient's track record by the author of this design, the COVID-19 patient's track record system can help visitors find COVID-19 patient data and the COVID-19 patient's track record quickly, precisely and accurately. The COVID-19 patient's track record can help deliver information to visitors directly or indirectly that provides output in the form of COVID-19 patient data consisting of location, history, initial names, and some required data. The design process uses UML and the waterfall method in its design.

REFERENCES

[1] Fauzi, F., Al-Khowarizmi, A. K., & Muhathir, M. (2020). The e-Business Community Model is Used to Improve Communication Between Businesses by Utilizing Union Principles. *JITE (JOURNAL OF INFORMATICS AND TELECOMMUNICATION ENGINEERING)*, *3*(2), 252-257.

[2] Lubis, A. R., Lubis, M., Al-Khowarimi, & Listriani, D. (2019, August). Big Data Forecasting Applied Nearest Neighbor Method. In *2019 International Conference on Sustainable Engineering and Creative Computing (ICSECC)* (pp. 116-120). IEEE.

[3] Al-Khowarizmi, Sitompul, O. S., Suherman, & Nababan, E. B. (2017, December). Measuring the Accuracy of Simple Evolving Connectionist System with Varying Distance Formulas. In *Journal of Physics: Conference Series* (Vol. 930, No. 1, p. 012004). IOP Publishing.

[4] Al-Khowarizmi, A. K., Nasution, I. R., Lubis, M., & Lubis, A. R. (2020). The effect of a SECoS in crude palm oil forecasting to improve business intelligence. *Bulletin of Electrical Engineering and Informatics*, *9*(4).

[5] Al-Khowarizmi, A. K., Fauzi, F., Sari, I. P., & Sembiring, A. P. (2020). The Effect of Indonesian and Hokkien Mobile Learning Application Models. *Journal of Computer Science, Information Technology and Telecommunication Engineering*, *1*(1), 1-7.

[6] Safrizal, S. (2014). Rekam Jejak Dosen Sebagai Model Pengambilan Keputusan Dalam Pemilihan Dosen Berprestasi. *Creative Information Technology Journal*, *2*(1), 65-76.

[7] Qandi, G. A., & Rakhmawati, N. A. Visualisasi data penyebaran COVID-19 di Indonesia.

[8] Setiawan, Y. I. S. (2020). Penetapan Karantina Wilayah Menurut Pandangan Legal Positivisme Dalam Rangka Pencegahan dan Pemberantasan Pandemi Coronavirus Disease (Covid)-19.

[9] Lai, C. C., Shih, T. P., Ko, W. C., Tang, H. J., & Hsueh, P. R. (2020). Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and corona virus disease-2019 (COVID-19): the epidemic and the challenges. *International journal of antimicrobial agents*, 105924.

[10] Al-Khowarizmi, A. K. (2020). Model Classification Of Nominal Value And The Original Of IDR Money By Applying Evolutionary Neural Network. *JITE (JOURNAL OF INFORMATICS AND TELECOMMUNICATION ENGINEERING)*, *3*(2), 258-265.

[11] Widodo, P. P. (2011). *Menggunakan UML Unified Modelling Language*. Yogyakarta. INFORMATIKA.

[12] Pooley, R., & King, P. (1999). The unified modelling language and performance engineering. *IEE Proceedings-Software*, *146*(1), 2-10.