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Android Based Covid-19 Testing Sites Locator and Booking Application

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Abstract. With the COVID-19 virus, health is one of the most important factors that need to be considered to break the chain of transmission of COVID-19. One way to detect the virus is to do a swab or RT-PCR. Along with technological developments, this Android-based application for finding and booking COVID-19 test aims to help the public to book COVID-19 testing. This application can provide a clear picture of where the COVID-19 tests are being held. In addition, this application can provide clear directions to the COVID-19 testing site by using the Google Maps feature which stores location data for the examination site. This application is made using the Waterfall method. For data storage, this application uses the Firebase Database which is a Google service, so that this application can be accessed online. The programming languages used are Java and JavaScript. The main feature of this application is that it provides information and bookings for COVID-19 testing sites that can be selected based on the distance and price of the examination.
Keywords: COVID-19, android application, Google Maps, Waterfall, Java

INTRODUCTION

In 2019, the world is facing a mysterious virus case that allegedly first appeared in Wuhan, Hubei Province[1]. The number of cases escalated rapidly to 44 cases. Then, the disease has spread to other provinces in China, Thailand, Japan, and South Korea [3]. The sample studied showed a novel coronavirus etiology [2]. On February 2020, WHO announced a new name, that is Coronavirus Disease (COVID-19) as the result of an infection by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) virus) [4].

On March, 2020, WHO states Coronavirus Disease as a pandemic [6]. There were 634,835 cases and 33,106 deaths worldwide on March, 2020 [5]. There were also 1,528 cases have been confirmed positive for COVID-19 and 136 deaths in Indonesia. Rapid Test Diagnostic (RDT) Antibodies and/or Antigens are performed to detect/treat COVID-19 infection [6]. Rapid Test (RT) Antibodies are also used to detect cases of infection in suspected cases in areas without RT-PCR examination utilities. However, the results of the RT Antibody examination still have to be confirmed by performing an RT-PCR examination [7]. This application for searching and booking COVID-19 testing aims to assist the public in determining testing sites that have guaranteed validity and services. Users can view examination prices, examination locations, information on COVID-19 case data in Indonesia, and more.

METHOD AND MATERIALS

Waterfall Method

The Waterfall method is included in the SDLC (Software Development Life Cycle) system development method which is often used to build application systems [8]. Waterfall Model is the basis of process activities consisting of specification, development, validation, and evolution, represented in separate process stages such as requirements specification, software design implementation, testing, and so on [9]. Because one stage to another flows downward,

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this model is referred to as the Waterfall Model. All process activities in this model must be planned and processed before implementation [9]. As shown in Figure 1. the waterfall method stage consists of 1) Requirements Analysis and Definition; 2) System and Software Design; 3) Implementation and Unit Testing; 4) Integration and System Testing; and 5) Operation and Maintenance [9].

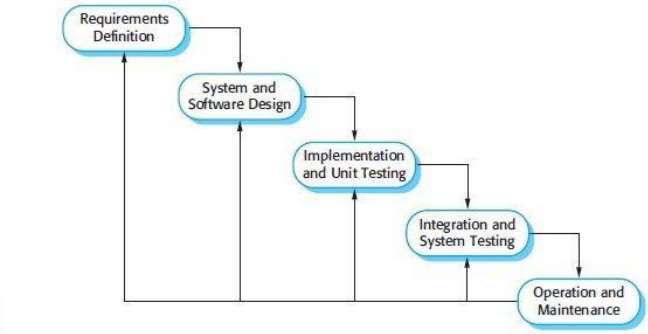

FIGURE 1. Waterfall Method According to Somerville [9]

Survey Method

Survey research is a form of activity that has become common, and the public has had experience with this research in one form or another [10].

LITERATURE REVIEW

The Waterfall method is an example of a plan-driven stage, the developer must plan and schedule all stages before starting to develop the software. Commitments are made in the early stages making it difficult to respond when there are changes in customer needs [11]. Starting from the Requirements Analysis and definition, the author starts this stage by using a survey method to conduct an analysis of the COVID-19 virus [10]. Furthermore, at the design stage and application development is carried out using Android Studio, including the Java Development Kit (JDK). JDK is a collection of software that can be used to develop Java-based software [11]. The result is tested with Black Box Testing method which is one method that is easy to use because it only requires a lower limit and an upper limit of the expected data [12].

RESULT AND DISCUSSION

Result of making a search application and ordering an Android-based COVID-19 examination place aim to make it easier for the public to find the examination place that best suits the wishes of the community. Users can download this application via the link https://drive.google.com/file/d/1P3rb9ntBuGC3nf74X5KCRN6LMypaRwxq/view?usp=sharing. Users must register first before being able to use this application. Figure 2 and Figure 3 below is a display of the login page and the main feature page in the application.

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FIGURE 2. Login Display

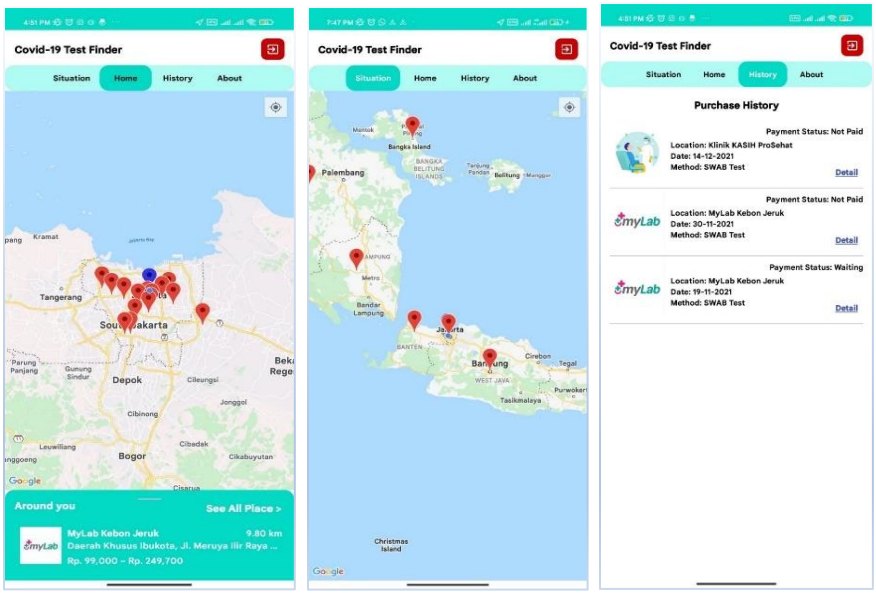

FIGURE 3. Main Features of the Application

Other features contained in this application include being able to order and make payment orders with a display as shown in Figure 4.

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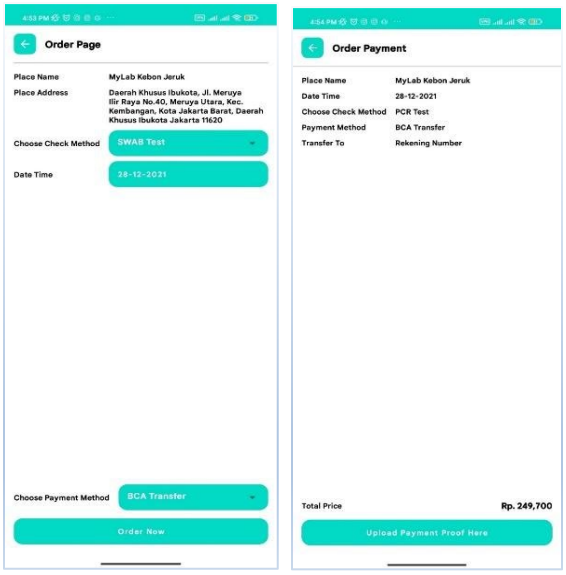

FIGURE 4. Other features of the app

CONCLUSION

The results of this study are applications that can assist users in finding COVID-19 checkpoints and booking COVID-19 testing using the SLDC theory which focuses on the Waterfall method. The researchers hope that this application can be used as best as possible in order to help users and will try to develop the application to the maximum so that it will be more interesting to learn.

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