The Online Test application uses Telegram Bots Version 1.0

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Abstract. The development of the smartphones that rapidly increasing, and high smartphone Users as a tool to make a lot of information, make emergence of instant messaging applications with a variety of options for use. Telegram, as one of the instant messaging application that is fairly new, offering in its various features compared to other instant messaging applications, so it can grow rapidly and much in demand in only 2 years. One of the interesting features is the Bot telegram, a special account without number that can handle Command from the User and gives answers appropriate to Command functionality. The account serves as the interface of the running system that communicate via Telegram Bot API. This study seeks to build a Bot telegram with database to built The Online Test application uses Telegram Bots Version 1.0. In each lecture meeting, a Lecturer can make a short test in the form of multiple choices to review the material at the previous meeting and get information about what percentage of students understand the material that has been taught before. We can use the application to send realtime messages to facilitate the test. Of course, which supports the creation of bots easily to add features that did not yet exist. Of the many we chose Telegram to be an online test environment by utilizing the Bot creation facilities provided by Telegram. This article will be a guide that makes it easier for lecturers to give a simple test at the beginning of the meeting, so that they can attract students' daily grades. And in order to be more interactive there are features of student value progress reports that can also be accessed individually so that students can know the progress of their learning outcomes.

1. Introduction
The interaction between the System and humans can now be represented by a Telegram Bot. Refer to Hiremath Guruswami et.al (2018) where they developed an automated system that provides a reply to user requests on behalf of humans to education system. It can provide answers to each and every question asked by the end user. This inspired us to build an Online Test Application based on Telegram Bot. According to Morze N., et.al (2017) where they analyze the tools provided in messenger, specifically the possibility of creating special programs simulates human activity - chatbot. Special attention is given to determine how to use bots in the education process. This is in line with our goal of ranking which of the 20 users who have the highest and lowest scores after trying an online bot-based telegram test that we have developed. According to Elango S (2018/) they built AI-Powered chatbots that were designed using dialogue and error flow for FTMS students and implemented for them to take help in academic related operations. This is a text-based user interface where users can type queries or choose the intention to receive text responses. This is in line with what we have developed, in which users only click to make their choices. Even before choosing the most appropriate answer they should learn and think in advance which answer is the most correct in the literature. Inspired by our previous research (2018), hat the use of API is very dominant to build our current application. The difference is that our application currently uses the API provided by Bot
Telegram, which we then use using a PHP-based web programming language that accesses the MySQL database. According to Portela M. and Granell-Canut C. (2017) They present quantitative and qualitative empirical findings research to understand the possibility of involvement and affection in the use of conversation agents (chatbots). This means that there is an emotional involvement in doing online tests where the user can monitor what position they are in right now. Of course, a sense of wanting to be the most superior to the user is expected to spark enthusiasm for more active learning and repeating work on questions that appear randomly and varied.

In our previous paper (2019) "Building a Login Encrypted Using Telegram Bots and Mysql Database", we show that it is very important to protect the personal data of users who make use of telegram bots. In the future, this can be developed to access sensitive data such as test scores. In our previous paper (2019) "News Viewer Application Realtime Based on Telegram Bot Using Web API (Apbr Version 1.0)", we show that it is very important to find out news quickly. So in this paper we provide a way to find out more quickly whether test participants develop their understanding by looking quickly at their test history.

The notion of bot taken from its official page (2019) states Bots are third-party applications that run inside Telegram. Users can interact with bots by sending them messages, commands and inline requests. You control your bots using HTTPS requests to our bot API. And whether telegram bot is appropriate for learning media, to answer this Ramadhan F. (2018) shows the results of his research that the respondents strongly agree to use telegram as a support for learning media. even according to Maulayya F.R., et al (2019), the use of this Telegram BOT has a better speed compared to conventional web versions in the implementation of academic information systems. Zubaidi A., and Ramdani (2019) suggested that the Telegram-based Chatbot that they had built was able to provide various academic services. Not only with software, Bot Telegram is also able to embody communication between humans with salty or hard devices, as stated by Oliveira et al, (2016).

2. Methodology
The method used in this study is as follows:
1. Literature Study
   Data collection information about Telegram Bot, PC development from books, journals, and the internet.
2. Application Development Lifecycle
   Application development is based on the Waterfall Model software engineering method. This model is a classical software development method with a systematic and sequential approach. This method consists of several stages. The stages in this study are explained as follows:
   a. Application Requirement Analysis
      The analysis is in the form of gathering the application needs of resource estimates and the estimated size of development. Done by searching data on the internet and books.
   b. Design
      The application design uses the Bot Telegram Programming method based on a database on hosting that we rent
   c. Implementation
      Applications are made using the PHP programming language and implementation into the server. The database system uses MySQL.
   d. Testing
      Testing is done by testing the bot system path created, the Command and the response given by the Bot to Users.
3. Discussion
   The discussion is carried out by discussing the results of research obtained from tests that have been carried out.

3. Implementation
   From the results of the research that we have made about the telegram bot with the database, we get the results where first we have to get the token / fire telegram first to be able to use the telegram chat
bot function as shown in Figure 1 and 2. First we give command /newbot and then in the second we give a name to our new bot, we can use space to separate each word. After we get the token we prepare the materials needed next, namely: making a mysql database. After we prepare the material we first apply to the database configuration in the program. Next we make a simple code to establish a connection to the database with the command: include('connect.php'). Where in the connect.php file the contents are rows of connection codes to the database that have been prepared before.

![Figure 1. Create New Bot](image1.png)

Then we give specific name and must end with word “bot”. We give The bot named “letsgotestbot”. The token generated by @botfather is unique. One token will represent 1 bot. 1 bot should be devoted to one purpose. If in the future it is necessary to make bot-based services with a larger scope of services, it should be split into several bots.

![Figure 2. Create New API Token for new bot](image2.png)

The next step is to register the bot on the webhook so that a connection is formed between the php file on the hosting with the contents of the mysql database. The command is quite simple namely: https://api.telegram.org/bot+Our_Token/setwebhook?url=https://myhosting.com/gotest/tesbot.php

If successful, a confirmation will appear as shown in Figure 3

![Figure 3. Telegram Bot connection registration successful](image3.png)

Next we prepare a database with a simple structure like in Figure 4
Figure 4. Physical Data Model

The Online Test application uses Telegram Bots Version 1.0. The front view is static encoding. Next we make a menu display that will appear first when typing the command / start on the bot telegram. The appearance is as shown in Figure 5.

Next we select / test01, an online test will begin with the topic Introduction to Information Technology. The number of questions is 10, where the arrangement is a random result from the question bank in the database. Next will appear in Figure 6. Examples of online tests. The questions will appear randomly for each user who accesses them. After arriving at number 10 the results are immediately displayed.
Figure 6. After the question reached 10 the results immediately came out. Next there is a feature to see the ranking of 20 users who get the highest and lowest values. For the highest we give the command /hgtest01 while for the lowest /lwtest01. Each user name has a symbol (/) so that it is recognized as a command in the telegram bot so that the color changes to blue. If one of the names is clicked, a history will appear following the test from that user. The 20 highest values are displayed in Figure 7a while the 20 lowest values are shown in Figure 7b.

Next we can see the history of one of the users. For example, we select /admrb will appear the entire history of the user with the name telegram admrb.
This application is still in the initial version of development. Very interesting to be developed further by combining it with the whole Information System. But even in the initial stages, the application has been able to facilitate online testing in realtime.

Future Development

Some future developments, we can combine it with smart hardware as explained by Rahman D., et al (2017) who combines Raspberry Pi's with Instant Messaging services on smart homes. which is in line with Sedayu A.'s research (2018) where they synchronized the Raspberry Pi and telegram using a telegram bot. Even Raspberry added with Webcam and Telegram Bot can be mixed for face recognition applications as indicated by Ardika M.N, (2018). This is in line with Fathoni et al (2019) who also utilize the combination for a realtime monitoring system in their office server room. What is clear is that Telegram Bot is very flexible to be programmed with various programming languages. We only need to initiate some of the commands that we have programmed as triggers to provide feedback, as done by Albub, MU, (2017) where the telegram application that he developed has been programmed by getting the key / API to control tools by typing pre-programmed messages. Another function that can be developed in the future is as an alert, as stated by Atmojo, Y.P. (2018) Telegram bot is able to send alerts to administrators, in order to detect computer network attacks. Development will be easier with the support of various source code regarding the Telegram Bot as on the github [19] page and we can also follow the reviews on the official telegram discussion page [20].

Conclusion

1. Conclusions from the results of making the chat bot that we have made is a telegram chat bot function that can provide multiple choice practice exercises where the display questions on each user will not be the same because in it there is a randomization algorithm called from the database a set of questions that are distinguished according to their material. - it went well.
2. To try it directly, readers can access the bot @letsgotestbot using the telegram application.
3. The Online Test Application is expected to stimulate a competitive spirit positively because of the features that display the 20 highest scores and 20 lowest values
4. Further development of Application Version 1 is very interesting to do in subsequent studies

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