

ANDROID-BASED QURAN APPLICATION ON THE FLUTTER FRAMEWORK BY USING THE FOUNTAIN MODEL

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Abstrak

Dengan perkembangan teknologi, smartphone menjadi salah satu alat komunikasi dan dapat digunakan sebagai alat penghibur. Namun smartphone memberikan dampak terhadap menurunnya minat dalam membaca Quran. Alangkah baiknya smartphone dapat digunakan untuk mengingat kepada sang khalik yaitu dengan membuat aplikasi Quran pada android sehingga pengguna tidak perlu membawa mushaf Quran saat sedang berpergian. Tujuan dibangunnya aplikasi adalah agar dapat selalu ingat kepada sang khalik yaitu dengan cara dapat membaca Quran kapanpun dan dimanapun sedang berada. Model yang digunakan untuk membangun aplikasi adalah Model Fountain dimana pada saat membangun aplikasi dapat dilakukan secara tumpang tindih sesuai dengan kebutuhan. Aplikasi Quran dibangun menggunakan framework flutter dengan bahasa pemrograman dart. Untuk menginstall aplikasi minimal versi android yang digunakan adalah versi 5.0 Lollipop. Pengujian aplikasi Quran menggunakan black box testing. Memberikan kuesioner kepada calon pengguna aplikasi untuk menilai kelayakan aplikasi Quran. Dari hasil kuesioner dapat disimpulkan bahwa aplikasi Quran sangat user friendly dan dengan adanya audio yang diputar secara berulang dapat membantu pengguna untuk menghafal Quran.

Kata kunci: Aplikasi Quran, Android, Model Fountain, Framework Flutter

Abstract

With the development of technology, smartphones have become one of the communication tools and can be used as a tool entertainer. But smartphones have an impact on the declining interest in reading the Quran. It would be a good smartphone that can be used to remember the creator is to create a Quran application on android so that users do not need to carry the mushaf Quran while on the go. The purpose of the construction of the application is to always remember to the god that is by the way can read Quran whenever and wherever are. The Model used to build the application Model is the Fountain where at the time of building the application can be done in overlap by the needs. Quran application built using. net framework flutter with the programming language dart. To install the application at least the Android version used is version 5.0 Lollipop. Testing the application of the Quran using black-box testing. Give the questionnaire to potential users of the application to assess the feasibility of the application of the Quran. From the results of the questionnaire can be concluded that the application of the Quran is very user friendly and with the audio playing over and over can help the user to memorize the Quran.

Keywords: Qur'an Application, Android, Fountain Model, Flutter Framework

INTRODUCTION

Along with the rapid development of technology, smartphones have become one of the communication tools that almost everyone in this world has. Especially in the manufacture of a

variety of mobile applications ranging from games to Quran app better based on Android, Windows Phone, iPhone OS, and so on (Sampurna et al., 2019). In addition to communication tools, many also utilize a smartphone as a comforter. However, on the other hand, the smartphone gives a serious



impact on the declining interest in reading the Quran (Althaf Husein, 2020). Of all the applications that can be accessed on smartphones, it would be nice if we can use them to remind ourselves to God by way of download the Quran application to increase our piety to God. So the smartphone is not just used for phone calls and SMS but can be used as a tool to read the Quran (Sinaga et al., 2016). Quran is holy book religion of Islam and became guidelines for the run of his life in the world. (Hidayat & Al Amin, 2019).

In-page Statcounter can see the comparison between desktop applications vs. mobile vs. the tablet market in January 2021 which shows the android master mobile operating system in the world with a percentage of 57,32% (GlobalStats, 2021). The development of this technology provides broad benefits to every field, especially in the field of religious education. One of them is to utilize android as a medium of learning so that we can read the Quran at any time.

Quran app is aimed so that we can read the Quran wherever and whenever as long as we can access them via your smartphone, so add to our devotion. Quran application provides a menu to help users recitation of the Quran during the month. This application uses framework flutter and dart as the programming language.

Some related research on building android applications, among others Application Letter Recognition and Makharijul surah Hijaiyah With Augmented Reality Based Android (Fadli & Ishaq, 2019), Development Applications Iqro' Based On Android Using The Google Speech (Fauzan et al., 2018), The Design Of The Qur'an Application Based On Android "Sahabat Nusa" (Adista & Izza, 2020) and the Dictionary Application of the Koran-Based Android Using Android Studio (Sampurna et al., 2019). Some advantages of the app that is built with previous research regarding the application of the Quran is to provide a target to potential users to be able to recitation the Quran in 30 days and can help a prospective user to memorize the Quran, with the availability of audio played over and over so that prospective users can memorize Quran easily. As well as the applications built using the framework flutter where flutter is the creator of the prototype that is productive and is often used by developers around the world for free (Aminah & Bisma, 2020).

RESEARCH METHODS

This study uses a Model of the Fountain where in the building the application can be done in overlap

by the requirements at the time of building the app (Dewanto, 2004). Figure 1 is the design of the Model Fountain.

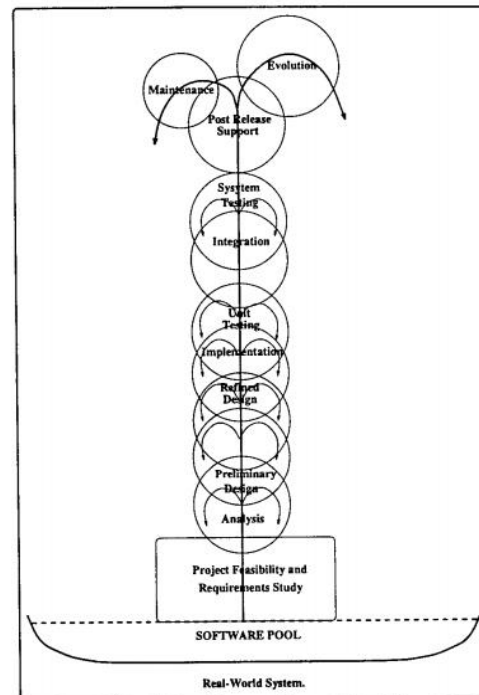


Figure 1. Fountain Model

Steps to build apps Fountain Model in the following:

1. User Requirements Analysis

Analyze some of the needs of the user of the application on the smartphone, one of them is the application of the Quran so that the user can read it anywhere and anytime without having to carry the mushaf Quran.

2. User Requirements Specifications

Analyze the specifics of some of the requirements on the application to be built as providing audio in the application of the Quran so that the user can listen to the pronunciation of Quran recitation with correct as well as the repetition of reading the Quran, where this method can make the user quickly memorize the verses in the Quran. Also, this app provides audio for the translation of every verse of the Quran and offers a menu to help users recitation the Quran during the month as well as the user can perform a search according to the verse and the surah with the requirement.

3. Software Requirements

Develop Quran application using framework flutter. Flutter is an SDK or an open-source framework developed by Google to create or develop applications that can run in the operating system Android and iOS (Enggar Krisnada &

Tanone, 2020). So that the prospective user that will install the Quran application, a minimum version of android on smartphones prospective users is android version 5.0 Lollipop.

4. Systems/Broad Design (Logical Design)

A design system is a logical step for designing or designing a good system and user friendly (Sampurna et al., 2019). At this stage, researchers designed the system to be used, the described use case diagram to view the interface what's in a system. The Use case is the behavior of the system information which will be made (Rifaldi et al., 2017). The researchers designed the look of the app is user friendly so easily operated by the user and describes the workflow and the order of the activity of a process using activity diagrams (Sofyan et al., 2016).

5. Program/Detailed Design (Physical Design)

Before designing the app on android researchers use the mockup to see an overview of the application to be built. Then the researchers make the user interface of the application.

6. Implementation/Coding

Using the framework flutter with the programming language using the language dart. Dart is object-oriented languages with syntax C-style that can be changed optionally into JavaScript (Syaputra & Ganda, 2019).

7. Program Testing: Units

The working unit testing program for co-workers, co-design conforming equipment.

8. Program Testing: System

Use the test to use black-box testing to test whether the application has been running by the desired. This test method contains the scenario for each function of the application that is available (Wihidayat & Wihidayat, 2017). The purpose of this test is to eliminate the error in the application when the application is used. It is good to help the user while using the app.

9. Program Use

Test the application to potential users, namely with how to ask prospective users to install apps to their smartphones and provide guidance on how to use the app. The researchers used a questionnaire to analyze the response of the prospective users of the application that is built. Through the questionnaire can be used to measure usability, some aspects of usability, namely efficiency, effectiveness, and satisfaction. (Yunandar & Priyono, 2018).

10. Software Maintenance

Software maintenance is very necessary for an application so that if an error occurs can be corrected immediately and can be used to boosts

the performance of applications that do not occur loading when the application is run.

RESULTS AND DISCUSSION

1. User Requirements Analysis and Specifications

Quran app is made so that we can read it anywhere and anytime so increase our devotion to Allah SWT. In this app, users can read based on the surah and based on the number of days in a month, so this app gives the user ease to mengkhatam the Quran in one month (30 days). Also, users can search by surah and verse as well as can search for the meaning of the verse.

2. Software Requirements

Specifications for the manufacture of Quran application can be seen in table 1.

Table 1. Software Requirements

Jenis	Components
Software	Visual Studio Code Post Man
Database	MySql
Operating System	Windows 10, 64 Bit Android 5.0 (Lollipop)

3. Systems/Broad Design (Logical Design)

The design of the logic of the system that will be made researchers design using UML in the form of use case diagram (figure 2), activity diagram (figure 3), and the class diagram (figure 4).

a. Usecase Diagram

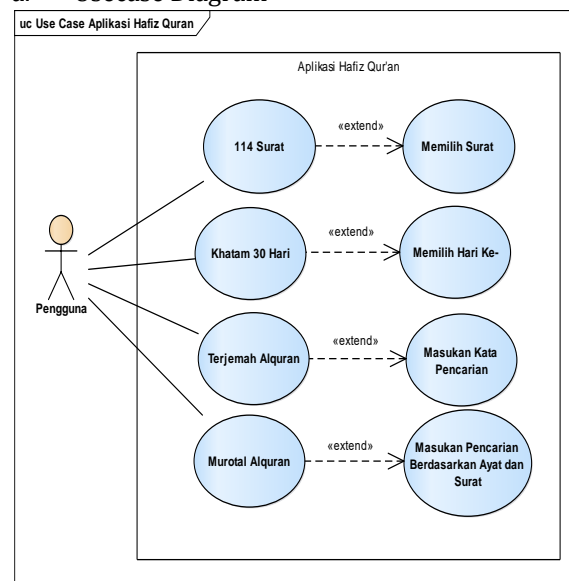


Figure 2. Usecase Diagram Of An Hafiz Of The Quran

b. Activity Diagram

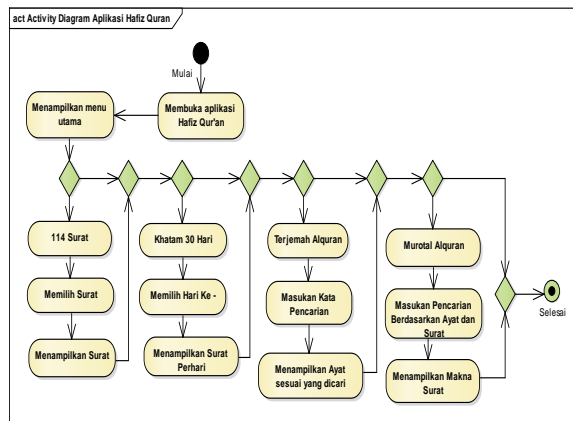


Figure 2. Activity Diagram An Hafiz Of The Quran

c. Class Diagram

Programming language dart can generate automatically a class diagram by adding the package dcdg 2.0.1 (depending on the version of the package). Figure 4 is the result of generating a class diagram that has been conducted on the Application of Hafiz Quran.

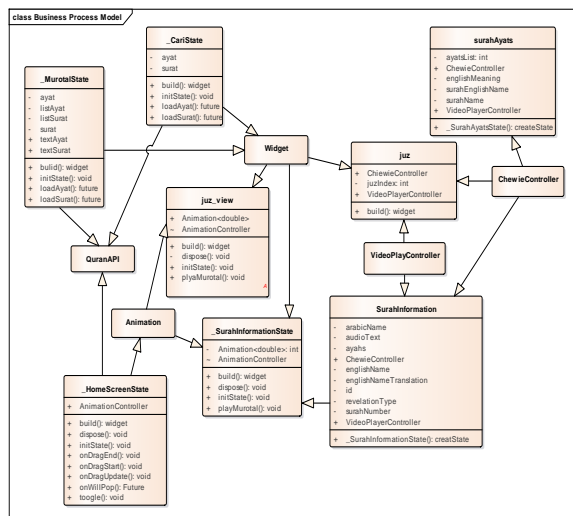


Figure 3. Class Diagram Of An Hafiz Of The Quran

1. Program/Detailed Design (Physical Design)

a. Display Mockup

Before the researchers make a Hafiz of the Quran, the researchers made a mockup so that the interface is made by the plan. Here is a display-mockup of the application to be made.

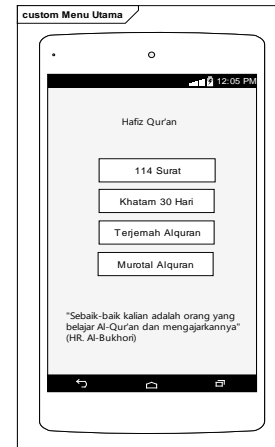


Figure 4. A Mockup Of The App's Main Menu Hafiz Quran

Figure 5 is a mockup of the initial appearance of the application to be made. To facilitate the users of this application provides a menu to complete the khatam Quran for 30 days or one month, the mockup can be seen in figure 6.

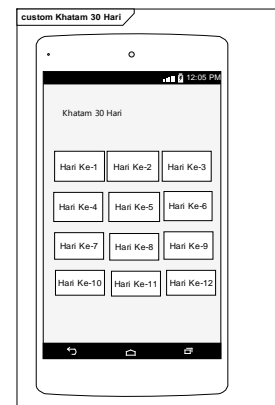


Figure 5. Mockup Menu Khatam 30 Days

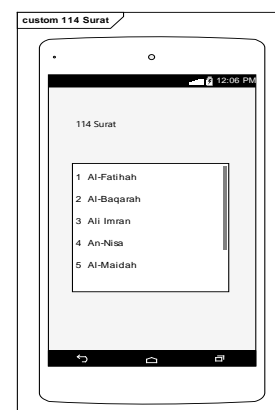


Figure 6. Mockup Menu 114 Surah

Figure 7 is a mockup to select the surah of the Quran to be read. Figure 8 and 9 is a mockup to perform a search based on the number of surah and verses as well as the search based on the meaning of the verse.



Figure 7. Quran Translation Mockup Menu

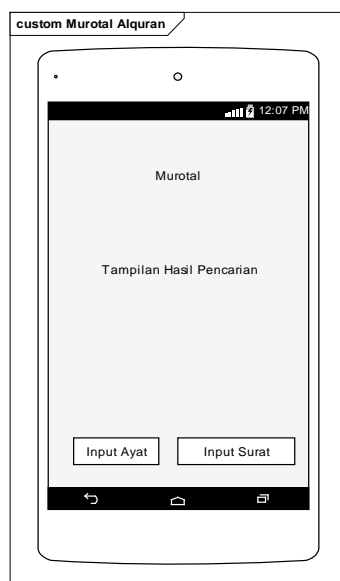


Figure 8. Mockup Menu Murotal Quran

b. Tampilan User Interface

Menu utama adalah tampilan utama yang tampil pada saat aplikasi dibuka. Dalam menu ini kita dapat melihat button 114 Surat, Khatam 30 hari, Pencarian Ayat, Terjemah Quran. Tampilan menu utama dapat dilihat pada gambar 10.

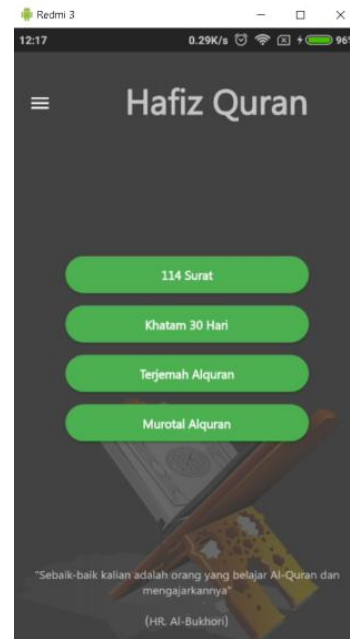


Figure 9. Display The Main Menu Of The Application Of Hafiz Quran

Figure 11 is the menu display 114 of the Surah, we can choose the Surah of what we will read in a Hafiz of Quran. Also, the user can read, the user can also listen to the audio of each verse and the audio of the translation of each verse.



Figure 10. Menu Display 114 Surah

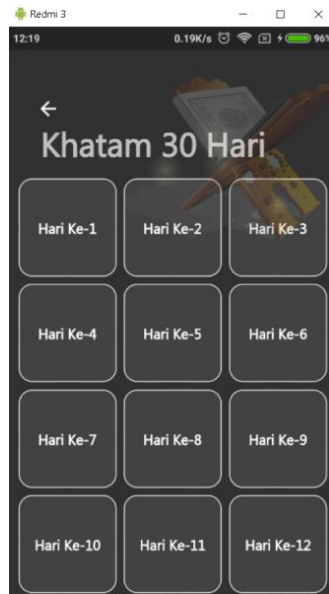


Figure 11. Menu Display The Final 30 Days

Figure 12 is the menu display of the final 30 days. On the menu of translation of Quran user can input a word to search for the meaning of the verse from every surah and then the result will appear in the above text input, the display can be seen in figure 13. In addition to the search based on meaning, this application provided the search menu based on the verse and the surah. If the user will search for verses and surah, the user can input in the text input provided and the results of that search will appear in the top text input. Look for the search based on the verse and the surah can be seen in figure 14.



Figure 12. Menu Display The Translation Of The Quran



Figure 13. Menu Display Murotal

2. Implementation/Coding

Using the framework flutter with the programming language dart. Flutter and Dart, both open source and free to use. They also provide good documentation and complete and there is a community that helps to solve the problems found during the process of development (Andrean et al., 2020).

3. Program Testing: System

Testing of programs created using BlackBox testing. Table 2 is a black box testing for the application hafiz of the Quran.

Table 2. The Results Of Testing The Application Of Hafiz Quran

Scenario Testing	Test Case	Expected Results	The Results Of The Testing
Main Menu (114 surah)	Click Button 114 surah	Perform the menu 114 surah	Corresponding
Main Menu (Khatam 30 Days)	Click The Menu Button Khatam 30 Days	Perform Menu Khatam 30 Days	Corresponding
Main Menu (Translation Of Qur'an)	Click The Menu Button Of Translation Of The Qur'an	Perform the menu of the Translation of the qur'an	Corresponding
Translation Of The Qur'an	Input The Word 'Sholat'	The search results words 'Sholat'	Corresponding

Scenario Testing	Test Case		Expected Results	The Results Of The Testing
(Search For The Meaning Of The Word) Murotal	Click Button Murotal		Perform the menu Murotal	Corresponding
Murotal (Verse search and surah)	Input the Verse and surah		Showing search results words based on the verse and the surah	Corresponding

4. Program Use

Spread the questionnaire to potential users to get a response is a Hafiz of the Quran is beneficial and feasible to use. Table 3 is a question of the questionnaire that was distributed. From the results of the questionnaire can be seen in figure 15 it can be concluded that the application is very easy to operate and can be useful for users to facilitate the memorization of the Quran.

Table 3. Questionnaire

No.	Question Questionnaire
1.	Design and attractive colors
2.	The suitability of the size and types of posts
3.	The clarity of the sound when the app is rotated
4.	Button on the app's functioning in accordance with the executed
5.	Not happening loading when the application is run
6.	No error occurs when the application is run
7.	Easy to use menus in the application
8.	Easy to operate the application
9.	A useful application for the users
10.	The application can help in the memorization of the qur'an

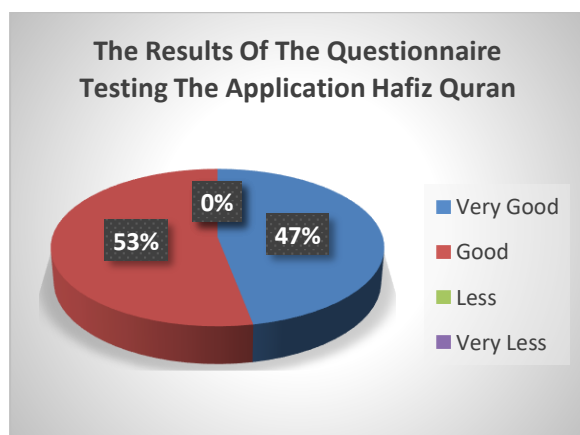


Figure 14. The Results Of The Questionnaire Testing The Application Hafiz Quran

CONCLUSIONS AND SUGGESTIONS

Conclusion

Application Hafiz Quran built using the framework flutter with the programming language dart. When building applications, researchers use the Model of the Fountain where researchers can build applications for the overlap by the needs. Application Hafiz of the Quran can be used on a smartphone with at least Android version 5.0 Lollipop. The appearance of the application is made user-friendly so easily operated by all users. Application Hafiz of the Quran has the advantage that it can help the user to the recitation of the Quran during the month because this application provided a menu to khatam Quran 30 days, in addition to reading, the user can listen to the audio of each verse that can be repeated and audio of the translation of each verse. The user can perform a search according to the verse, the surah as well as the meaning of the word which is by the needs. Testing is done using black-box testing to see if the application runs as expected. Based on the results of the questionnaire to the user can be concluded this application is very easy to operate and very beneficial for the user because the user can read the Quran wherever and whenever as well as can help the user to memorize the Quran.

Suggestion

Hope can develop more applications the Quran is like adding as abun nuzul so the user can know the origin of every surah in the Quran. And also researchers hope can build other applications that benefit society.

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