Article

Testing Learning Media for English Learning Applications Using BlackBox Testing Based on Equivalence Partitions

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KEYWORDS

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A B S T R A C T

Some testings or testings of an application are very important. So that an application can appear to be running properly or there are still errors in its use. Which later can be improved optimally. In this test, the black box testing technique was used as a test. Black box testing is a system for testing an application by looking at the menu whether it is following what is desired or still needs improvement. The application that will be tested is the Duolingo application which on the play store gets a high rating and is used by more than 12 million smartphone users. The type of testing of the method used, namely the black box, varies, but one of the methods used here is Equivalence Partitions. The Equivalence Partitions technique is a test based on entering data on each form of the system or application used. In each menu, input data on each form will be tested and carried out based on its function, whether it is valid or not. So that by doing this testing the application is getting better and the application must be of good quality according to their respective functions. So that many smartphone users who want to use the application make it easy to use it.

INTRODUCTION

Learning media are tools that can be used by educators and students. Both in helping in learning and in educational tasks. Learning media can also facilitate students' understanding of competence that must be mastered against the material being studied, which in the end is expected to enhance the results learn effectively and efficiently. English in elementary school is very important to know. Because learning starts from an early age. So that learning can be optimal. Learning using application learning media is needed today. Especially if the application used is very interactive and animative. Then it will look more attractive in terms of visuals. Media applications that are multimedia can help elementary school children in their learning. So that they do not get bored with the monotonous things given by the teacher at school. However, the design of the application should be good in quality and easy to use by users, so that there must be a testing. Some applications require a test whose purpose is to see whether the running application has an error or not, so that if there is an error it can be fixed quickly. Program testing is very important because there is no huge loss for the user or application developer (Sethi, 2017). The things that really need to be considered in a test is that the test can find errors in the application used. Which may not have been detected by the developer himself. And it can be said to be successful if it can improve better than before so that it can be easily used by

users. So the quality of the software is better (Budiyanto and Wahab, 2019).

The DuoLinggo application basically learns from those who really do not understand English to those who already understand English. In this study, the system being worked on was the job of inputting words which would later become English words. Hence, it is easier to use. The Decision Support System using a method that is the result method the best weight (Mukhayaroh, 2016). Result method of the best weight is a method that used to add up the weight values there are obtained from the attributes used which are will be continued with the ranking process will be a determinant of whether the value of the alternative already used the best.

From further results, what the researchers examined in determining a good English application was that they still used the old and manual methods. Which tends to be inaccurate in its testing. The program that will be made in the test is the system being tested from the application that is being used. That is black box testing. Where the test sees the application that will be used is the same as what the user wants. Without knowing the type of code used. The first stage of testing using Blackbox Testing is to identify the input and then test it so that we find out where the error.

There are several ways to use black box testing, one of which is Equivalence Partitions. Equivalence Partitions is a test based on entering data on every form in the best sales selection system, every input menu will be tested and grouped based on its good function it is valid or invalid (Hidayat and Muttaqin, 2018).

METHOD

Software or application testing is really needed in making or reviewing the application. Because everyone has flaws and mistakes in or when developing an application. Therefore, it is necessary to do software testing to verify and to validate that the program is made according to the needs of the users. If later there are errors so that what is made is not the same as desired, it must be corrected quickly. The test that will be used is Blackbox so that the quality of the software is better.

The black box method was a method used or used to test an application without having to look in more detail at the application. The Black Box Testing process was carried out by trying the program that had been made by trying to enter data on each form. This test was needed to find out the program was running as needed by the company (Wahyudi, Utami, and Arief, 2016). One type of test in this research that the author used Equivalence Partitioning

(EP). Equivalence Partitioning was a type of black box testing. The author categorizes into several based on their function to get an accurate test case.

In this research, several stages must be passed. In the first stage, it begun by determining the software test case to be tested by Equivalence Partitioning and then initializing the standard input and output partition grades. This was carried out to obtain a dataset in the form of test documentation using the Equivalence Partitions method

and the value of the effectiveness of the Equivalence Partitions method.

There was a test case design table that functioned to check the program or application used was the same as expected and desired or still needed to be repaired so that the application can be used properly by the user or user.

RESULTS AND DISCUSSION

Figure 1. Opening View

This test is carried out on the front which will be chosen between logging in or using it for free.

Figure 2. Display the Login Form

This test is carried out on the login form by entering data that does not match the data type. For this login test, as usual, testing is carried out by entering the actual input. Between the numbers "7,8,9" or the letters "M,N,O" or a combination of numbers and letters. "7,8,9,M,N,O " are valid and provided at least 50 characters letters or numbers. Password data is valid if numbers and letters are entered or a combination of numbers and letters is less than 50. and vice versa the data will be invalid if the entered password exceeds 50 characters.

Table 1: Test Case Design Login

id	Test Description	Expected Results
Lg01	Fill in the Username with "budi345" provided that the data obtained is the data in the database then click the login button.	Login access is successful, system will close the Login form and displays the data form.
Lg02	Fill in the Username with "budi345" provided that the data obtained is data that is not in the database then click the login button.	Access Login Failed, the system will open the data form and the display will remain on the login form.

Figure 3. Learning Options

This test is carried out on the learning options of the test plan, the data will be valid if all buttons are functioning properly. And there is nothing wrong in the form used afterwards. On the other hand, the data will be invalid if the button that is pressed doesn't work properly and the form after it doesn't go to the form it should be.

Table 2: Design of Learning Choice Test Cases

id	Test Description	Expected Results
Pb01	Press the button to learn any language you want.	Access to learning according to the desired language. And the language learning form will open and be displayed.
Pb02	Press the button to learn any language you want. However, the pressed form does not match.	Access to learning does not match the desired language. And the language learning form will be closed and the learning display form will remain.

The two initial forms are well made. The next step is testing at the starting stage of learning. Because later there will be a login form and also who can directly learn.

Figure 4. Choice of Profession

This test is carried out in the profession's choice form in the same way as the previous test, namely by pressing one of the desired professions and then later entering it into the database and entering the next form according to the choice. And vice versa if we press the button it will not go to the next form because it is not in the database.

Table 3: Professional Choice Test Case Design

Id	Test Description	Expected results
Pp01	Pressing the button provided to choose what profession we are now so that it can be adjusted in learning. And of course into the database.	After pressing the desired button it will enter into the form that should be.
Pp02	Pressing the desired button but does not enter into the next form , because it is not in the database that is saved . and entered into the wrong form.	Pressing the desired button but does not enter the next form , because it is not in the database that is saved . and entered into the wrong form.

This section is the same as the previous test, namely choosing what is desired and what is actually chosen. Because the choice of profession must be in accordance with what he is currently doing. Because later learning will be in accordance with the profession in which he is involved so that there is no difficulty or convenience so

that it is in accordance with the appropriate English language. In learning.

Figure 5. Vocabulary Selection Exercise

This test is carried out with vocabulary practice questions that are made in such a way as to choose the correct answer. By pressing the desired answer button and are sure of the correct answer then later there will be a notification that the answer is right or wrong.

Figure 6. Notifications True or False Answers

Then later on to the next vocabulary exercise. Therefore it must match the database created. On the other hand, if we press the wrong answer button, there will be a notification that the answer is wrong.

Table 4: Test Case Design of Vocabulary Choice

Id	Test Description	Expected results
Pk01	Pressing the answer button that is considered correct then later there will be a right or wrong notification.	After pressing the button that is considered correct, there will be a notification of the right or wrong answer if it is correct and at the same time leading to the next practice form.
Pk02	Pressing the answer button	After pressing the
	that is considered correct then later there will be a right or wrong notification.	answer button that is considered correct, but the answer is wrong, there will be a notification about the wrong answer. And later it will remain in the wrong form.

Based on the results of the test cases that have been made in tables 1,2,3,4, it can be tested. The test results are shown in table 5.

Table 5: Test Result

Id	Test Description	Expected Results	Test Result	Conclusion
Lg 01	Fill in the Username with " budi345 " provided that the data obtained is the data in the database then click the login button.	Login access is successful, system will close the Login form and displays the data form.	In the system will appear "Login successful" and will go to the next form	conform
Lg02	Fill in the Username with " budi345 " provided that the data obtained is data that is not in the database then click the login button.	Access Login Failed, the system will open the data form and the display will remain on the login form.	The system will appear "something went wrong" and will remain in the form.	conform
Pb01	Press the button to learn any language you want.	Access to learning according to the desired language. And the language learning form will open and be displayed.	The buttons work fine. Because when pressing it will go to the appropriate form.	conform
Pb02	Press the button to learn any language you want. However, the pressed form does not match.	Access to learning does not match the desired language. And the language learning form will be closed and the learning display form will remain.	The button doesn't work properly because when you press the intended form it doesn't match.	conform
Pp01	Pressing the button provided to choose what profession we are now so that it can be adjusted in learning. And of course into the database.	After pressing the desired button it will enter into the form that should be.	The buttons work fine. Because when pressing it will go to the appropriate form.	conform
Pp02	Pressing the desired button but does not enter into the next form , because it is not in the database that is saved . and entered into the wrong form.	Pressing the desired button but does not enter the next form , because it is not in the database that is saved . and entered into the wrong form.	The button doesn't work properly because when you press the intended form it doesn't match.	conform
Pk01	Pressing the answer button that is considered correct then later there will be a right or wrong notification.	After pressing the button that is considered correct, there will be a notification of the right or wrong answer if it is correct and at the same time leading to the next practice form.	If the button that is pressed is the correct answer, there will be a notification of the correct answer and you will be asked to go to the next exercise.	conform

| Pk02 | Pressing the answer button that is considered correct then later there will be a right or wrong notification. | After pressing the answer button that is considered correct, but the answer is wrong, there will be a notification about the wrong answer. And later it will remain in the wrong form. | If the button pressed does not match the answer, you will get a notification of the wrong answer, then stay on the form. | conform |

A total of 8 functions were tested with the login function 2 times, the learning selection button function 2 times, the profession selection button function 1 time, the vocabulary selection button function 7 times. So a total of 12 tests. The number of errors found is 1 function, and 7 functions are not found errors.

CONCLUSION

Black box testing can help in application testing in this regard. This test aims to see whether the application used has errors or not. If anything can be fixed quickly. From testing this application, the "DL" application is a good English learning application at this time. It can also be concluded that blackbox testing with Equivalence Partitions can help in making test cases. In this case there are detected errors that are not too many and can be fixed quickly. But overall this test can help dam application testing so that the quality is getting better.

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