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Design of a Website-Based Arabic Typing Application for Students of Arabic Language Education Program at University

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Abstract
Today's internet technology has advanced extremely quickly and is still expanding. The virtual world is a place where everyone and any group of individuals are free to engage in their activities. In this all-IT era, typing skills are very important for students. Because almost all student activities are carried out by typing such as compiling papers, reports, theses and others. However, the results of observations made at the Arabic Language Education Study Program at the University of Muhammadiyah Malang show that the skills of typing Arabic texts for Arabic Language Education Study Program students are still minimal. The aim of the research is to design a website-based Arabic Typing application and test the feasibility of using the application. The research subjects were students of the Arabic Language Education Study Program. The development model used is the ADDIE model. Through research and development, researchers are tasked with designing applicationsArabic Typingwebsite-based and test the feasibility of using the application for Arabic Language Education Study Program students. Based on media expert validation obtained an average percentage of eligibility of 97.11% (Very Feasible), whereas based on material expert validation obtained an average percentage of eligibility of 85% (Very Feasible). The results of the feasibility test by students obtained an average percentage of eligibility of 83.9% (Very Feasible). On this basis the Arabic Typing application based on this website is very feasible to use as a medium to improve Arabic text Keyboarding skills specifically for students of Arabic Language Education Study Program Faculty of Islamic Stadies at University of Muhammadiyah Malang.

Keywords— Arabic Typing, Keyboard skills, Website.

Introduction

Internet technology has achieved very rapid development and will continue to grow as long as this world exists (Darmayanti, et al., 2022; Inganah et al., 2023; Ritonga et al., 2022). The world of cyberspace is an arena that is free for all people or groups to carry out their activities. Global technological progress has influenced all aspects of human life, both in the fields of economics, politics, culture, arts, and even in the world of education (Oktarinda, 2016; Salis Hijriyani & Astuti, 2020). Currently, educational institutions are increasingly integrating IT into courses that require students to make effective use of computer-based technologies. No doubt, if the use of computers has become commonplace at school and at home. In order to use the computer optimally, typing skills are needed. Because, 90% of the data input method on a computer uses a keyboard which is done by typing. Typing is a development of handwriting in the computer era which helps provide convenience in work, especially computer-based ones, so that the results of the writing are neater and easier to read. In order for typing skills to be achieved, it is necessary to have intensive training. Proficiency in typing can increase one's self-confidence and motivation in completing computer-based work (Rahmawati, 2015; Tjahjono, 2015; Z et al., 2016).

*Website*Typing training has been widely available on the internet. Users can access it easily without being bound by space and time (Suryawinata, 2019; Winarso et al., 2019). One of the example is https://10fastfingers.com/typing-test/arabic. On this website there are many choices of languages from various countries, users can choose the language according to what they want as training material. Users are faced with menu choices such as typing tests (long sentences), typing competitions, and 1000 words fast typing (Andik et al., 2020; Pamengas et al., 2020). This website is very good as a learning medium to improve the quality of typing. However, what is lacking in this website is the unavailability of a typing tutorial that trains and introduces the location of letters on the keyboard (Darmayanti et al., 2022; Khoiriyah et al., 2022). Meanwhile, to achieve typing skills, especially typing using 10 fingers, it must be done gradually, regularly and steadily. Moreover, Arabic writing has a more complex writing structure. it is necessary to have typing skills training that starts with basic knowledge such as recognizing letters on the keyboard, typing words, and typing long sentences (Khasanah, 2016; Munawarah & Zulkiflih, 2021; Shalihah, 2017).

As for the problems faced by students of the Arabic Language Education Study Program, Faculty of Islamic Religion, University of Muhammadiyah Malang, based on the results of observations, it was shown that most students still did not recognize the location of the Arabic letters on the keyboard. This becomes an obstacle for students in carrying out their academic tasks such as preparing reports, writing papers, all of which must be completed by typing. In fact, it is not uncommon for students to use shortcuts such as copy-paste in completing their assignments. Based on the description above, the website is less relevant for use as a learning medium for typing Arabic texts for students of the Arabic Language Education Study Program, Faculty of Islamic Religion, University of Muhammadiyah Malang. Therefore, there is a need for learning media to type new Arabic texts that are relevant to student needs. Because a good learning media is one that suits the needs of the audience. The main purpose of this research is to make learning media to type Arabic text from the bottom. Creating learning media to type Arabic text from the bottom is the main goal of this research.

Literature Review

1. Typing Skills

Typing skills are "Keyboarding skills, as a motor skill, is defined as the ability of learners to key in information into the memory of the computer with the minimum effort and energy use (Lou et al., 2016; Vidyastuti et al., 2022). Another definition states the act of placing information into a computer through the use of a typewriter like keyboard, involving the placement of fingers on designated keys on the middle “home” row of the keyboard and moving fingers as needed to depress other keys without looking at the keyboards. The typing method used to achieve this ability is not much different from before, namely the typing method using 10 fingers. Typing using 10 fingers is a typing method in which each finger taps on the keys according to a certain task and area of operation and finger movements must be done with regular and automatic beats. Typing is a very complex skill that requires orchestration of linguistic, cognitive, and sensory-motor skills (Aziza & Muliansyah, 2020; Cahyani, 2017). The things that need to be considered in 10 finger typing are concentration, mastering the language, relax, don't rush and study diligently and practice typing every day (Ilmiani et al., 2022; Kurni & Wulandari, 2021).

In general, in typing training media there is an assessment of typing results that have been achieved by typists. The assessment categories in typing training using 10 fingers are speed and accuracy. Typing speed is measured using a word per minute (KPM) scale which calculates how many words are successfully typed in one minute. Typing accuracy is the percentage of the number of words typed correctly in one minute. In this regard, Brandon Raziano found a study of the average computer user in 1997, he stated that the average for transcription was 33 words per minute (WPM) and 19 words per minute (WWH) for

composition. In the same study it was stated that the average results were grouped into three categories, namely the fast category of 40 KPM (Harimurti & Saptantinah, 2017; Ninghardjanti & Yuwantiningsih, 2018; Wiwien & Restu, 2019).

2. Exercise

Exercise in foreign terminology is often referred to as training, exercise, workout and practice. The notion of training which comes from the word practice is the basic process of preparation for higher performance whose process is designed to develop motoric and psychological abilities that enhance one's abilities (Fahyuni, 2017; Purnomo, 2019; Puspasari, 2007). While the notion of exercise that comes from the word exercise is the main tool in the process of daily training to improve the quality of the functions of the human body's organs, making it easier for athletes to perfect their movements. Another understanding states that training is a process of change for the better, namely to improve the physical quality, the functionality of the body's equipment and the psychological quality of the athlete (Hasanah et al., 2022; Syaifuddin et al., 2022). From the definition of training, it can be seen that training activities are carried out because there are goals to be achieved, one of which is to help athletes improve their skills and achievements as much as possible. In this regard, practicing typing using 10 fingers also has the goal of improving the quality of typing with 10 fingers of a typist (typist). Typing skills are the result of a training process not obtained by chance. The things that need to be considered in the process of typing practice are the frequency of repetitions, intensity and tempo. practicing typing using 10 fingers also has a goal, namely to improve the quality of typing with 10 fingers of a typist (typist). Typing skills are the result of a training process not obtained by chance. The things that need to be considered in the process of typing practice are the frequency of repetitions, intensity and tempo. practicing typing using 10 fingers also has a goal, namely to improve the quality of typing with 10 fingers of a typist (typist) (Anjarwati et al., 2023; Humaidi et al., 2022). Typing skills are the result of a training process not obtained by chance. The things that need to be considered in the process of typing practice are the frequency of repetitions, intensity and tempo (Khoiriyah & Puspasari, 2021; Kurni & Wulandari, 2021).

Typing practice activities using 10 fingers has a close relationship with memory. Where a typist can type using 10 fingers without looking at the keyboard (Rieger & Bart, 2016). The memory in question is muscle memory. Muscle memory is the ability to perform various motors/movements that are obtained through habituation either through explicit, intentional, simple training, as a result of informal, unintentional, or even unconscious learning from previous repeated experiences. In addition, this kind of memory is also known as procedural memory or motor memory because it allows a person to perform various motor procedures or skills automatically or spontaneously. without deliberation with the conscious brain about how the procedure is supposed to follow and without explicit calculations of how one identifies and achieves the various steps involved in the procedure and how one goes from step to step. In addition, Muscle Memory also has the capability of rebuilding muscle mass and strength to regain muscle mass at a later date even after long intervening periods of inactivity and mass loss. In this regard, Rene Descartes (1596-1650) wrote: "lyre players have part of their memory in their hands, because the facility to move and bend their fingers in various ways which they do is acquired by habit, helping them to remember parts which encourages them to move their fingers to play it" (Ikhsananto & Sutirman, 2018; Pinet et al., 2022; Wawrzynek & Wawrzynek, 2019).

Research Method

Researchers conducted this research at the Arabic Language Education Study Program, Faculty of Islamic Religion, University of Muhammadiyah Malang. The development model used in this study is the ADDIE model which consists of the following steps: (a) analysis, (b) design, (c) development, (d) implementation, (e) evaluation (Fadillah et al., 2021).

The data in this study consisted of qualitative data and quantitative data collected using interviews, observation and questionnaires. Qualitative data were obtained from observations and interviews, while quantitative data were obtained from validation by media experts, subject matter experts and due diligence by students using a questionnaire. Qualitative data were analyzed using qualitative data analysis techniques, while quantitative data were analyzed using quantitative data. Product testing was carried out in 3 stages, namely (a) media expert validation, (b) material validation, (c) initial/limited field test and operational field test. The product trial aspect consists of 2 aspects, namely the software engineering aspect and the material aspect. Tests on aspects of software engineering are adapted from software testing strategies by Pressman. These aspects include (a) unit testing, (b) integration testing, (c) system testing, (d) acceptance testing.

Results and Discussion

The first step taken by the researcher was to observe and conduct interviews with students and lecturers in the Arabic Language Learning ICT course to determine the quality of students typing Arabic texts and knowing the needs of students in improving their skills in typing Arabic texts. The observation results show that students' skills in typing Arabic texts are still minimal. While the results of the interviews showed that students needed a learning media to type Arabic texts from the bottom.

The purpose of designing this website is to create a website-based Arabic Typing application and test the feasibility of using the application for students of the Arabic Language Education Study Program, Faculty of Islamic Religion, University of Muhammadiyah Malang. Typing training material is taken from the hadith book al-Arba'in, the book الميسر في القراءة والكتابة and some of it is taken from the internet. The population of this study were students of the Arabic Language Education Study Program, Faculty of Islamic Religion, University of Muhammadiyah Malang, and Suharsimi method for sampling, that is if the population is less than one hundred (Martan et al., 2021).

The third stage is the development stage, where the researcher creates educational materials in accordance with the earlier designs. Researchers employed a website-based Arabic typing program during the development phase. The application must next be verified by media and material specialists after completion. Language considerations, device technical aspects, and visual communication aspects are all included in the validation of media experts.

This research produces a product in the form of a website-based Arabic Typing application that is uploaded with a URL address www.ajher.co.id and are online. On this website there are 4 main menus (a) Home menu, (b) Tutorial menu, (c) Letter Typing Test menu, (d) Sentence Typing Test menu, and additional features such as Log-in forms and E-certificates. The appearance of this website-based Arabic Typing application can be seen in the following figure:

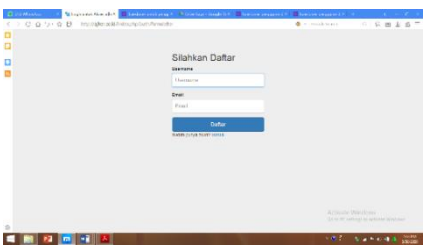


Figure 2. View of the List Form

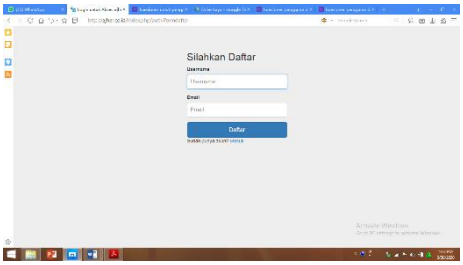


Figure 3. Display of the Log-in Form

Figure 2 is a display of the list form that appears the first time in *Arabic Typing website. Furthermore,* figure 3 is a display of the log-in form that appears after the user register.

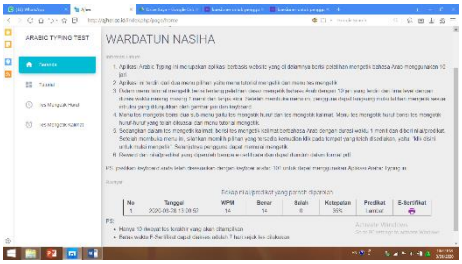


Figure 4. Display of the Home Menu

Figure 4 is the Home view which is the first menu of the website *Arabic Typing.*This menu contains general information, indicator usage and typing history.

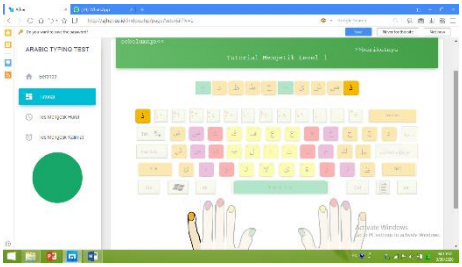


Figure 5. Display of the Tutorial Menu

Figure 5, displays the Tutorial menu which contains typing tutorials Arabic letters using 10 fingers equipped with illustrationskeyboards and pictures of fingers with different colors on the fingers for distinguish the position of the letters on the fingers so that it is easy to remember. this menu consists of 5 levels where each level must be completed in 1 minute time. Fill the material is hijaiyah letters, punctuation and letters addition.

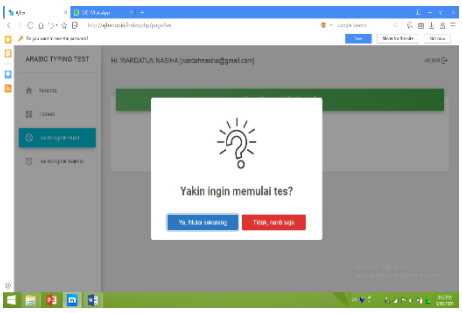


Figure 6. Initial Display of the Letter Typing Test Menu

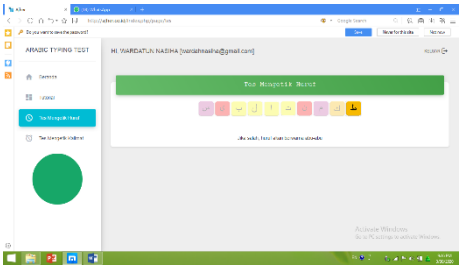


Figure 7. Display of the Letter Typing Test Menu

Figure 6, is the initial display of the Letter Typing Test menu, and figure 7 is a display of the Letter Typing Test menu which contains a typing test letter which must be completed within 1 minute. Users who have complete this menu given*rewards*in the form of an e-certificate that can downloaded in pdf format. The contents of the material are hijaiyah letters, punctuation marks and additional letters.

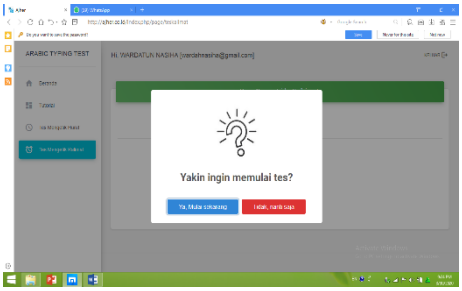


Figure 8. Initial Display of Sentence Typing Test Menu

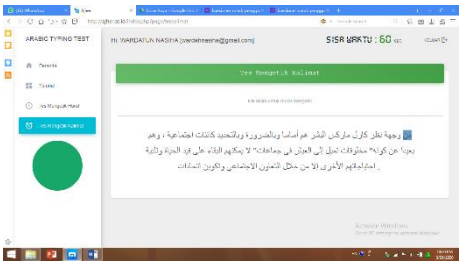


Figure 9. Display of Sentence Typing Test Menu

Figure 8 is the initial display of the Sentence Typing Test menu, and figure 9 displays the Sentence Typing Test menu which contains a typing testsentences in the form of paragraphs and must be completed within 1 minute. Users who have completed this menu are awarded*rewards*in the form of e-downloadable certificate in pdf format. The material is brief discussion of several scientific disciplines such as economics, politics, social, education, psychology, health, around campus and hadiths short.

Figure 9. Appearance of E-certificate before Download

Figure 10. Appearance of E-certificate before Download

Figure 10 an overview of the e-certificate feature before being downloaded, and figure 11 an e-certificate feature display after being downloaded. In e-certificate contains the user's identity, rating and description of when to perform test. The assessment standards used in *Arabic Typing website* this is adapted from Brandon Raziano's standard.

The feasibility of using the website-based Arabic Typing application can be determined through the validation results of media experts, material experts and due diligence by students. The data obtained were analyzed using descriptive statistics and then converted into qualitative data in the form of intervals using a Likert scale to determine the eligibility of the media. The eligibility category classification on the Likert Scale consists of 5 categories presented in the following table:

Table 1. Classification of Media Eligibility Categories

Answer	Score
Very worth it	81%-100%
Worthy	61% - 79%
Pretty decent	41% - 60%
Not feasible	21% - 40%
Very unworthy	0% - 20%
Very worth it	81%-100%
Worthy	61% - 79%

Table 1. Shows the classification of media eligibility categories based on the calculation results descriptive data. Media expert validation was carried out by involving 2 media experts, both of whom are lecturers in the Software Engineering course at the Informatics Engineering Study Program, Faculty of Engineering, University of Muhammadiyah Malang. Media experts test the quality of the website from the aspects of usability, functionality and visual communication. In the usability aspect, a score of 40 out of 40 is obtained with a feasibility percentage of 100%, then the feasibility category is "Very Eligible". In the aspect of functionality, a score of 82 out of 90 was obtained with an eligibility percentage of 91.11%, then the feasibility category is "Very Eligible". Whereas in the communication and visual aspects, a score of 50 out of 50 was obtained with a feasibility percentage of 100%, then the eligibility category was "Very Eligible". The overall results for each aspect obtained 172 out of 180 with a feasibility percentage of 97.03%,

Material expert validation was carried out by involving 2 material experts. Material experts consist of 1 Nahwu lecturer and 1 Kitabah lecturer. Both are lecturers in the Arabic Language Education Study Program, Faculty of Islamic Religion, Muhammadiyah University of Malang. Material experts test the quality of the website from the aspects of material content and language and communication. In the aspect of material content, a score of 18 out of 20 was obtained with an average percentage of eligibility of 90%, then the eligibility category was "Very Eligible". While in the aspect of language and communication, a score of 40 out of 50 was obtained with an average percentage of eligibility was 80%, then the eligibility category was "Very Eligible". The overall result for each aspect is 58 out of 70 with an average percentage of eligibility of 85%, in the feasibility category is "Very feasible".

The feasibility test on students is carried out in 2 stages. First, an initial/limited field

test involving 12 students from the Arabic Language Education Study Program, Faculty of Islamic Studies at the University of Muhammadiyah Malang. Second, an operational field test involving 40 students from the Arabic Language Education Study Program, Faculty of Islamic Studies at the University of Muhammadiyah Malang. Overall, the due diligence on students involved 52 students who were taken randomly. In the initial/limited field test, a score of 996 was obtained from the expected score of 1,200 with an eligibility percentage of 83%. While the operational field test obtained a score of 3,392 from the expected score of 4,000 with a feasibility percentage of 84.8%. So that overall a score of 4,388 is obtained from the expected score of 5.

The implementation stage is the fourth stage. Before being tested on students, the application has at this point been updated based on advice from media professionals and subject matter experts. The trial is divided into two phases: small group trials and field trials. Black-box testing, installation/launch testing, and other types of testing are conducted on students.

*Black-box testing*is testing that focuses on program functionality without having to consider the internal structure of the program data being tested. The results of black-box testing are shown in table 2.

Table 2. Black-box Testing Results

NO	TESTING	EXPECTED RESULTS	TEST RESULT
1	Open websites	*Website*can be opened smoothly	Get away
2	Opens menus	All menus can be opened	Get away
3	Opens navigation links	All navigation links work properly	Get away
4	*Login*	*Users*managed to log-in and can run the menu that will	Get away
5	Running menus	All menus can be executed properly	Get away
6	Download certificate	Certificates can be downloaded easily	Get away

Table 2. Shows the results of black-box testing that was successful or passed, meaning that every component on this website is functioning properly. Stress testing is a testing method performed to ensure that applications and hardware can handle multiple user volumes simultaneously (Andi Rustandi & Rismayanti, 2021; Cahyadi, 2019; Rofiq Faudy Akbar, 2015). The test was carried out using the Webserver Stress Tools application with the RAMP test type involving 10 users within 5 minutes. The RAMP test tests the ability of a website to respond to requests by more than one user simultaneously by reviewing click times and errors.

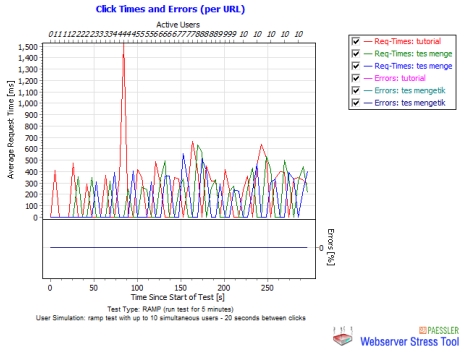


Figure 11. Graph of Click Times and Errors (per URL)

Figure 11: Shows that the server is still able to respond to requests from 10 users simultaneously and no errors occur during the testing process takes place on every URL.

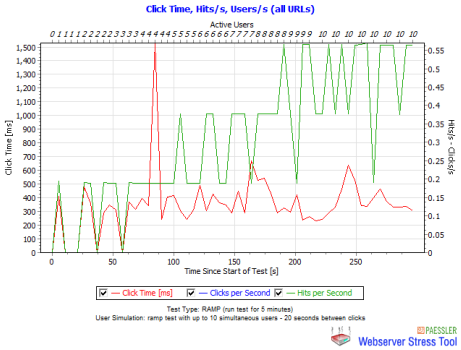
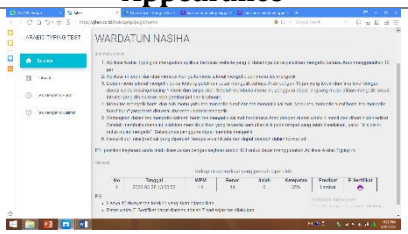
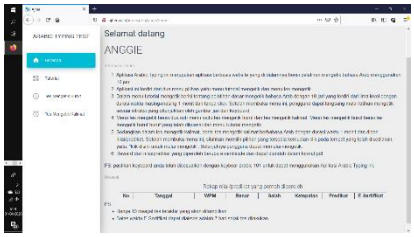
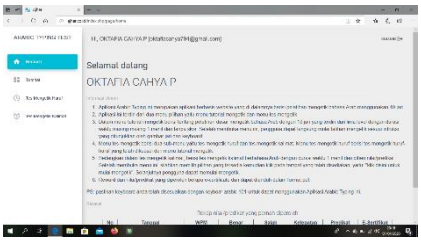


Figure 12. Graph Times, Hits/s, Users/s (per URL)

Figure 12: Shows that the exchange of information between the server and the user running stably. *Installation/launch test*is a test conducted to determine the capabilities of the software on various devices, both different software and hardware. Tests in this study were conducted on 5 desktop-based browser applications, namely Maxthon 5, Google Chrome, Mozilla Firefox, Internet Explorer and Opera. The test results can be seen in table 3.

Table 3. Result Installation/Launch Testing

No	Browsers	Appearance	Test Result
1	Maxthon 5 (d)		get away
2	Google Chrome (dekstop)		get away
3	Mozilla firevox (dekstop)		get away
4	Internet explorer (dekstop)		get away

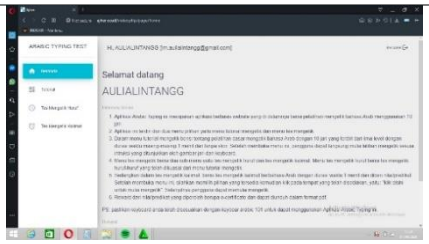
5	Opera (dekstop)		get away

Table 3. Shows that the results of the installation/launch testing were successful/passed, meaning that the Arabic Typing website can be accessed in several different desktop-based browsers. According to research, the results of the research and development of this learning medium were developed using the ADDIE (Planning, Production, and Evaluation) development model, which is very practicable to use. As a result, an effective and efficient e-learning learning model was produced through the website with a good predicate from the results, and the basic stages of the learning system are simple to complete (Andi & Rismayanti, 2021; Cahyadi, 2019; Rofiq, 2015).

The evaluation stage is the fifth stage. At this point, the management of the assessment's findings and the formulation of conclusions are completed. A website-based Arabic typing tool for university students enrolled in Arabic language education programs is deemed practical to use based on the results of questionnaires given to media experts, material experts, and students.

Conclusion

Based on the results of data analysis and study of product design results, it can be concluded as follows: First, this research produces a product in the form of a desktop-based Arabic Typing website that is designed to train typing Arabic text starting from the basics and uploading it with a URL page.www.ajher.co.id. Second, the feasibility of Arabic Typing website products based on the validation results of media experts obtained an average percentage of 97.03% (Very Eligible), material expert validation obtained an average percentage of 85% (Very Feasible), while student feasibility tests obtained an average percentage 83.9% (Very feasible). In black-box testing, this website was declared successful/passed. In the stress test it is stated that this website is able to respond to requests from 10 users simultaneously in a stable manner, while in the installation/launch test, this website is stated that this website can be accessed in different browsers. above description, Research should be conducted in schools and using alternative development approaches going forward.

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