



Performance Analysis of the SiJaspro Application as a Tool for Physical Fitness Testing at Jasdram II Sriwijaya

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Received: August 29, 2024; Accepted: November 10, 2024; Published: December 1, 2024.

Abstract: Technological advances have affected many areas of daily life, including sports. Calculations are essential to achieving physical exercise goals. To meet this need, Jasdram II Sriwijaya has created an application called SiJaspro that supports training by offering important data and calculations. This application is designed to assess fitness scores, provide training materials, and provide information related to Jasdram II Sriwijaya. Although this application has just been launched, it already has bugs on some pages, has difficulty displaying user data correctly, and is only compatible with Android devices. The PIECES method—Performance, Information and Data, Economics, Control and Security, Efficiency, and Service—has been applied to assess the performance of the application in this study. This analysis aims to assess the performance of the application in Jasdram II Sriwijaya and evaluate it against the objectives that have been set. GTMetrix is used for speed and performance testing, and Google Transparency Report is used for security testing.

Keywords: Analysis; SiJaspro; PIECES; GTMetrix; Google Transparency Report.

1. Introduction

Technology has advanced rapidly over the past few decades, drastically changing many aspects of daily life, from how people communicate to how people work and how people spend their free time. The massive use of applications and websites has become very common as they are necessary tools for leisure and professional/personal growth. The influence of technology has changed the speed at which people complete tasks in many areas of life, including sports. On the other hand, technology provides important tools to make training and assessment more efficient in this area where accuracy is critical to maximize performance. Such applications are important for athletes and coaches [1], as they provide up-to-date information, performance metrics, and accurate results to improve and inform training and decision making. One of the technology integrations used in sports is SiJaspro which is developed by Jasdram II Sriwijaya application. This application is developed specifically for this purpose to assist everyone in their physical training program at the institution with appropriate data, calculations, and intermediate outputs so that they can determine their output and identify their performance level. SiJaspro is built primarily to generate the garjas value test required to measure the Physical Fitness of the trained. The website also provides physical exercise targets to be followed according to user needs and provides an introduction to the Jasdram II Sriwijaya program. This application can help improve training by making access to training resources and tracking much easier. However, this application, as a relatively new tool, has several limitations. Low usability scores indicate, for example, that there are bugs and errors on some pages, missed opportunities for displaying user data output, and limited access (currently, only on android devices), among others [2]. Before the SiJaspro application was developed, the physical training program at Jasdram II Sriwijaya used a manual data collection system. This system mainly used Excel-based sheets and paper records to manage participants in the process. Although this system was successful, it was tedious and error-prone, especially when the number of training participants increased. SiJaspro is a step that automates data collection and processing for training. While minimizing manual and paper-based processes to reduce administrative costs, improve data accuracy and provide more reliable insights to training participants & trainers. The shift from analog to digital data collection aligns with a broader trend across the industry, where organizations are leveraging technology to streamline their processes and improve service quality.

A training program offered by Jasdram II Sriwijaya for teenagers who want to become members of the Indonesian National Army (TNI). Participants are required to undergo a health check and fill out a personal data form in order to be eligible to join the program and meet the required health standards. Sessions are held five afternoons per week, focused on intensity and covering all aspects. As they work on balance, coordination, and endless learning aspects, their training materials incorporate everything from interval running, sprinting, to combinations and they must meet certain class allowances to progress through their training program. This training method is designed to condition participants for the physical activity of military service, ensuring they are in prime physical condition to meet the demanding criteria of TNI members. Although the SiJaspro application shows great potential, there is still a lot that needs to be done in order for the application to reach its maximum capacity. Developers are refining the application's functionality and working on addressing technical issues pointed out by users. The most important changes are improving usability, reliability, and accessibility to support as many users as possible, including iOS users, in order to serve the needs of all users. Considering all these ongoing efforts, it is important to analyze the application's performance to determine its weaknesses and strengths. This analysis will provide a broader insight into the current application capabilities and identify areas of improvement for the same. The title of the research conducted in this study is "Performance Analysis of SiJaspro Application as a Physical Exercise Test Tool for Jasdram II Sriwijaya" where the objective of this study is to analyze the performance of the SiJaspro application using the PIECES method. PIECES is a popular framework for evaluating information systems that focuses on six dimensions namely Performance, Information and Data, Economy, Control and Security, Efficiency, and Service. It provides a holistic view of the application and allows for advantages and disadvantages as well as recommendations for future development. This study will use the PIECES method to conduct a structured assessment of the application's efficacy across multiple dimensions, thereby allowing for the identification of potential areas for improvement.

TTD (Test design document/type of testing to be conducted) Along with the PIECES analysis, performance testing of the SiJaspro application will be conducted using tools such as GTMetrix to determine how fast and responsive the application is. 2. GTMetrix: An industry standard tool, capable of examining the loading time and performance of web applications with very detailed data on application performance under very detailed conditions. The SiJaspro application includes security as an important part, especially since the application operates on important data. To evaluate the security features of the application, the Google Transparency

Report will be used, as it can provide more or less important information regarding the security functions in the application and whether its status is above the industry standard [3][4]. Therefore, the purpose of the study is to measure the performance of the SiJaspro application in improving physical training at Jasdram II Sriwijaya. This study will help assess how well the application meets the goals of the institution and will evaluate the impact of the application and its prospects. The results can also outline how the application can be improved to better meet the needs of its clients, allowing it to carry out a more relevant and easy-to-use methodology behind physical training while fulfilling its purpose as a tool to achieve fitness goals. The findings of this study will be part of the effort to improve SiJaspro, so that it can be more useful for trainees, trainers, and administrators at Jasdram II Sriwijaya.

2. Research Method

This study uses a mixed method, namely combining quantitative and qualitative approaches in one study. Quantitative methods are applied to analyze attributes that are considered priorities as well as expectations in increasing user satisfaction of the SiJaspro application. While the qualitative approach is used to evaluate performance on the SiJaspro application [5].

2.1 Problem Identification

The formulation of the problem raised in this study is: "How effective is the performance of the SiJaspro application for its users to obtain information about physical exercise at Jasdram II Sriwijaya if analyzed using the PIECES method and analyzing the performance of the SiJaspro application with the GTMetrix testing technique" 0.

2.2 Testing Techniques

In testing the SiJaspro application, the GTMetrix and Google Transparency Report techniques are used. GTMetrix is used to evaluate and ensure that the application always meets standards. The search engine used is GTMetrix to assess application performance by involving four indicators. The green indicator indicates the application performance score is between 91% and 100%, the light green indicator indicates a score between 29% and 90%, the orange indicator indicates a score between 51% and 75%, and the red indicator indicates a score between 0% and 50% [7]. The results of the application performance assessment using GTMetrix have levels A to F. If the application gets a score of A, this indicates that the application loading speed is very good. A score of B indicates possible deficiencies in the application, while a score of C indicates the need for improvement, such as in themes, image selection, CSS, and other aspects. GTMetrix has several advantages, including the use of Google Pagespeed and YSlow as analysis tools, the ability to compare multiple URLs simultaneously, automatic website testing scheduling, and in-depth analysis with good measurement consistency and complete recording with scores. However, the disadvantage of GTMetrix is that it requires fast internet access to run the test [7].

2.3 Interview

At the interview stage for data collection in this study, the author asked questions directly to related parties, such as trainers and physical training participants who use the SiJaspro application. The author asked about the performance of the application among users, so that information was obtained regarding the performance and problems faced by the application [8].

2.4 Literature Study

In this study, literature study was conducted by searching for and studying various sources such as books, websites, laws and regulations, articles, journals, and previous research that are relevant to the variables to be studied by the author [9].

2.5 Questionnaire (Primary Data)

A questionnaire is a method of collecting data by providing a series of questions or written statements to respondents who have been determined to be answered [10]. This technique is used to collect information from respondents regarding the performance of the SiJaspro application as a physical exercise test tool at Jasdram II Sriwijaya. This study requires 57 respondents, namely users of the SiJaspro application or participants in the physical exercise program at Jasdram II Sriwijaya. The sample consists of participants who use the SiJaspro application, with a population of 57 users based on age. Determination of the number of

samples using the Slovin formula, where variable (X) is the SiJaspro application and variable (Y) is the user. The scale used in this study is the Likert scale, and the final data analysis was carried out using SPSS. This questionnaire contains various statements covering the research variables, namely Performance, Information and Data, Economy, Control and Security, Efficiency, and Service [11].

3. Result and Discussion

3.1 Results

At the performance stage, GTMetrix is used to test the performance of the SiJaspro application or website. To test with GTMetrix, access this service via Google page by entering the URL of the site or system to be tested [12]. GTMetrix will measure the speed of the website and display the results. The test results from GTMetrix can be seen in Figure 1 below.

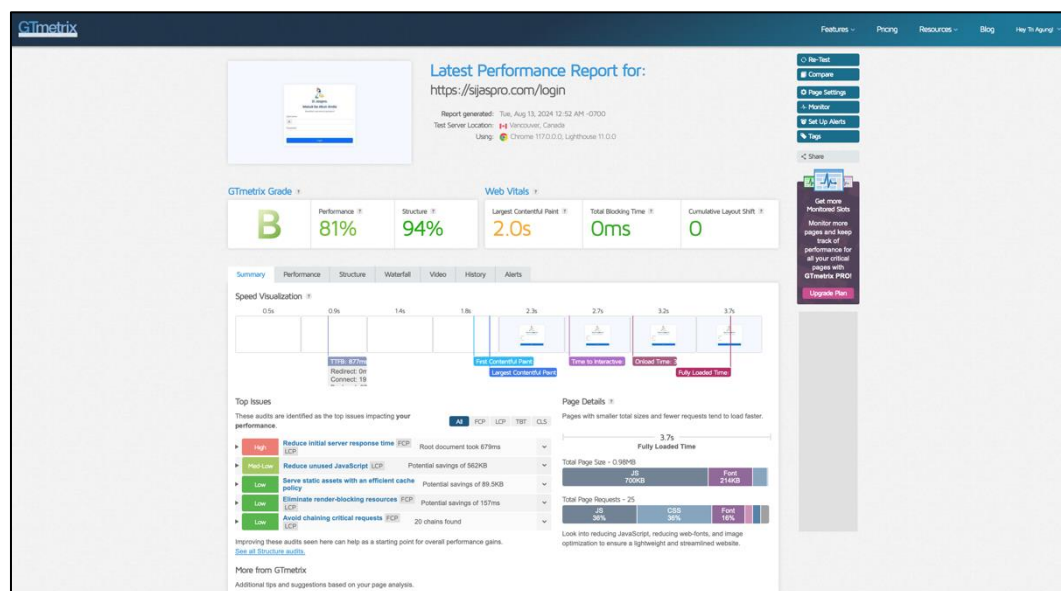


Figure 1. GTMetrix Performance Results

In Figure 1 above, the SiJaspro application received an overall grade of B, with a performance score of 83% and a website structure score of 95%. The higher the grade obtained, the better the system performance, which is expressed in the form of grades A, B, C, and so on. The performance score measures the speed of website access by users in percentage, where the higher the percentage, the faster the site is accessed. Meanwhile, the structure score assesses the quality of website construction in percentage, where the higher the percentage, the better the structure of the site. When using GTMetrix to analyze the performance of the SiJaspro application, the results of the Web-Vitals analysis will be reviewed. This analysis includes the measurement of several core elements of the website. One of the metrics used is the calculation of website load time. When analyzing the performance of the SiJaspro application using GTMetrix, the tool provides a detailed visualization of the time it takes for the application to load. The SiJaspro app start page took 3.0 seconds to load, while the full load time was 3.7 seconds, indicating that the content on the app appeared at that time. Interactive time measures the point at which the page becomes usable, while Largest Contentful Paint (LCP) represents the largest content element that appears on the application, which occurs within 2.0 seconds for SiJaspro. The application speed index based on this analysis is 1.9 seconds, with a recommended request time of 1.3 seconds according to GTMetrix suggestions [13].

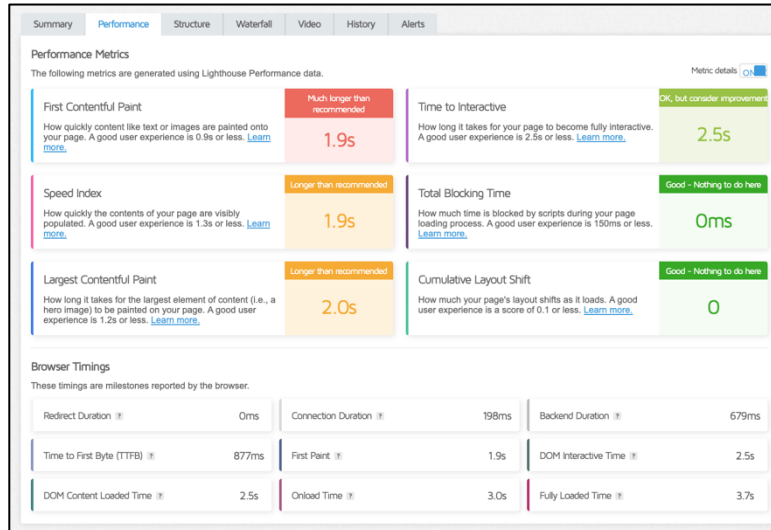


Figure 2. Results of Web-Vital Analysis of SiJaspro Application with GTMetrix

The results of the analysis of the SiJaspro application using GTMetrix include browser time, which measures the speed of the application when using a web browser [14]. The web browser used in this analysis is Safari, and the findings of the SiJaspro application are divided into several sections:

Tabel 1. Analysis of the SiJaspro Application Using GTMetrix

No	Browser Timing	Duration
1	Redirect Duration	0ms
2	Time To First Byte	877ms
3	DOM Content Loaded Time	2.5s
4	Connection Duration	198ms
5	First Paint	1.9s
6	Onload Time	3.0s
7	Backend Duration	679ms
8	DOM Interactive Time	2.5s
9	Fully Loaded Time	3.7s

To assess the performance of the SiJaspro application in the performance variable, the results can also be seen from the calculation value of respondents' answers to the questionnaire consisting of 10 questions related to the SiJaspro application, as shown in table 2 below.

Table 2. Performance Questionnaire

No	Questions
1	Can the Sijaspro application be accessed easily by users?
2	Sijaspro application system performance is stable when used simultaneously?
3	Operation on several sijaspro application commands is relatively short and without experiencing obstacles and bugs?
4	Does the Sijaspro application respond quickly to a command?
5	Menus, Features and navigations in the Sijaspro application run easily and responsively?
6	Menus, Features and navigations in the Sijaspro application run easily and responsively?The display provided by Sijaspro is easy to understand and attractive?
7	The menus and literature of the Sijaspro application display information that is highly desirable to users?
8	The navigation provided in the Sijaspro application provides easy action for users?
9	The output produced by the Sijaspro application has a consistent appearance?
10	Does the Sijaspro application ever experience errors or bugs when used?

Table 3. Performance Questionnaire Response Results
Performance

Answer	STS	TS	C	S	SS
Score	1	2	3	4	5
Total Answers	0	4	166	351	93

$$RK = \frac{JSK}{JK}$$

$$RK = \frac{(5.93) + (4.351) + (3.166) + (2.4) + (1.0)}{(10.57)}$$

$$RK = \frac{465 + 1.404 + 498 = 8 + 0}{570}$$

$$RK = \frac{2.375}{570} = 4.16$$

Based on the calculation of the performance variable obtained, the value of 4.16 is concluded according to Table 3, the value of 4.16 is included in the PUAS category. In the Information and Data variable, there are 4 questions related to the SiJaspro application listed in table 7 below:

Table 4. Information And Data Questionnaire

No	Questions
1	Information on the SiJaspro application is presented with high user satisfaction?
2	The SiJaspro application provides the appropriate information needed?
3	The SiJaspro application provides information that is easy to understand and easy to learn
4	The SiJaspro application provides access that can be used according to the needs of users?

Table 5. Information And Data Questionnaire Response Results
Information And Data

Answer	STS	TS	C	S	SS
Score	1	2	3	4	5
Total Answers	0	1	59	138	34

$$RK = \frac{JSK}{JK}$$

$$RK = \frac{(5.34) + (4.138) + (3.59) + (2.1) + (1.0)}{(4.57)}$$

$$RK = \frac{170 + 552 + 177 + 2 + 0}{228}$$

$$RK = \frac{901}{228} = 3.95$$

Based on the calculation of the Information and Data variable obtained a value of 3.95 which is concluded that table 5, the value of 3.95 is included in the PUAS category. In the Economy variable, there are 2 questions related to the SiJaspro application which are listed in table 6 below:

Table 6. Economy Questionnaire

No	Questions
1	The SiJaspro application saves users operational costs in finding physical exercise information?
2	The SiJaspro application helps reduce operational costs and improve the efficiency of using natural resources Exercise test results calculation?

Table 7. Economy Questionnaire Response Results

Answer	Economy				
	STS	TS	C	S	SS
Score	1	2	3	4	5
Total Answers	0	0	54	58	4

$$RK = \frac{JSK}{JK}$$

$$RK = \frac{(5.4) + (4.58) + (3.54) + (2.0) + (1.0)}{(2.57)}$$

$$RK = \frac{20 + 232 + 162 + 0 + 0}{114}$$

$$RK = \frac{414}{114} = 3.63$$

Based on the calculation of the results of the Economy variable which obtained a value of 3.63, it can be concluded that according to table 7, the value of 3.63 is included in the PUAS category. In the Control and Security variable, there are 2 questions related to the SiJaspro application which are listed in table 8 below:

Table 8. Control And Security Questionnaire

No	Questions
1	The SiJaspro application grants access limitation rights to users?
2	The SiJaspro application provides a guarantee of user data security?

Table 9. Control And Security Questionnaire Response Results

Answer	Control And Security				
	STS	TS	C	S	SS
Score	1	2	3	4	5
Total Answers	0	2	26	64	24

$$RK = \frac{JSK}{JK}$$

$$RK = \frac{(5.24) + (4.64) + (3.26) + (2.2) + (1.0)}{(2.57)}$$

$$RK = \frac{120 + 256 + 29 + 4 + 0}{114}$$

$$RK = \frac{409}{114} = 3.58$$

Based on the calculation of the results of the Control and Security variable obtained, the value of 3.58 can be concluded according to table 9, the value of 3.58 is included in the PUAS category. This shows that the Control and Security variable shows a positive indication. In addition, the security of the SiJaspro application can also be seen through the Google Transparency Report used to measure it, as shown in Figure 3.

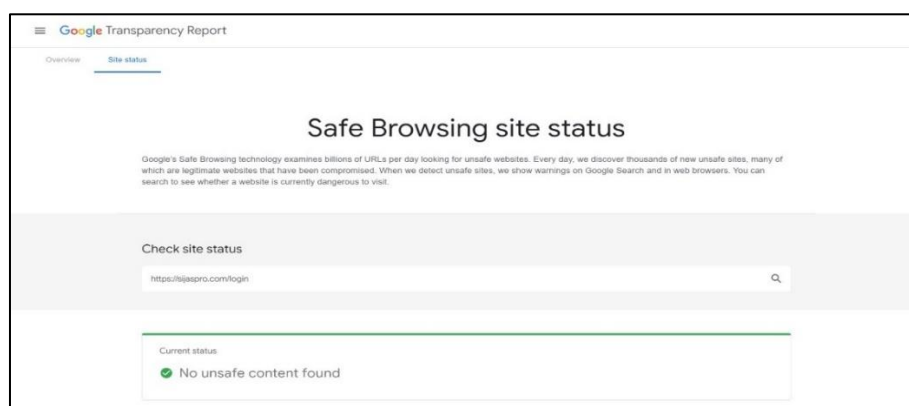


Figure 3. SiJaspro URL Results on Google Transparency Report

From the picture above, it can be seen that the SiJaspro application has been analyzed by Google Transparency Report [15]. The analysis results show that no malicious content was found, so the SiJaspro application is declared safe to access. In the Efficiency variable, there are 4 questions related to the SiJaspro application which are listed in table 10 below:

Table 10. Efficiency Questionnaire

No	Questions
1	SiJaspro application is easy to operate?
2	To load the siJaspro page does not take long?
3	SiJaspro application saves cost, time, and effort?
4	With the siJaspro application application helps work to be easy and more efficient?

Table 11. Efficiency Questionnaire Response Result
Efficiency

Answer	STS	TS	C	S	SS
Score	1	2	3	4	5
Total Answers	0	0	61	136	35

$$RK = \frac{JSK}{JK}$$

$$RK = \frac{(5.35) + (4.136) + (3.61) + (2.0) + (1.0)}{(4.57)}$$

$$RK = \frac{175 + 544 + 183 + 0 + 0}{227}$$

$$RK = \frac{902}{227} = 3.97$$

Based on the calculation of the results of the Efficiency variable which obtained a value of 3.97, it can be concluded that according to table 11, the value of 3.97 is included in the PUAS category. In the Service variable, there are 5 questions related to the SiJaspro application which are listed in table 12 below:

Table 12. Service Questionnaire

No	Questions
1	Which features in the SiJaspro application generate user-friendliness?
2	Aspects and access to the SiJaspro application are met according to the desired needs?
3	Is the information on the SiJaspro application well conveyed?
4	Using the SiJaspro application is easy to use?
5	On SiJaspro application information can be accessed easily?

Table 13. Service Questionnaire Response Result
Service

Answer	STS	TS	C	S	SS
Score	1	2	3	4	5
Total Answers	0	1	70	168	51

$$RK = \frac{JSK}{JK}$$

$$RK = \frac{(5.51) + (4.168) + (3.70) + (2.1) + (1.0)}{(5.57)}$$

$$RK = \frac{255 + 672 + 210 + 2 + 0}{285}$$

$$RK = \frac{1.139}{285} = 3.99$$

Based on the calculation of the results of the Service variable which obtained a value of 3.99, it can be concluded that according to table 13, the value of 3.99 is included in the PUAS category.

3.2 Discussion

Evaluating the performance of the SiJaspro application with various testing techniques and user feedback has allowed us to look at its functionality and performance in a more complex way. GTMetrix is a contribution to the measurement of website speed and performance, and was used to evaluate the performance of the SiJaspro application. Figure 1 shows the results, and the application received an overall grade of B, a performance score of 83%, and a website structure score of 95%. This means that the application can perform relatively well in terms of its speed and structure. A grade of B means that the speed of the application is acceptable, but can be further optimized in terms of the best user experience. A score of 95% for the structure score indicates a well-built application design and organization. GTMetrix also offers insights into various web performance metrics such as load time and interactivity. In Figure 2, the initial page of the SiJaspro application loads in 3.0 seconds and the full load takes 3.7 seconds. For the average user, these times are within the acceptable range, but if your audience has a less than optimal internet connection, a faster load time will always improve their experience. LCP (Largest Contentful Paint): 2.0 seconds - This is the amount of time it takes for the largest element to load and become visible to the user, so it seems like our app is doing a good job of providing the main content to the user quickly. GTMetrix suggests an ideal request of 1.3 seconds with the app performance score showing relatively good results, but can be improved in future versions of the SiJaspro app by minimizing loading time and improving the user experience. This can involve optimizing images, minimizing server response time, and utilizing browser caching which will serve to improve the overall responsiveness and performance of the app. Table 3 shows the details of the performance questionnaire results, which provide further analysis on the suitability of the strengths and weaknesses of the SiJaspro app. As presented in Table 3, the average response score of the performance variable is equal to 4.16 with the category "SATISFIED". The score also reports user satisfaction with the accessibility, stability, responsiveness, and ease of mobility of the app. Respondents generally stated that the app is easy to access and use, with very few bugs or errors during operation. The fact that the short operating time and responsive menus were praised also indicates that the app has met user expectations regarding how easy the app is to use and how quickly features can be accessed. The questionnaire also revealed some areas of improvement for the SiJaspro app. Some commands in the app were noted to take longer than expected, which may also be related to the app's performance issues seen in the GTMetrix analysis. Better response times for some commands could improve the overall user experience and bring the app up to the best performance standards.

Regarding the Information and Data variable, the average score for the SiJaspro application from the questionnaire was 3.95 with the category "SATISFIED", which means that the application can provide good quality information but can still be improved. Table 5 shows that users feel that the application content is clear, easy to access, and relevant to their needs. However, you can do better by providing comprehensive data about everything in a more detailed way. The application can also be improved as SiJaspro, and build more in-depth content, advanced features that suit expert users, or provide instructional content. Economy This variable determines whether the SiJaspro application helps users save operational costs. This solution scored 3.626, which means that the application works well but not very well and there is still room for improvement. According to the survey feedback, SiJaspro helps reduce operational costs due to quick access to physical training information as well as test result calculations. However, the most cost-effective option may only be worth the money if the application provides additional features, such as integration with other systems, or offers data analysis tools that help users optimize their training sessions and performance metrics. Security and governance are essential for any program that runs sensitive advice. The SiJaspro application with a score of 3.58 in the Control and Security variable is categorized as SATISFIED. Users feel that the access control mechanism and data security guarantees are satisfactory. In addition, the Google Transparency Report validates the security of the application, which shows that there are no sites that have malicious content, so we can be sure that the SiJaspro application is safe [15]. However, although this positive assessment shows that the SiJaspro development team has implemented adequate security measures, it is still recommended that the code be monitored and updated regularly to protect against emerging security threats to ensure that user data remains safe. As for what was obtained, the SiJaspro application scored 3.97 in the Efficiency variable, which means it is relatively efficient in terms of saving time and resources. This application is designed to facilitate user access and processing of physical exercise data, thereby increasing the efficiency of the overall exercise program. Conclusion: You can solve the problem of loading time and interaction speed further, especially for those who do not have a good computer. Based on this, the SiJaspro application scored 3.99, which can be concluded that users are generally satisfied with SiJaspro's services. The application is praised for its ease of use, access to information, and organized content, among other things. For now, the user experience can be improved with better customer support and more personalized features. The SiJaspro application performs well in various aspects, such as speed, user experience, and authenticity. As highlighted

in the GTMetrix analysis and user feedback, although the application is functional and serves its purpose, there is still room for improvement, especially in terms of performance optimization, cost efficiency, and depth of information. Improvements in these aspects can help the SiJaspro application to continue to be a useful tool for physical training at Jasdam II Sriwijaya.

4. Related Work

Technology has been integrated into physical training especially since dedicated applications largely seem to be developing to make the workouts a mere task and choose message apps to realize the workout process step by step. Such digital tools are handy for performance tracking, real-time feedback, and personalized training materials. Fitness applications are valuable for tracking users' physical activity, monitoring their progress and providing customized training plans, all of which are crucial for enhancing athletic performance and maintaining user interest [16][17].

In a recent study conducted around web or mobile fitness apps, it was found that defining user experience metrics like speed, responsiveness, and loading time have a significant impact on UX. User retention is higher in cases of apps that cater to fast loading speeds and smooth interaction sessions as users get frustrated with delays and get frustrated faster [18][19]. Furthermore, the application design plays a crucial role in user satisfaction. Well-organized interfaces that provide easy navigation and fast access to essential features are vital for enhancing the overall user experience [20][21].

There are various tools and approaches developed to monitor the performance of applications in the field of fitness technology to evaluate how well an application meets user expectations requires consideration of metrics that measure loading time, interactivity, and content delivery efficiency such as web-based or mobile applications where users expect immediate responses to their actions [22][23]. Another factor that greatly influences user navigation is the structure of the application itself. It has been suggested that intuitive designs, which allow for easier interaction, have higher levels of user satisfaction [24][25].

Security is another important factor to consider when evaluating fitness apps, especially those that manage users' personal information. Strong security measures (encryption and access control) are essential to maintain user trust. Users who care about their privacy are more willing to use apps that emphasize data protection and are transparent about how they use user data [26][27]. Based on this, recent studies of internet-based apps, including those by Darmansah and Nengsih (2022) and Novriani *et al.* (2023), also discuss performance assessment frameworks, such as the PIECES framework, which includes security, efficiency, and service components to achieve a comprehensive system evaluation [4][1]. Built on Performance, Information and Data, Economy, Control and Security, Efficiency and Service, the PIECES framework is commonly used for software application evaluation. The systematic approach allows a thorough analysis of various aspects of an application, ensuring that all important elements are considered in the evaluation of its efficacy. In fitness applications, every dimension is important to consider, because performance is not only about speed, but how well the application provides information, its integration with other systems, and data protection [27][28]. The use of PIECES to evaluate various applications has been successful, such as Olvionita *et al.* (2023), which was used to evaluate the Siransija application [3], and is also associated as an evaluation of fitness applications.

Positive user reviews are a key part of successful app evaluation. By collecting data through questionnaires, interviews, and surveys, developers can gain insight into user needs, identify pain points, and determine areas for improvement. Personalization, transparency, and ease of navigation are widely associated with user satisfaction with fitness apps [29][30]. This is in line with Putra (2021) and Kinanti *et al.* (2021) and the role of feedback mechanisms [9], such as surveys and user experience, in helping developers refine the user interface and general functionality of web-based systems. While these apps have the potential to revolutionize physical exercise, they must be continuously assessed and optimized to meet the changing demands of users. Fitness apps will be better equipped to help users achieve their physical fitness goals by emphasizing performance tuning, optimizing safety, and adhering to user-centered design. In addition, as shown in several web-based system evaluations, such as in Wahyuni *et al.* (2020) and Muhammad (2023), said that continuous assessment frameworks such as PIECES play a critical role in maintaining their effectiveness and safety [12].

The application of technology in the fitness world has proven to be a powerful tool for improving workout efficiency, user engagement, and athletic performance. Effective use of fitness apps is specific to user performance and experience as well as the relative security of user data, as demonstrated in the studies reviewed. These metrics include load time, speed, and responsiveness, which are critical to user satisfaction as any delay or lag in interaction quickly leads to frustration and abandonment. Overall, the design and layout

of the app, as well as the navigation of that layout, will play a significant role in user retention and overall experience. The PIECES framework, an acronym for performance, information and data, economy, control and security, efficiency, and service, has proven to be a fundamental assessment for fitness apps. Thus, everything from how well the app performs technically to whether it meets user needs in terms of data security and more, is evaluated using this methodology. Evidence from these studies illustrates that fitness apps addressing this balance is a critical development for future growth. Additionally, continuous evaluation, involving feedback from users—such as through surveys, interviews, and more—allows identification of aspects that require improvement, to enhance app features and meet changing user needs, allowing fitness apps to remain relevant, safe, and enjoyable.

5. Conclusion

Based on the explanation of the results and discussion in the previous section based on the PIECES method in analyzing the performance of the SiJaspro application, it was obtained for each variable such as the performance variable getting a value of 4.16 with the SATISFIED category, the information and data variable getting a value of 3.95 with the SATISFIED category, the economic variable getting a value of 3.63 with the SATISFIED category, the control and security variable getting a value of 3.58 with the SATISFIED category, the efficiency variable getting a value of 3.97 with the SATISFIED category, and the service variable getting a value of 3.99 with the SATISFIED category. In addition to using the PIECES method, to analyze the performance of the SiJaspro application using measuring tools such as GTMetrix which measures website speed and displays the test results. It was found that in the GTMetrix test the SiJaspro application was in class B with a performance score of 83% and a website structured score of 95%. Web Vitals containing the Largest Contentful Paint 1.8s which means it takes time to load website pages such as in the hero image or body text section. There is also a Total Blocking Time with a result of 0ms and Cumulative Layout Shift with a result of 0, then the result is that there are no obstacles in the process. In the Control and security variable, a measuring tool is used that functions for the security of the SiJaspro application, the test results did not find any dangerous content, so the SiJaspro application is declared safe to access. It can be concluded that the SiJaspro application is declared efficient and effective as a physical training test tool at Jasdarn II Sriwijaya.

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