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USER EXPERIENCE EVALUATION USING HEURISTIC APPROACH ON SPOTIFY APPLICATION

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ABSTRACT

Spotify is one of the most widely used music streaming service applications in various circles. This application provides various features, such as music playback, playlist creation, podcast, and song recommendations. Although it is popular and has an attractive appearance, in its use there are still some obstacles that can affect the comfort and user experience. Therefore, this research aims to evaluate user experience on the Spotify application using a heuristic evaluation approach. The research method used is a heuristic evaluation based on the ten principles of nielson's usability. Evaluation is carried out by observing the flow of application usage, identifying problems in the interface, and grouping findings based on heuristic aspects. The evaluation results show that Spotify in general already has good usability, but there are still some problems, such as lack of clarity of icons or terms in certain features, inconsistency in the display of some menus and limited system feedback to user actions. Based on these results, this study proposes several improvement recommendations, especially in the aspect of navigation clarity, interface consistency, and information delivery to users. It is hoped that the results of this research can help improve the quality of the Spotify application user experience so that it is easier to use and more comfortable for users.

1. Introduction

In Indonesia there is one of the music streaming platforms which is Spotify [1]. Spotify application is one of the digital music streaming services that offers its users access to millions of songs and other content in several countries legally [2]. Listening to music is now a popular activity for smartphone users. The millennial generation has become the largest market in consuming music streaming applications [3]. This application allows its users to create albums containing favorite songs and can be accessed easily both via mobile phones and Personal Computers [4]. This is also driven by the sophistication of technology so that people who enjoy music can do it online [5].

Digital music that emerged in 2004 has brought new innovations in the business model of the global music industry. With the presence of a music streaming platform, it has made it easier for millions of songs without having to buy a physical album or download songs separately. This digitalization makes music streaming platforms such as Spotify, Apple Music, and Joox increasingly dominate the music market, replacing physical music media. In 2023, Spotify has more than 551 million users, with an average monthly listener reaching 6,6 billion streams, 90% of which are dominated by gen Z and Millennials. The growth of Spotify users in Indonesia is dominated by Generation Z and Millennial, who use Spotify both as a creator and listener [6].

User Interface is a bridge that helps humans to interact directly with a system. User interface development needs to consider various aspects such as comfort, convenience, and a pleasant experience for its users when interacting with the system [7].

User Experience (UX) is a subjective approach to user interaction with the product used, and this approach creates an interactive relationship with the user. User Experience (UX) refers to an individual response after using a certain product, system, application, or service [8]. Creating a User Experience in a principle is an assessment that determines the final level of one's own satisfaction in the assessment of User Experience in the form of satisfaction, comfort for a service, product, etc. By using the User Experience assessment method, it is possible to know what is experienced by a user, ease, and satisfaction when using the web [9].

One of the effective methods used in this context is Heuristic Evaluation. This method is an evaluation technique used to assess the usability of interfaces based on ten heuristic principles developed by Jakob Nielsen [10]. Heuristic Evaluation Method from Jacob Nielsen with 10 usability criteria namely visibility of system status, match between system and the real world, user control and freedom, consistency and standards, recognition rather than recall, flexibility and efficiency of use, aesthetic and minimalist design, help users recognize, diagnose and recover from errors, help and documentation [11]. To find out whether a user experience has been developed properly, tools are needed to measure and evaluate the user experience. One of the measuring tools in evaluating user experience is Usability. Usability refers to how good the user's impression they feel when using the application [3]

Along with the increasing number of users, usability and user experience evaluation becomes an important aspect to ensure comfort and user satisfaction in interacting with the application [12] the usability aspect is something that must be considered where with this convenience people can easily use it without having to find it difficult to access it, considering this application is needed and used by the age range of teenagers to adults [13].

2. Method

2.1. Evaluasi Heuristic

Heuristic Evaluation is an evaluation method that uses usability experts as evaluators to find problems in the system. Each problem finding is analyzed according to the severity (severity rating) to determine the priority of the problem improvement recommendation.

Heuristic evaluation is chosen because heuristic evaluation can be done quickly, easily and at a low cost, compared to other usability evaluations. Heuristic evaluation only uses a small number of heuristic testers, which conducts heuristic evaluation in a short time, so that the costs incurred can be minimized.

The main purpose of heuristic evaluation is to identify problems related to interface design. This method was developed by Jakob Nielsen based on several years of teaching and consulting experience in the field of usability.

Heuristic evaluation is one of the most widely used types of usability evaluation. The popularity of heuristic evaluation is because this evaluation is fast, easy and cheap in implementation. Basically, heuristic evaluation is not easy to do because it is very difficult for an individual to be able to find all usability problems in an interface design. The ten aspects that are assessed in the Heuristic Evaluation method according to Jacob Nielsen and which the author included in his questionnaire are as follows:

Tabel 1. Heuristic Evaluation

No	Variable	Code
1	Visibilityof System Status	X1
2	Match Between System and the Real World	X2
3	User Control and Freedom	X3
4	Consistency and Standards	X4
5	Error Prevention	X5
6	Recognition rather than Recall	X6
7	Flexibility and Efficiency of Use	X7
8	Estetika dan desain yang minimalis	X8
9	HelpUsers Recognize, Diagnoseand Recover from Errors	X9
10	Help and Documentation	X10

2.2 Severy Rating

This Severity Rating can be used to allocate most of the resources to fix the most serious problems and can also provide a rough estimate of the need for countermeasures. Calculation in Heuristic Evaluation using Severity Rating equation which is:

1. Equation One

$$\sum Hx = (0*x)+(1*x)+(2*x)+(3*x)$$

With $\sum Hx$ = total rating score from sub aspect usability in each aspect of usability (H1….H2 H10

x= Usability point, worth 1/0

Next to generate Severity Rating value from each aspect of Usability.

2. Equation Two

$$sv = \sum_{n}^{Hx} -$$

sv = Severity rating results in one aspect of usability

n = The number of usability sub aspects in each usability aspect

Tabel 2. Severity Rating Value Scale

Savery Rating	Information

0	No problems or shortcomings were found in the system.
1	Cosmetic problem category, the problem does not really affect the user. Repairs are not really needed.
2	Minor usability problem category, small usability problem, this improvement is given a low priority.
3	Major usability problem category, main usability problem, important repair is done, therefore it is given high priority.
4	Catastrophe usability category, found fatal error. This repair problem must be done.

3. Results and Discussion

3.1. Validity Test

Validity test using r table with significance 0.05. The questionnaire item is declared valid if r count > r table. with the value of n 30 then get df =28 then get r table of 0,361. It means that if the correlation value is greater than the specified limit then the item is considered valid. If the correlation is determined to be less than the specified amount then the item is considered invalid. The results of the validity test of the ten variables below:

Tabel 3. Vaidity Test Result

Dimensi	Signifikansi	Responden	Rtabel	Result
X1	<.001	30	0.424	Valid
X2	<.001	30	0.536	Valid
X3	<.001	30	0.775	Valid
X4	<.001	30	0.689	Valid
X5	<.001	30	0.631	Valid
X6	<.001	30	0.255	Invalid
X7	<.001	30	0.493	Valid
X8	<.001	30	0.652	Valid
X9	<.001	30	0.777	Valid
X10	<.001	30	0.751	Valid

3.2. Reliability Test

Uji This reliability test is carried out by looking at the score of Cronbach's Alpha formula, the value describes the indicator used in the research using the SPSS 16.0 application. This reliability decision-making method is taken using the 0.6 limit. Reliability less than 0.6 is considered poor while 0.7 is acceptable and 0.8 is good. Reliability test results below:

Tabel 4. Reliability Test Result

Variable	Total questionnaire	Cronbachs Alpha	Result

Questionnaire (X1-X10)	10	0.802	Reliable

3.3. Clasic Assumption Test

1. Normality Test Result

Based on the output results in Figure 1, it can be seen that the data spreads around the diagonal line and the spread follows the direction of the diagonal line, then the total data of the respondent's score is declared to be normally distributed. For that, the researcher makes a conclusion that data processing is declared Normal.

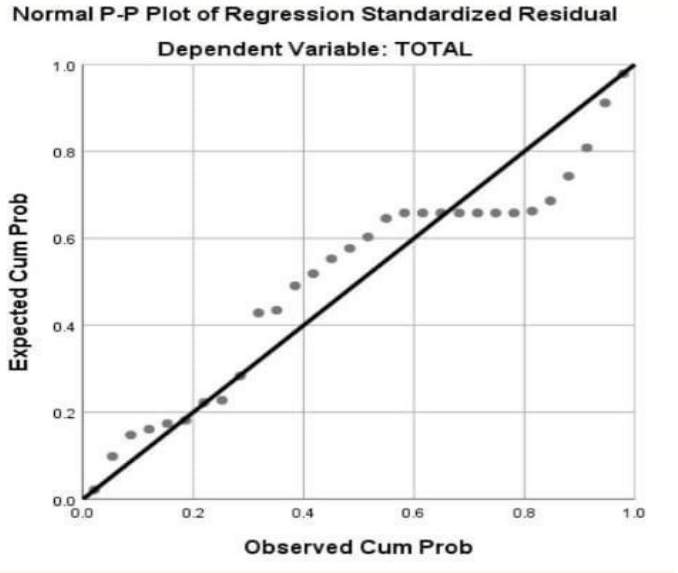

Fig. 1. Graph P-P Normality Test

2. Multikoleneritas Test Results

In the multicollerity test, there is no multicollerity test if the tolerance value is >0.1 and the VIF value is <10, which can be seen in the following table:

Tabel 5. Multikolenaritas Test Result

Variable	Tolerance	VIF	Result
X1	0.549	1.821	There is no multicolinerity
X2	0.433	2.308	There is no multicolinerity
X3	0.264	3.794	There is no multicolinerity
X4	0.357	2.804	There is no multicolinerity
X5	0.277	3.612	There is no multicolinerity
X6	0.492	2.033	There is no multicolinerity
X7	0.387	2.587	There is no multicolinerity
X8	0.380	2.629	There is no multicolinerity
X9	0.203	4.918	There is no multicolinerity
X10	0.300	3.337	There is no multicolinerity

3. Hetoreskedasitas Test Results

This Hetoreskedity test becomes the difference in the residual variance of a period observation in other observations where if the result is sig <0.05 then Hetoreskedity occurs and if the sig value is >0.05 then there is no Hetoreskedity can be seen in figure 4.23 as follows:

Tabel 6. Hetoreskedasitas Test Result

No	Model	Sig	Result
1	*Visibility of System Status*	0.262	There is no heteroskedasity
2	*Match Between System and the Real World*	0.009	There is no heteroskedasity
3	*User Control and Freedom*	0.032	There is no heteroskedasity
4	*Consistency and Standards*	0.687	There is no heteroskedasity
5	*Error Prevention*	0.057	There is no heteroskedasity
6	*Recognition rater than Recall*	0.916	There is no heteroskedasity
7	*Flexibility and Efficiency of Use*	0.138	There is no heteroskedasity
8	*Aesthetic and Minimalist Design*	0.038	There is no heteroskedasity
9	*Help Users Recognize,Diagnose and Recover from Errors*	0.022	There is no heteroskedasity
10	*Help and Documentation*	0.129	There is no heteroskedasity

3.4. Hypotesis Testing Results

1. Test T (Multiple)

The t test aims to determine whether or not there is a partial influence given by the free variable (X) based on the results of the analysis carried out by the researcher as shown in the following table:

Tabel 7. T Test Result

Model	Sig	t table	Hasil
1.Visibility of System Status	0.000	52844720.89	Influential
2.Match Between System and the Real World	0.000	36630887.9	Influential
3.User Control and Freedom	0.000	38703107.8	Influential
4.Consistency and Standards	0.000	53375509.3	Influential
5.Error Prevention	0.000	62631352.6	Influential
6.Recognition rather than Recall	0.000	62462330.4	Influential
7.Flexibility and Efficiency of Use	0.000	53506641.0	Influential

8. Aesthetic and Minimalist Design			Influential
9. Help Users Recognize, Diagnose and Recover from Errors	0.000	51805586.9	Influential
10. Help and Documentation	0.000	43654270.4	Influential
	0.000	60310501.9	

2. F Test

The f test aims to determine whether or not there is an influence given by the free variable (X). The F value in the ANOVA table does not appear because the residual value is 0.000, so the Residual Mean Square is zero and causes the F value to be incalcutable. This happens because the TOTAL variable is the result of direct formation from P01 to P10. This condition is also reinforced by the R Square value of 1,000 and Std. An error of 0.000 on the Model Summary table, which shows that the regression model is a perfect fit, the results of the F test will explain the results of F*h*itung and FTable, the results obtained are as follows:

Tabel 8. Annova F Test Result

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1602.800	10	160.280	.	.[b]
	Residual	.000	19	.000		
	Total	1602.800	29			

Tabel 9. Annova T Test Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	1.000	.000

3.4. Data analysis

Based on the results that have been obtained from the processing of the questionnaire from the 10 variables Heuristic Evaluation shows the user's perception of Sisfo as follows:

Tabel 10. Perception of Using Sisfo

Variabel Heuristic	Code	Mean	Saverity Rating	Information
1. Visibility of System Status	P01	0.73	3.27	Need Repair
2. Match Between System and the Real World	P02	0.90	3.10	Need Repair
3. User Control and Freedom	P03	1.83	2.17	Need Repair
4. Consistency and Standards	P04	2.00	2.00	Need Repair

5.Error Prevention	P05	2.37	1.63	Need Repair
6.Recognition rather than Recall	P06	1.37	2.63	Need Repair
7.Flexibility and Efficiency of Use	P07	1.33	2.67	Need Repair
8.Aesthetic and Minimalist Design	P08	1.47	2.53	Need Repair
9.HelpUsers Recognize, Diagnose and Recover from Errors	P09	1.90	2.10	Need Repair
10.Help and Documentation	P10	2.30	1.70	Need Repair

From the table above, it can be seen that the severity rating value of all variables is in the medium to high problem range. This shows that the system still has some usability problems, so improvement recommendations are needed to improve the quality of user experience.

4. Conclusion

Based on the results of user perception analysis using the Heuristic Evaluation approach, a severity rating value was obtained which showed that most of the variables were at a medium to high problem level. Variable Visibility of System Status and Match Between System and the Real World have the highest severity value, so it becomes the top priority for improvement. Thus, the system is not fully in optimal condition and still needs improvement recommendations to improve the quality of user experience.

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