

# Analysis of Testing Performance Booking Service on Car Buying Website Using PIECES Method Based on User Acceptance Testing in Car Booking Service Companies

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**Abstract**— Car Booking Service Company is engaged in the assembly and distribution of cars, motorbikes and related spare parts, sales of heavy equipment and leasing, mining and related services, plantation development, financial services, infrastructure and information technology (Indonesia Financial Stock Exchange, 2020). The Car Buying and Selling website provides Booking Service facilities so that it can make it easier for customers before coming directly to the Branch. Its performance needs to be tested with User Acceptance Testing and based on an assessment with the LIKERT Scale so that customers are more satisfied with the service. The method used in this research is needed to be a benchmark for testing the performance of the Booking Service on the website at Car Booking Service Company by using the PIECES method which consists of 6 (six) variables, namely (Performance, Information, Economy, Control, Efficiency and Service). The results of the study can show which variables need improvement in analyzing the Booking Service on the Car Buy and Sell website at Car Booking Service Company so that it is expected to know the main problems and be able to improve the quality of the website because as a software development company it is able to display and provide good service. provide a good quality website. The results of the study can show which variables need improvement in analyzing the Booking Service on the Car Buy and Sell website at Car Booking Service Company so that it is expected to know the main problems and be able to improve the quality of the website because as a software development company it is able to display and provide good service. provide a good quality website.

**Keywords**— Analysis, Website, PIECES, UAT.

## I. INTRODUCTION

The Car Service Booking Service Company is a company that has been established since 1957. The Car Workshop Booking Service Company has international standard quality and quantity with a production capability of more than 3,000 units, which are almost scattered throughout cities in Indonesia. In order to simplify and improve the company's performance, better and more efficient technology is needed to continue to be developed and applied to the products of the Car Workshop Booking Service Company.

There are 2 websites that are being developed since 2020 to support the business flow of Buying and Selling Cars at the Car Workshop Booking Service Company and the Car

Workshop Booking Service Company group, namely [www.seva.id](http://www.seva.id) and [www.auto2000.co.id](http://www.auto2000.co.id). One of the Car Workshop Booking Service Company websites that will be researched is [www.seva.id](http://www.seva.id) which provides services for buying and selling used and new cars. The website focuses its services on upgrading used cars with the latest products so as to produce car buying and selling solutions with individual and dealer sales services. Therefore, the website needs to be researched so that its performance will be more efficient.

There are many services available on [www.seva.id](http://www.seva.id), namely New Cars and Used Cars (Dealers and Personal), Test Drive, Financial Services, Financial Credit, Promos, Aftersales: Spare Parts & Acc, Vehicle Certificates, Booking Service and Automotive News, Finance, namely Travel and Lifestyle, Hobbies and Community, Editor's Pick, Galleries, Coverage. The division of testing is usually based on each menu that is interconnected according to the business flow. The feature to be analyzed in this research is the Booking Service feature. In the Car Sale and Purchase Website, bookings can be made before coming directly to the Dealer according to the provided branch. By testing, the user expects the transaction process to be more flexible, accurate information, knowing the Booking Service process is relevant to conventional services, a member account that gets all functional access, an efficient system and a satisfactory online booking service to customers before servicing the car. Therefore, these features need to be researched so that the work of Booking Service on the internet can be improved [www.seva.id](http://www.seva.id) be more optimal.

Analysis of the performance of buying and selling cars at [www.seva.id](http://www.seva.id) with the Performance, Information, Economic, Control, Efficiency, and Service (PIECES) method is used to test the weights of the six variables and produces the lowest weight to see the performance of the website with Manual Testing along with a questionnaire for Users. All of this is done to advance [www.seva.id](http://www.seva.id) and support Car Workshop Booking Service Companies to be even better in data processing and IT Products that are managed according to advanced technological developments so that they are more flexible to be developed and tested regularly.

The purpose of this study is to analyze and improve the performance of the Website with the Booking Service feature so that the website becomes more optimal, the user gets the convenience of managing data according to the data on the server, the Booking Service service can be implemented

correctly according to the features developed so that it is maximally useful for the user. with the PIECES method according to the feature development agreement before UAT.

## II. THEORETICAL BASIC

### A. User Acceptance Testing (UAT)

UAT is the process of verifying that the solution created in the system is suitable for the user. This process is different from testing the system (making sure the software doesn't crash and conforms to the user's request document), but rather ensuring that the solutions in the system will work for the user (that is, testing that the user accepts the solution in the system).

In this study, there is a UAT that distinguishes it from other studies. UAT what the researcher means is to display testing of internal and external users in the IT product. UAT is a very important stage and can affect the level of success of a product later. The success of UAT also determines whether the software developed is feasible to be launched commercially or not. This study hopes that with UAT, maximum performance of the Booking Service feature on the Car Sale and Purchase Website can be produced, but since the website was only developed in 2020 and has not been run by AT regularly, this study tried to test manually and see the results of the analysis based on UAT.

### B. Seva Website

Seva is a platform that provides new car financing services supporting by financing companies and authorized dealers. Seva provides the facility to search the car you want and use a credit calculator to get a credit calculation that is right for you. It is an integrated digital automotive platform, offering a smart way to upgrade for all your car matters. For Example: Test Drive, Financial Services, Financial Credit, Promos, Aftersales: Spare Parts & Acc, Vehicle Certificates, Booking Service and Automotive News, Finance, namely Travel and Lifestyle, Hobbies and Community, Editor's Pick, Galleries, Coverage.

## III. RESEARCH METHODS

### A. Sampling Techniques

The sampling technique used is random sampling. This technique is done by means of samples selected by researchers in this study are Team Leaders or Supervisors, Software Quality Assurance (SQA), internal and external users who have used the Booking Service feature on the Car Sale and Purchase Website based on UAT. In this study, the number of samples was 30 users with Bengkel branches in West Java Province and DKI Jakarta.

### B. Data Source and Collection Technique

The data collection method used two ways. First, Determining Primary Data. The primary data needed in this research is the assessment data from users regarding the Booking Service feature by creating a questionnaire. The results of the questionnaire were taken from the user's assessment of the performance of the Car Buying and Selling Website based on manual testing. The primary data in the

questionnaire contains user identities consisting of gender, age, position, have used the ordering service feature or user ratings based on the weight of each variable (PIECES).

The secondary data needed as a comparison of data to complete this research is Booking Service data from the Car Sales and Purchase Web. The data was obtained by collecting the following data. For Examples are Observation and Interview. Observation is done by observing through UAT directly related to Booking Service research with Manual Testing based on UAT standards and statements from Users as Booking Service users based on the PIECES Method. The interview was conducted by providing several things related to the Internal and External Websites that can be researched and the length of time for the development of the Car Buying Website. Tests are carried out based on the features being tested. Example: The Booking Service feature on the Car Sale and Purchase Website is included in the Testing category in the Team Unit with Manual Testing based on the UAT standard and the PIECES Method to obtain information related to research

### C. Research Instrument

The research instrument used a questionnaire based on the variables in the PIECES method. The calculation of the variables in the PIECES method uses a Likert Scale with 5 SCALES, namely strongly agree, agree, undecided, disagree and strongly disagree. Respondent profiles using variables from gender, age, province, position, have used the booking service feature which statement of the Booking Service Questionnaire on the Car Sale and Purchase Website by Performance; response time, throughput, regulation, filling format, Information; Accurate, Relevant, Economy; Resource, Control; Integrity, Maintenance, Account Security, Efficiency; Usability, Service

#### a. Validity Test

The hypothesis is an allegation of research, in this study using a relationship (associative) which is a statement that shows an assumption about the relationship between two or more variables. Hypothesis testing was carried out on SPSS the results of the Spearman rank correlation coefficient by Determining the Hypothesis Formulation on the presence or absence of a positive relationship between website quality and the PIECES method on user satisfaction.

#### b. Reliability Test

Based on the significance value ( $\alpha$ ), with the following conditions:

- If the significance value is greater ( $>$ ) 0.05, then the relationship between the variables is not significant, which means  $H_0$  is accepted and  $H_1$  is rejected.
- If the significance value is smaller ( $<$ ) 0.05, then the relationship between the variables can be interpreted as significant, which means  $H_0$  is rejected and  $H_1$  is accepted.

### D. Data Analysis

In analyzing the data obtained from the questionnaire with 30 users, the Likert scale was used. This Likert scale is a scale that can be used to measure attitudes, opinions, and perceptions of a person or group of people regarding a symptom or phenomenon. In evaluation, the Likert scale is

used to assess the success of a policy or program, assess the benefits of implementing a policy or program, and determine stakeholder satisfaction with the implementation of a policy or program. Where then determines the use of the average level of satisfaction according to the Likert method using the formula:

$$AS = \frac{TS}{NQ}$$

AS = Average Satisfaction/Interest  
 TS = Total Questionnaire Score (Total Score)  
 NQ = Number of Questionnaires (Number of Questionnaire Questions for each variable)

Kaplan and Norton publish the balanced scorecard through a series of journal articles and the book The Balanced Scorecard. Since the introduction of the original concept, the balanced scorecard (BSC) has become fertile ground for theory development and research. "Balanced scorecard helps organizations to face two fundamental problems, namely measuring organizational performance effectively and implementing strategies successfully". Meanwhile, to determine the percentage or proposition of average satisfaction using the theory of Kaplan & Norton (2000)

#### IV. RESULT

##### Manual Testing along with User Acceptance Testing (UAT) for the Booking Service feature on the Car Sale and Purchase Website

Manual testing of Booking Service and the implementation of UAT by Software Quality Assurance (SQA) is needed to prove that the results of the questionnaire with the test results can be assessed for their performance correctly and fairly. The results of the UAT Booking Service produce a journal containing instructions for testing features and feedback from Internal Users. Initial view of Booking Service as shown below:

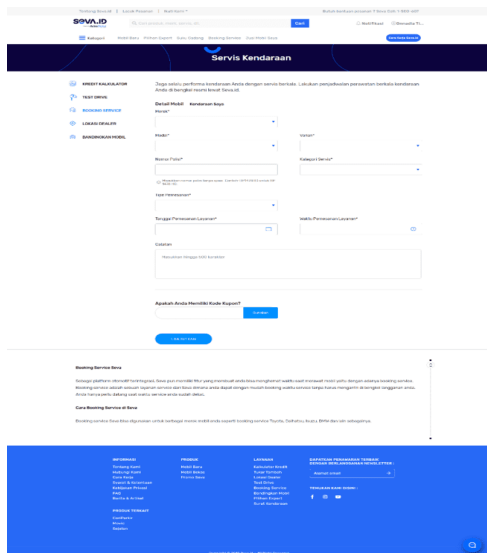


Figure 1: Initial view of the Booking Service feature on the Car Buying and Selling Website

Examples of cases that will be tested with the following data; Kijang Innova Car, Car Plate No. B 1714 KMG, Type G, Service In Branch Order Type, Service Category 8000km,

Domicile in North Bekasi. The test is divided into several detailed scenarios in Booking Service on the Website, including:

##### 1. Choose Car Brand

Before entering the Car Brand, it is necessary to check all available records in that field.

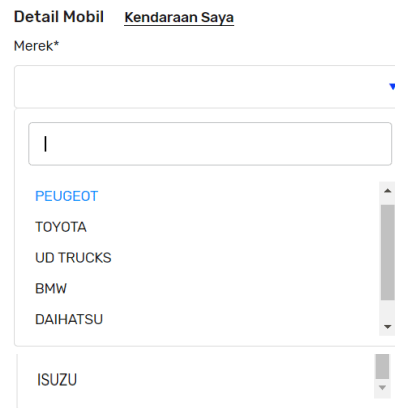


Figure 2: Initial view before choosing a car brand

Choose one of the car brands according to the car to be serviced. SQA or the User can find out through the Website that the Kijang Innova is included in the Toyota brand, so SQA tries to choose according to the data available on the Website.

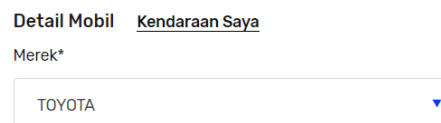


Figure 3: Final View after Choosing a Car Brand

##### 2. Choose Car Model

After selecting the Car Brand, the Car Model is immediately synchronized that the Toyota car brand has many Car Models. SQA chooses to display an image from the beginning and end of the existing data.

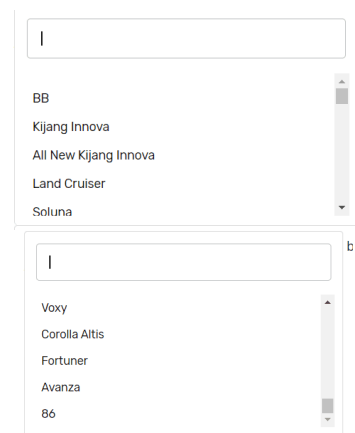


Figure 4: Initial view before choosing a car model with a Toyota car brand

SQA choose the Kijang Innova Car Model.

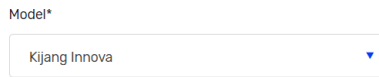


Figure 5: Final View after Selecting a Car Model

3. Choose Car Variant

User can choose a car variant according to the car to be serviced.

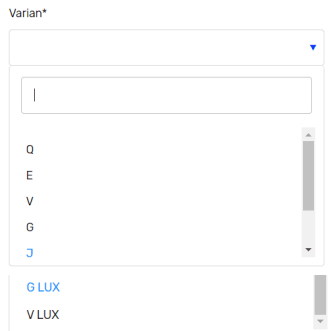


Figure 6: Final View before Choosing a Car Variant

The customer's car variant is G.



Figure 7: Final View after Selecting a Car Variant

4. Input Car Police Number

Police Numbers can be inputted with free text and predefined data formats.



Figure 8: Initial Display before Inputting Car Police Number

Police number can be inputted with free text without being detected whether the police number is correct or not.

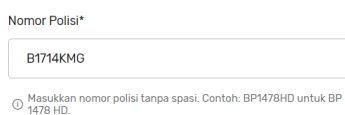


Figure 9: Final Display after Inputting Car Police Number

5. Selecting a Service Category

There are many service categories based on the kilometers (km) the car has traveled to be serviced.

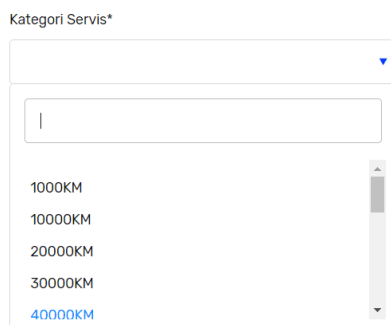
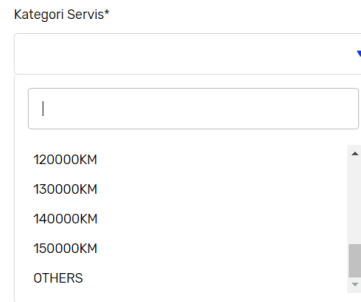



Figure 10: Final Screen before Selecting Service Category

Km is selected based on the distance traveled by the car.



Figure 11: Final Screen after Selecting Service Category

6. Choose Order Type

There are 2 types of booking types according to the Booking Service order that will be selected.

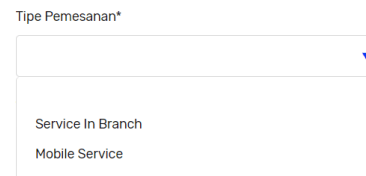


Figure 12 : Initial Screen Before Selecting an Order Type

The type of order chosen is Service in Branch because it will be serviced at the designated branch dealer.



Figure 13: Final Screen after Selecting Order Type

7. Selecting Province

Select the province available on the Website.

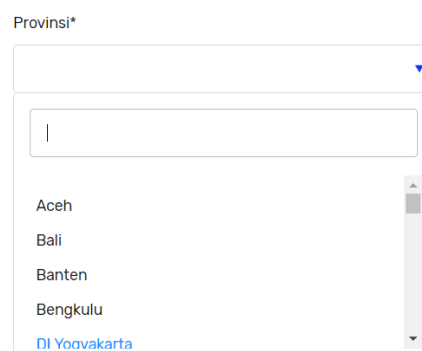




Figure 14: Initial Display before Selecting Province

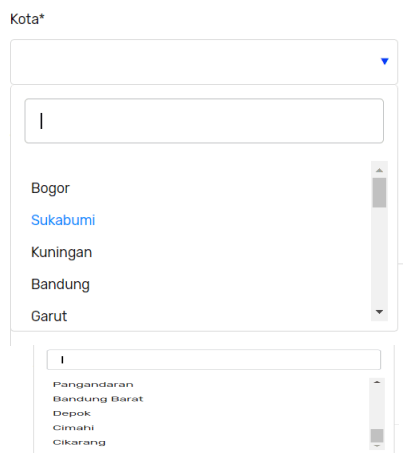
The choice of West Java was because the location of the city of North Bekasi was included in the province.



Figure 15: Final Screen after Selecting Province

### 8. Choose a City

Cities can be selected based on the selected province.



Bekasi City is located in West Java Province.



Figure 16: Final View after Selecting a City

### 9. Choose a Branch

Choose Branches available in West Java Province and North Bekasi City.

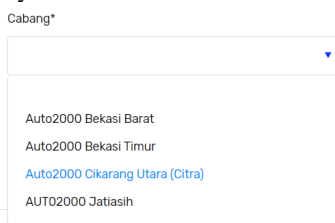


Figure 17: Initial View before Selecting a Branch

The closest West Bekasi branch from North Bekasi.

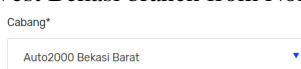


Figure 18: Final View after Selecting Branch

### 10. Selecting Service Order Date

The Service Order Date can be selected based on the date on the Online calendar available on the Website.



Figure 19: Initial View before Selecting an Order Date

The Service Order Date is adjusted to the date the customer will be serviced at the direct dealer.

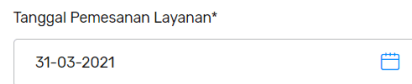


Figure 20: Final View after Selecting Order Date

### 11. Choose Ordering Hours

Ordering Hours are required to determine the schedule at the Dealer.

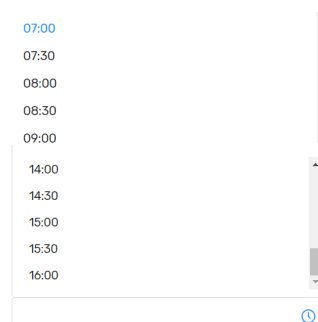


Figure 21: Initial Display before Selecting Service Order Time

The specified booking schedule is 07:00 am.

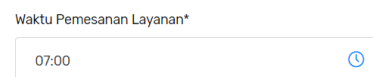


Figure 22: Final View after Selecting Service Order Time

### 12. Input Notes

Notes for the cashier can be inputted for free text if there is something to be conveyed according to the Booking Service performed by the customer.



Figure 23 : Initial Display before Input Notes

The record was successfully entered.



Figure 24: Final Display after Input Notes

### 13. Input Coupon Code

This feature is being developed by the Developer so that customers who have Coupon Codes can enjoy the service.

Apakah Anda Memiliki Kode Kupon?




Figure 25: Display If you have Coupon Code

14. Check Order Booking Service Details

After finishing inputting all the data, then the final display as a whole can be checked for data and click the continue button.

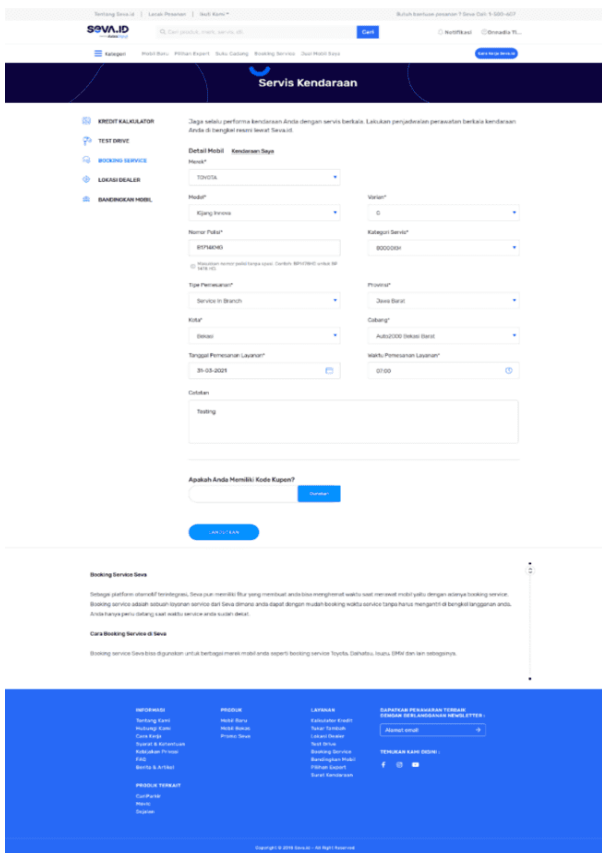


Figure 26: Final Display after Completed Input All Data

16. Confirm Order Booking Service

After sending the Order Booking Service, confirmation of the title of madam or sir is carried out.

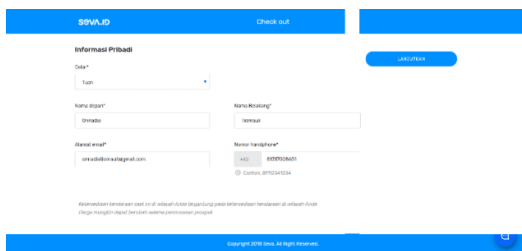


Figure 27: Confirmation Display after Clicking the Continue Button

Display after selecting the title of madam.

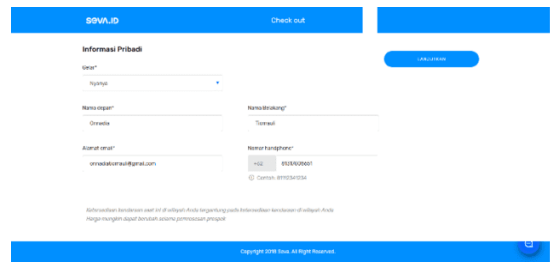


Figure 28: Confirmation Display after Selecting the Title of Madame

17. One Time Password (OTP) Verification

OTP This is done to ensure that the registered cellular number is appropriate so that the cashier can contact the number if there are obstacles and become a step that must be passed as the final confirmation of the Order Booking Service.

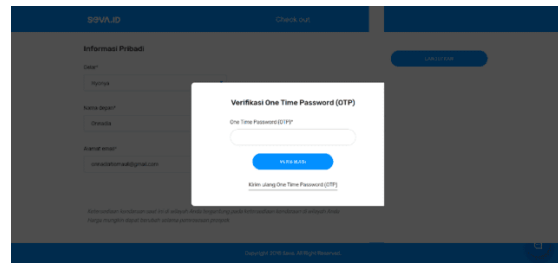


Figure 29 : Display of One Time Password (OTP) Verification

19. Order Booking Service notification was successful on the Car Buying Website

The notification is successful if it displays the Order number, car brand and car variant on the Car Sale and Purchase Website.

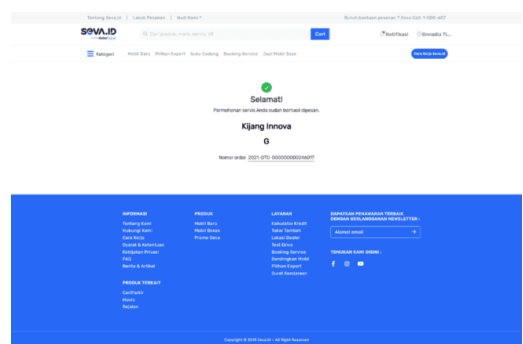


Figure 30: Display of Successful Booking Service Notifications

20. Order Booking Service notification was successful in Email

In addition to notifications on the Website, there is a notification of order details in the Email.

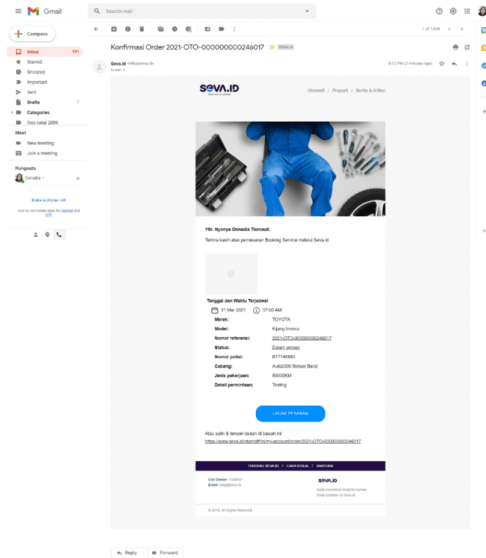


Figure 31: Display of Order Booking Service Confirmation Successful

**Results of the PIECES. Method Questionnaire Recap**

The statement is taken based on the PIECES method and the weight value is based on the Likert Scale, then the results of the Booking Service performance statement are as follows:

**1. Performance**

The overall performance of the Booking Service feature on the Car Buying Website

**A. Response Time**

The overall speed of access in the Booking Service feature on the Buying and Selling Car Website.

**B. Throughput**

The amount of output that can be produced in a certain period of time.

**C. Regulation**

Regulations in the Booking Service on the Car Sale and Purchase Website based on requests and agreements from users and company facilities.

**D. Charging Standard**

The filling format requires clear instructions so that it is easy for the user to understand.

The average number in the Performance variable is calculated based on the weight of the total answers in each description multiplied by the weight of the range of values that have been determined according to the Likert Scale.

$$\begin{aligned} \bar{x} &= (0 \times 1) + (0 \times 2) + (22 \times 3) + (71 \times 4) + (37 \times 5) \\ &= 535 = 3.82 \\ &140 \end{aligned}$$

The average calculation result based on the questionnaire statement shows that the Performance value of the Booking Service feature is 3.82 with PUAS information.

**2. Information**

Information generated by the Booking Service feature on the Buying and Selling Car Website.

**A. Accurate**

Seeing the accuracy of the information provided by the Booking Service feature on the Website with the facts that occurred at the Dealer.

**B. Relevant**

The information provided by the Booking Service feature on the Website is in accordance with the needs of the User in the Service in Branch.

The average amount in the Information variable is calculated based on the weight of the total answers in each description multiplied by the weight of the range of values that have been determined according to the Likert Scale.

$$\begin{aligned} \bar{x} &= (0 \times 1) + (8 \times 2) + (4 \times 3) + (33 \times 4) + (11 \times 5) \\ &= 215 = 3.83 \end{aligned}$$

The average result of the calculation based on the questionnaire statement shows that the value of Information on the Booking Service feature is 3.83 with PUAS information.

**3. Economy**

See how the Booking Service service makes it easier for users from the economic side

**A. Resource**

The average number in the Economic variable is calculated based on the weight of the total answers in each description multiplied by the weight of the range of values that have been determined according to the Likert Scale.

$$\begin{aligned} \bar{x} &= (0 \times 1) + (0 \times 2) + (3 \times 3) + (18 \times 4) + (7 \times 5) \\ &= 116 = 4.14 \\ &28 \end{aligned}$$

The average calculation result based on the questionnaire statement shows that the Economic value of the Booking Service feature is 4.14 with PUAS information.

**4. Control**

The Booking Service feature provides services that can be controlled according to company facilities.

**A. Integrity**

The Booking Service feature has integrity that can be maintained and is accountable to the User.

**B. Maintenance**

The Booking Service feature must be repaired or added features according to the needs and feedback of the User's assessment.

**C. Privacy Account**

User accounts must be guaranteed privacy.

The average number in the Control variable is calculated based on the weight of the total answers in each description multiplied by the weight of the range of values that have been determined according to the Likert Scale.

$$\begin{aligned} \bar{x} &= (1 \times 1) + (4 \times 2) + (11 \times 3) + (51 \times 4) + (17 \times 5) \\ &= 331 = 3.94 \\ &84 \end{aligned}$$

The average result of the calculation based on the questionnaire statement shows that the Control value of

the Booking Service feature is 3.94 with information PUAS.

5. *Efficiency*

Measuring the efficiency of the Booking Service feature on the Car Buying Website, especially for Users

A. Usability

Measuring the overall benefits of Booking Service on the Buying and Selling Car Website for Users. This feature can only be used for customers who log in using an email account and verify mobile number.

The average in the Efficiency variable is calculated based on the weight of the total answers in each description multiplied by the weight of the range of values that have been determined according to the Likert Scale.

$$\bar{x} = \frac{(0 \times 1) + (0 \times 2) + (6 \times 3) + (17 \times 4) + (5 \times 5)}{28} = \frac{111}{28} = 3.96$$

The average result of the calculation based on the questionnaire statement shows that the Efficiency value of the Booking Service feature is 3.96 with information PUAS.

6. *Service*

Measuring service in the Booking Service feature is easy for users to understand

A. *User Friendly*

The average in the Service variable is calculated based on the weight of the total answers in each description multiplied by the weight of the range of values that have been determined according to the Likert Scale.

$$\bar{x} = \frac{(0 \times 1) + (0 \times 2) + (3 \times 3) + (18 \times 4) + (7 \times 5)}{28} = \frac{116}{28} = 4.14$$

The results of the analysis of the Booking Service feature on the Car Sale and Purchase Website based on 6 variables in the PIECES Method, namely:

V. CONCLUSION

The average result of the calculation based on the questionnaire statement shows that the value of the Booking Service feature is 4.14 with information SATISFIED.

The conclusion of all these variables shows that all variables with an average SATISFIED assessment with a score of 3.97. 1 The variable that needs improvement for better service lies in the Performance variable with a score of 3.82 and the description of SATISFIED.

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TABLE 1: Recap of Booking Service Analysis Results using the PIECES method

| No | Aspects of PIECES Penilaian Assessment | Score | Indicator |
|----|--|-------|-----------|
| 1. | <i>Performance</i>                     | 3.82  | SATISFIED |
| 2. | <i>Information</i>                     | 3.83  | SATISFIED |
| 3. | <i>Economy</i>                         | 4.14  | SATISFIED |
| 4. | <i>Control</i>                         | 3.94  | SATISFIED |
| 5. | <i>Efficiency</i>                      | 3.96  | SATISFIED |
| 6. | <i>Service</i>                         | 4.14  | SATISFIED |