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Application of Importance Performance Analysis Method For Service Identification in the Learning Process

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***Abstract*--The learning process is a series of activities and interactions that occur as individuals acquire new knowledge, skills, attitudes or understanding through various means. Responses and feedback in the context of the classroom, practical experience or other learning resources are integral to this process. The Importance Performance Analysis (IPA) method is used to identify, measure, and evaluate the importance and performance of components in a system or organization. This study proposes a web-based application, namely Application of Importance Performance Analysis Method, to digitize the process of identifying service attributes in learning at the Faculty of Engineering, De La Salle Catholic University Manado. Using the IPA method, this application assists decision makers in formulating effective strategies and policies to improve the quality of education. The method used to develop this application is the Rapid Application Development method. This solution overcomes complicated data processing problems and provides convenience in compiling reports on the learning process every semester.**

***Key Words*: Learning Process, Education Quality, Importance Performance Analysis (IPA).**

I. Introduction

The learning process is a series of activities and interactions that occur when individuals acquire new knowledge, skills, attitudes or understanding through various means. This process involves response and feedback that can occur in a variety of contexts, such as in the classroom, through practical experience, or other learning resources. In a learning process to identify service attributes, there needs to be a method that can get results from these attributes. Service attribute identification involves determining the specific characteristics or elements that make up a service. These service attributes include various aspects that affect the quality and user experience of a service. By identifying service attributes, service providers can better understand the needs and expectations of customers, and design and improve their services accordingly [1], [2].

Importance Performance Analysis (IPA) method is an analytical method used to identify, measure, and evaluate the level of importance and performance of various components in a system or organization [1]. This method helps in determining the most crucial or important factors in achieving certain goals in a system or organization. IPA is commonly used for analysis in various contexts, including education, business, manufacturing, and other sectors. The IPA method assists decision-makers in determining where resources and efforts should be focused to improve the quality of education [3]. The results of an IPA analysis can provide a clearer view of the most impactful elements in achieving education quality in the form of a cartesian diagram, and help decision-makers formulate more effective strategies and policies [4].

Previous research application of service quality methods, importance performance analysis and quality function deployment in the development of service quality of industrial engineering study programs Unissula Semarang [5], analysis of alumni satisfaction with academic services with the web-based importance performance analysis method case study: CIC University [6], analysis of the quality of the e-learning website of the national development university of veteran jakarta towards user satisfaction using the webqual 4.0 method and importance-performance analysis based on student perspectives [7]. These previous studies form the basis for the application of IPA for the identification of learning process services. The research also shows that service quality affects student satisfaction and loyalty.

Several educational institutions, like Universitas Katolik De La Salle Manado, a higher education institution that actively engages in the learning process for a year, naturally require the identification of service attributes. This university has 7 faculties and 13 study programs in total. The Faculty of Engineering is one of the faculties

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in the university and has 4 departments, namely Informatics Engineering, Industrial Engineering, Civil Engineering, and Electrical Engineering. The service identification in the learning process, which is implemented in the Faculty of Engineering, is currently conducted manually by UPMF (Faculty Quality Assurance Unit), the Dean of the Faculty of Engineering, and the Head of the Study Program. This process is divided into two assessment parts: 1) importance, consisting of 31 instruments assessed by faculty leaders, and 2) performance, consisting of 31 instruments assessed based on classroom supervision results. The results obtained are subsequently entered into Microsoft Excel for processing, utilizing the formulas already in place. Upon receiving the outcomes, the Faculty of Engineering must once again categorize them into 31 groups as depicted in the generated diagram. Once this categorization is complete, it will simplify the process of generating reports on the learning process for the Faculty. To update the current data, a new file must be generated using the established template, and the new data must be inputted. This procedure is conducted every semester.

Based on the explanation above, a solution is needed to overcome the existing problems at the Faculty of Engineering, so through this research, an application was built, namely "Application of Importance Performance Analysis Method for Service Identification in Web-Based Learning Process" by utilizing the IPA method so that the process and data can be digitized for each semester and utilized by UPMF (Faculty Quality Assurance Unit), Dean of the Faculty of Engineering, and Head of Study Program (KPS).

II. METHOD

This research aims to identify the quality of educational services using the important performance analysis method, while for system development using the rapid application development method. The data used in this research comes from classroom supervision instruments. Meanwhile, the data to be processed is data from the results of classroom supervision that has been carried out in one semester.

A. Importance Performance Analysis Method

IPA is a collection of service-related instruments, evaluated based on how important each instrument is to consumers, their attitudes towards the service, and the relative performance of each instrument [8]. This analysis method is a useful management tool in designing management strategies [9], especially in education. This analysis compares consumers' assessment of the importance of service quality (Importance) with the level of service performance (Performance) [10]. To calculate the average overall consumer assessment, a matrix can be used, which is often referred to as a Cartesian diagram. For the scale of this IPA method using a categorical scale related to category or group data, a categorical scale can be used. Importance Performance Analysis identifies four quadrants as improvement priorities [1], [11], [12].

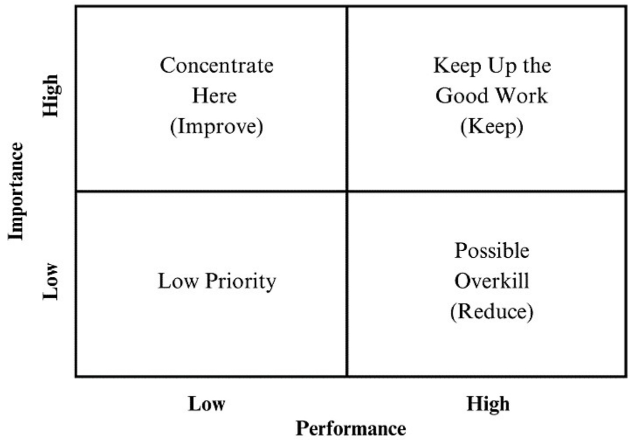

Fig. 1. Cartesian Graph [1]

The level of conformity is the result of the division between the perception score and the expectation score [13]. The calculation of the level of conformity aims to measure the relationship between perceptions of educational performance, which is assessed by the leadership of the Faculty of Engineering and represented by the symbol Y. Meanwhile, the score of the assessment of utilization expectations from respondents is represented by the symbol X. The formula to use is [1]:

$$\text{Tki} = \frac{\text{Xi}}{\text{Yi}} \times 100\% \qquad (1)$$

Description:

Tki = Level of conformity

Xi = Performance perception assessment score

Yi = Assessment score of respondents' expectations

The horizontal axis (X) will be filled in by the perception level score, while the upright axis (Y) will be filled in by the expectation level score. In simplifying the formula, each instrument that affects customer satisfaction can be known by the formula [1]:

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$$Tk_i\text{Total} = \frac{\Sigma Xi}{\Sigma Yi} \text{x } 100\% \quad (2)$$

Cartesian diagrams are used to determine service indicators that satisfy or dissatisfy consumers. The formula used is [1]:

$$\bar{x} = \frac{\Sigma_i^n = 1\, \bar{X}i}{K} \quad (3) \qquad \bar{x} = \frac{\Sigma_i^n = 1\, \bar{Y}i}{K} \quad (4)$$

K = The number of instruments/facts that can affect customer satisfaction.

B. Software Development Methodology

Rapid Application Development (RAD) is defined as an approach to software development that emphasizes rapid and iterative development [14]. This approach is used to allow users to perform software development in less time and more flexibly than traditional methods [15]. In RAD, the main focus is on rapid prototype development and iteration based on user feedback, allowing for rapid change and responsiveness to evolving business needs [16].

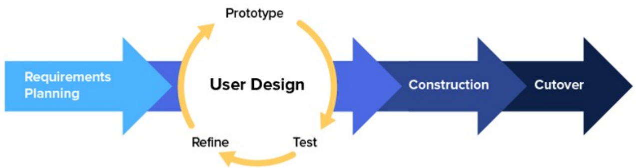

Fig. 2. Phases of RAD [16]

Here are the phases of RAD [17]:

1. Requirements Planning: In this phase, the author will identify user needs and requirements of the system to be built. The author will also determine the scope of the project, the resources required, and the development schedule.
2. User Design: The first stage that will be carried out in this phase is prototyping. The author will initially create a software prototype that can be used to get feedback from users. After that, the user interface (UI) will be developed focusing on the needs of the target users. After that, a prototype validation process will be carried out to ensure compliance with the needs.
3. Construction: In this phase, the author will create a rapid and iterative development of the software using a predefined programming language. Once the system is built, it will be tested continuously during development to detect and address problems early.
4. Cutover: In this phase, the software will be moved from the development environment to the production environment. This stage will involve training the users so that they can use the software effectively. Once everything has been done, it will be evaluated to ensure effective maintenance.

III. RESULT AND DISCUSSION

Application development was done by applying the IPA method to identify services in the learning process at the Faculty of Engineering using UPMF Staff, Supervisors, Dean, UPMF Head, and KPS. The results of the IPA analysis can provide a clearer view of the most impactful elements in achieving educational quality in the form of Cartesian diagrams, and assist decision makers in formulating more effective strategies and policies.

A. Data Source

The data taken comes from the average assessment given by leaders in the Faculty of Engineering (as Importance data) and the results of supervision carried out to lecturers (as Performance data) in the odd 2022/2023 academic year. Table I contains the importance of data whose values come from faculty leaders and study programs in accordance with the supervision instrument. In the instrument there are 31 questions related to educational services. The description:

RS : Ryan Singgeta, S.T, M.Sc - Head of Electrical Engineering Study Program.
TT : Triyadi Tumewu, S.T, M.Sc. - Head of Industrial Engineering Study Program.
RR : Ronald Rachmadi, S.T, M.T. - Dean of Faculty of Engineering.
VK : Vivie Kumenap, S.T., M.Cs. - Head of Informatics Engineering Study Program.
FW : Ferry Wantouw, S.T, M.T - Head of Civil Engineering Study Program.

Table II contains data on the results of classroom supervision in each study program in the Faculty of Engineering. The description:

■ : Informatics Engineering
■ : Civil Engineering
■ : Electrical Engineering
■ : Industrial Engineering

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TABLE I
Importance Data

No.	RS	TT	RR	VK	FW	Average
1.	5	4	4	4	5	4,40
2.	4	5	5	5	4	4,60
3.	5	5	5	5	4	4,80
4.	5	5	5	5	5	5,00
5.	4	4	3	5	5	4,20
6.	5	4	5	5	5	4,80
7.	5	4	5	5	5	4,80
8.	4	4	5	5	5	4,60
9.	5	4	5	4	5	4,60
10.	4	4	5	5	4	4,40
11.	3	4	5	5	4	4,20
12.	5	5	5	4	5	4,80
13.	5	4	4	5	5	4,60
14.	4	4	5	4	4	4,20
15.	5	5	4	5	4	4,60
16.	4	5	5	5	4	4,60
17.	4	3	4	5	5	4,20
18.	5	4	5	5	5	4,80
19.	4	4	4	4	4	4,00
20.	5	4	4	5	4	4,40
21.	5	4	4	5	5	4,60
22.	5	5	5	5	5	5,00
23.	5	4	4	4	5	4,40
24.	4	4	5	4	4	4,20
25.	5	5	4	4	5	4,60
26.	5	5	4	5	5	4,80
27.	4	4	5	5	5	4,60
28.	4	5	4	5	4	4,40
29.	4	4	4	5	4	4,20
30.	4	4	4	5	5	4,40
31.	5	5	5	4	5	4,80

B. Sample

The determination of the sample size was carried out using the Slovin formula [5], which is useful for determining the minimum sample size (n) taking into account the population (N) at the significance level α.

$$n = \frac{N}{1+Ne^2} \quad (5)$$

n = number of samples
N = total population
e = error tolerance

Universitas Katolik De La Salle Manado, especially the Faculty of Engineering with total data on active lecturers in 2023 is 38 lecturers.

$$n = \frac{38}{1+38\,(0{,}15)^2} = 20{,}485$$

Based on the calculations above, 20 lecturers in the engineering faculty were taken as respondents.

C. Implementation of the IPA method

In this section, a manual calculation of the algorithm is carried out to obtain the results of the learning process that takes place in the Faculty of Engineering.

1. First stage

Calculate the value of the appraisal conformity level. For the manual calculation of Attribute 1, based on importance data and performance data, the calculation details can be seen in Table III (importance data), Table IV (performance data), and Table V recap of the overall calculation of attributes 1 to 31.

$$X_i = (4x3) + (5x2) = 22$$

$$Y_i = (4x1) + (5x19) = 99$$

$$Tk_i = \frac{Xi}{Yi} \text{ x } 100\%$$

$$Tk_i = \frac{22}{99} \text{ x } 100\%$$

$$Tk_i = 0{,}2\%$$

2. Second stage

Calculate the total assessment suitability level value.

ΣXi = 702 – Total Importance
ΣYi = 2791 – Total Performance

$$Tk_i\text{Total} = \frac{702}{2791} \text{ x } 100\% = 0{,}251\%$$

3. Third stage

Calculating the Average Score of the Assessment Level and Cut Point. The average value of importance and performance is taken from the results of the assessment conducted by the supervisor whose overall value is summed up and divided by the number of attributes of the assessment.

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TABLE II
Performance Data

No.	Id Responden Data																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
2.	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
3.	3	5	5	4	5	4	5	5	5	5	5	4	4	5	4	3	5	5	5	5
4.	5	5	5	5	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
5.	3	5	4	3		4	5	5	5	5	5	5	5	4	4	4	5	5	5	5
6.	4	5	4	4	5	5	5	5	5	5	4	5	5	5	5	5	5	5	1	5
7.	4	5	5	5	2	5	5	5	5	5	4	5	3	5	5	5	1	2	1	5
8.	4	5	5	5	3	4	5	5	5	5	4	5	5	5	5	5	3	2	1	5
9.	5	5	4	5	5	4	5	5	5	5	4	5	5	5	5	5	3	2	1	4
10.	4	5	5	4	4	4	5	5	5	5	5	5	5	5	5	5	3	2	2	4
11.	4	4	5	5	4	4	4	5	5	5	3	5	5	5	5	4	4	4	2	5
12.	3	5	5	5	5	5	5	5	5	5	3	5	4	5	5	5	5	5	5	5
13.	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
14.	3	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
15.	3	4	5	5	4	4	5	5	5	5	5	5	5	5	5	5	5	4	5	5
16.	5	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
17.	5	5	5	5	5	5	5	5	5	5	5	3	5	5	4	5	5	5	5	5
18.	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
19.	4	5	5	4	4	4	4	5	5	5	4	5	5	5	4	4	5	5	4	5
20.	5	5	5	5	5	4	4	5	5	5	4	5	3	5	5	5	3	4	3	5
21.	5	5	5	4	5	4	5	5	5	5	5	5	5	4	5	4	5	5	1	5
22.	5	5	4	5	5	4	5	4	5	5	5	5	5	5	5	4	5	5	5	5
23.	4	5	5	5	5	4	4	4	5	5	5	5	4	5	5	5	3	5	3	4
24.	2	3	5	5	4	5	5	4	5	5	4	5	5	4	4	5	5	4	3	4
25.	4	5	5	4	5	5	5	5	5	5	4	5	3	5	5	4	5	5	5	5
26.	4	4	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
27.	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	3	5
28.	4	5	5	5	4	5	4	5	5	5	4	5	4	5	5	5	5	5	3	5
29.	4	5	5	5	5	5	5	5	4	5	5	5	5	4	5	5	5	5	4	5
30.	4	4	4	4	5	5	5	5	5	5	5	5	4	5	4	5	5	5	5	5
31.	5	5	5	5	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

TABLE III
Data Importance Attribute 1

Scoring scale	1	2	3	4	5	Amount
Charging Amount	0	0	0	3	2	5

TABLE IV
Data Performance Attribute 1

Scoring scale	1	2	3	4	5	Amount
Charging Amount	0	0	0	1	19	20

a. Faculty of Engineering

Table VI contains the average value of the importance values and performance values. The average value obtained will then be summed up and calculated using the formula below in order to obtain the intersection point of the x-axis (importance) and y-axis (performance).

$$\bar{Y} = \frac{\sum_i^n = 1\ \bar{X}i}{K} = \frac{140,40}{31} = 4,53$$

$$\bar{X} = \frac{\sum_i^n = 1\ \bar{Y}i}{K} = \frac{144,45}{31} = 4,65$$

The results of x and y points are obtained as shown in Fig. 3. It illustrates a research sample focusing on the Faculty of Engineering, where quadrant I indicates 12 assessment tools requiring maintenance, while quadrant II highlights 6 assessment tools in need of improvement.

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TABLE V
Importance and Performance Attribute Assessment Data

Attri-bute	Importance						Performance					
	1	2	3	4	5	Total	1	2	3	4	5	Total
AT1	0	0	0	3	2	5	0	0	0	1	19	20
AT2	0	0	0	2	3	5	0	0	0	0	20	20
AT3	0	0	0	1	4	5	0	0	2	5	13	20
AT4	0	0	0	0	5	5	0	0	1	0	19	20
AT5	0	0	1	2	2	5	0	0	2	5	12	20
AT6	0	0	0	1	4	5	1	0	0	4	15	20
AT7	0	0	0	1	4	5	2	1	2	2	13	20
AT8	0	0	0	2	3	5	1	1	2	3	13	20
AT9	0	0	0	2	3	5	1	1	1	4	12	20
AT10	0	0	0	3	2	5	0	2	1	5	12	20
AT11	0	0	1	2	2	5	0	1	1	8	10	20
AT12	0	0	0	1	4	5	0	0	2	4	16	20
AT13	0	0	0	2	3	5	1	1	0	2	18	20
AT14	0	0	0	4	1	5	0	0	0	1	18	20
AT15	0	0	0	2	3	5	0	0	1	3	16	20
AT16	0	0	0	2	3	5	0	0	0	1	19	20
AT17	0	0	1	2	2	5	0	0	1	1	18	20
AT18	0	0	0	1	4	5	0	0	0	0	20	20
AT19	0	0	0	5	0	5	0	0	0	9	11	20
AT20	0	0	0	3	2	5	0	0	3	4	13	20
AT21	0	0	0	2	3	5	1	0	0	4	15	20
AT22	0	0	0	0	5	5	0	0	0	5	15	20
AT23	0	0	0	3	2	5	1	0	2	6	10	20
AT24	0	0	0	4	1	5	0	1	2	6	11	20
AT25	0	0	0	2	3	5	0	0	1	4	15	20
AT26	0	0	0	1	4	5	0	0	0	5	15	20
AT27	0	0	0	2	3	5	0	0	1	1	18	20
AT28	0	0	1	5	13	5	0	0	1	5	14	20
AT29	0	0	0	4	1	5	0	0	0	4	16	20
AT30	0	0	0	3	2	5	0	0	0	6	14	20
AT31	0	0	0	1	4	5	0	0	1	0	19	20

b. Informatics Engineering

Based on existing data and using the same calculations, the average values obtained will then be summed up and calculated using the formula below in order to obtain the intersection point of the x-axis (importance) and y-axis (performance).

$$\bar{Y} = \frac{\sum_i^n = 1\,\bar{X}i}{K} = \frac{140{,}40}{31} = 4{,}53$$

$$\bar{X} = \frac{\sum_i^n = 1\,\bar{Y}i}{K} = \frac{145{,}76}{31} = 4{,}67$$

Fig. 4 shows a research sample pertaining to Informatics Engineering, wherein there are 11 evaluation tools requiring maintenance and 7 evaluation tools in need of improvement.

TABLE VI
Average Value of Importance and Performance Faculty of Engineering

No.	Importance	Performance
1.	4,33	4,95
2.	4,67	5,00
3.	5,00	4,55
4.	5,00	4,90
5.	3,67	4,53
6.	4,67	4,60
7.	4,67	4,10
8.	4,33	4,30
9.	4,67	4,32
10.	4,33	4,35
11.	4,00	4,35
12.	5,00	4,74
13.	4,33	4,95
14.	4,33	4,84
15.	4,67	4,74
16.	4,67	4,95
17.	3,67	4,84
18.	4,67	5,00
19.	4,00	4,58
20.	4,33	4,44
21.	4,33	4,58
22.	5,00	4,79
23.	4,33	4,44
24.	4,33	4,32
25.	4,67	4,68
26.	4,67	4,74
27.	4,33	4,85
28.	4,33	4,63
29.	4,00	4,80
30.	4,00	4,70
31.	5,00	4,90
Total	140,40	144,45

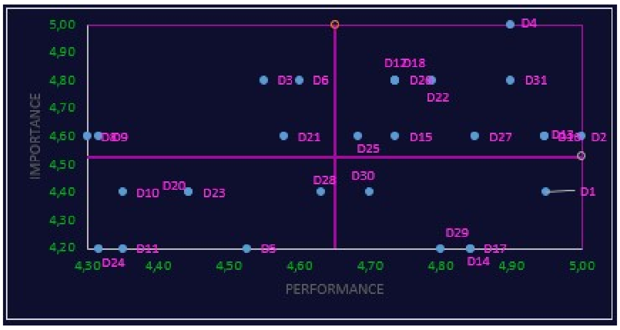

Fig. 3. Cartesian Diagram of the Faculty of Engineering

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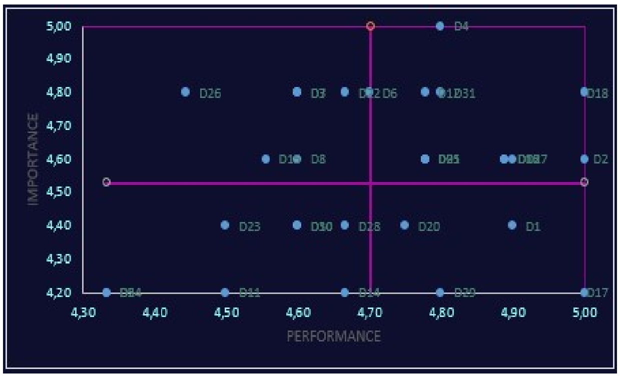

Fig. 4. Cartesian Diagram of the Informatics Engineering

c. Civil Engineering

The intersection point:

$$\overline{Y} = \frac{\sum_i^n = 1\,\bar{X}i}{K} = \frac{140,40}{31} = 4,53$$

$$\overline{X} = \frac{\sum_i^n = 1\,\bar{Y}i}{K} = \frac{147,25}{31} = 4,75$$

Fig. 5 shows a research sample for the Civil Engineering, in which there are 10 assessment instruments that need to be maintained, and 4 assessment instruments that must be improved.

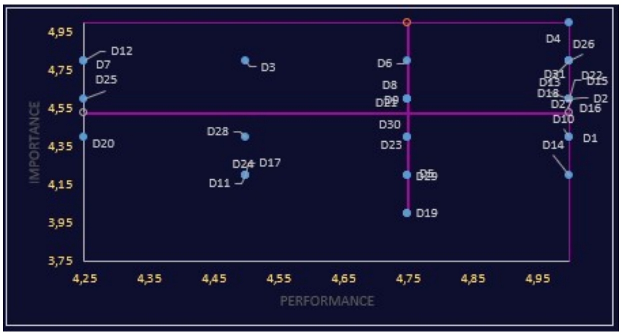

Fig. 5. Cartesian Diagram of the Civil Engineering

d. Industrial Engineering

The intersection point:

$$\overline{Y} = \frac{\sum_i^n = 1\,\bar{X}i}{K} = \frac{140,40}{31} = 4,53$$

$$\overline{X} = \frac{\sum_i^n = 1\,\bar{Y}i}{K} = \frac{150,00}{31} = 4,84$$

Fig. 6 depicts a research sample concerning Industrial Engineering, indicating 12 assessment tools requiring maintenance and 6 assessment tools in need of improvement.

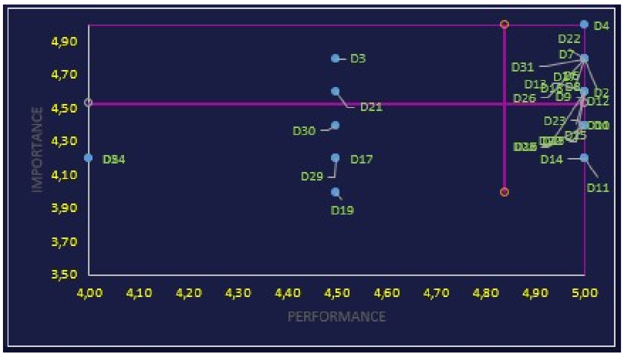

Fig. 6. Cartesian Diagram of the Industrial Engineering

e. Electrical engineering

The intersection point:

$$\overline{Y} = \frac{\sum_i^n = 1\,\bar{X}i}{K} = \frac{140,40}{31} = 4,53$$

$$\overline{X} = \frac{\sum_i^n = 1\,\bar{Y}i}{K} = \frac{136,75}{31} = 4,41$$

Fig. 7 displays a research sample pertaining to Electrical Engineering is presented, wherein there are 13 evaluation tools that need to be upheld and 6 evaluation tools that necessitate enhancement.

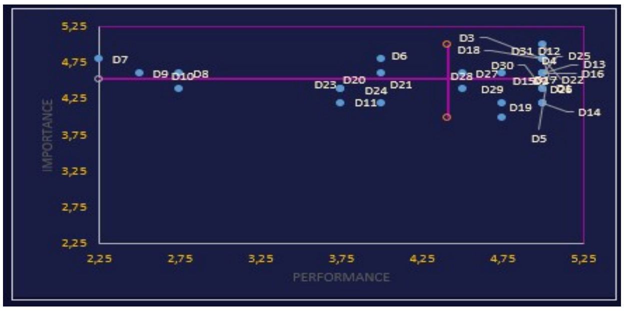

Fig. 7. Cartesian Diagram of the Electrical Engineering

D. Design

This section discuss all the designs made in the application to be built using UML (Unified Modeling Language) data modelling tools, namely use case diagrams and class diagrams. This phase is the second phase in the RAD method, the user design phase.

1. Use Case Diagram

   In the use case diagram, there are 4 actors who will use the application, based on the roles that have been determined (Fig. 8).

2. Class Diagram

   Class diagram in Fig. 9 shows that there are 8 classes that have relationships between classes.

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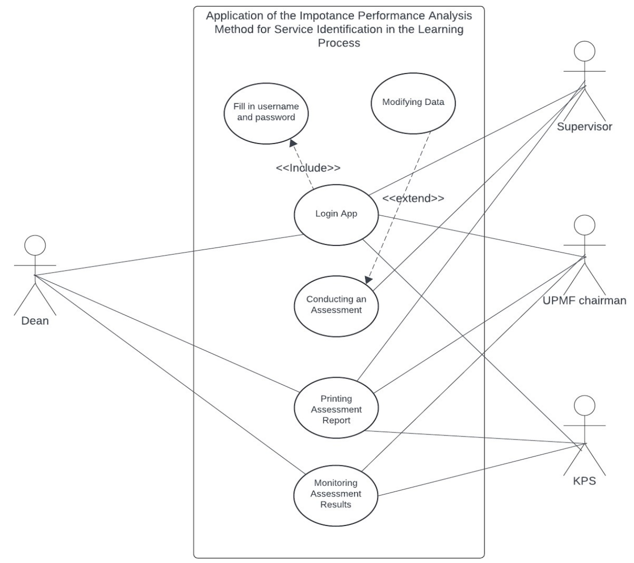

Fig. 8. Use Case Diagram

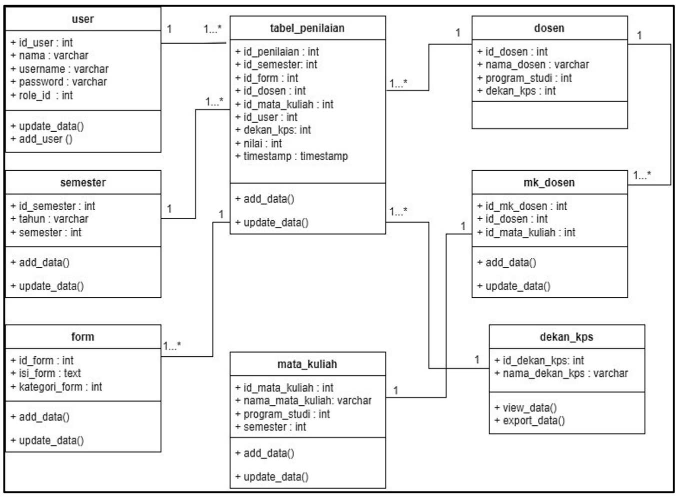

Fig. 9. Class Diagram

E. Implementation

Implementation is this section for implementing what has been done in the previous chapters into a system. This phase is the third phase in the RAD method, the construction phase. Rules that exist in the implementation of the application being built. First, when you want to add an assessment instrument, there are fields and categories that must be filled in where the category is divided into 4 parts, namely lecture preparation, synchronous learning process, asynchronous learning process, and closing. Second, the data obtained comes from the assessment that has been carried out by the assessment team. Third, the calculation process is drawn from the assessment data and displayed in the form of a cartesian diagram.

Fig. 10 shows some examples of interface implementation, namely the question instrument list form (31 questions) and Fig. 11 display the assessment recap form.

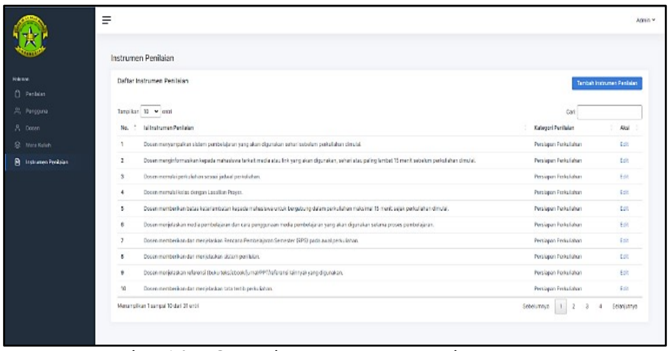

Fig. 10. Question Instrument List Form

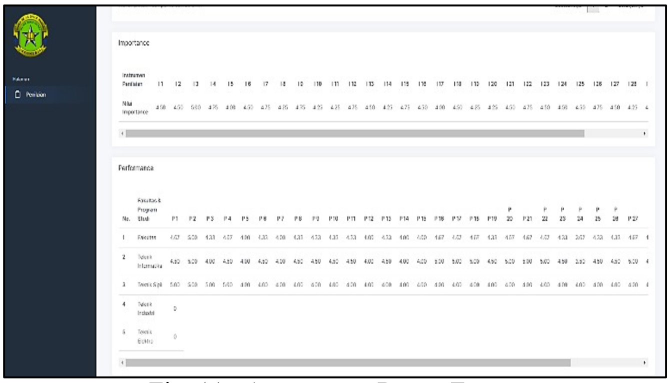

Fig. 11. Assessment Recap Form

In addition to the above implementation, there is also an implementation on the database. There are 8 tables created based on the results of the analysis that has been carried out (shown in Fig. 12).

Fig. 12. Database

F. Testing

This section discusses testing applications that are built to function and have no bugs or errors. testing is performed. Based on the test results in Table VII, it can be concluded that the features provided in the application can function properly. The UPMF staffs who act as the application administrator can use the application to facilitate service assessment in the learning process and reduce time in identifying the learning process. As for the Head of the Faculty of Engineering, he can see the complete assessment results and does not

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require additional costs because the assessment process has been well digitized.

TABLE VII
Test Case

No.	Test Cases	Results
1.	Tested the feature to add semester in the assessment page, the content of the assessment instrument, user data, lecturer, course, and semester.	Data added successfully.
2.	Tested the assessment feature and the storage of assessment results.	The assessment feature works well and the data is saved successfully.
3.	Testing the in-app search feature.	Successfully search according to the keywords entered by the user.
4.	Testing the print assessment feature	The assessment print page is successfully displayed.
5.	Tested the option button to navigate to Faculty, Informatics, Civil, Industrial, and Electrical assessment data.	Successfully displayed the data according to the selection.
6.	Testing the view feature on the action column to view assessment details in each semester.	The assessment table is successfully displayed.
7.	Testing the assessment feature of Lecturers or Faculty Leaders, in this case the Dean or KPS.	The assessment page for Lecturers is successfully displayed in tabular form.
8.	Testing the Lecturer assessment feature by leaving one of the questions blank.	The application will show unanswered questions and the data cannot be saved.

Likewise, supervisors as an assessment team can conduct structured assessments through the application by utilizing the assessment features in it and seeing a diagram of the assessment results to measure the achievement or quality of teachers in the Faculty of Engineering. Compared to previous research, this study can identify service quality based on service attributes in the education process. The result is the quality of service that must be improved, maintained, and even surpassed.

IV. Conclusion

Based on the results of analysis, design, implementation, and testing, it can be concluded that the application of the Importance Performance Analysis method can help De La Salle Catholic University, especially the Faculty of Engineering, in identifying service attributes in the learning process in each semester, namely: service attributes that have exceeded the set standards, service attributes whose performance needs to be maintained, and service attributes that must be improved. The attribute grouping can be seen in the results displayed in the Cartesian graph.

This research has not discussed the follow-up of service attributes based on the research results. So that future recommendations can be a discussion related to follow-up efforts to improve learning process services.

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