



Record management with a decision support system for faculty and employees association

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Abstract

This study aimed to develop a Record Management System with Decision Support System for the Faculty and Employees Association in Miagao Campus. The system allows for the creation, maintenance, and disposal of records in an organized manner, creating a transparent record management organization through a certain policy. The Decision Support System enhances the functional aspect of decision-making and data management.

The developed system includes a Record Management component for faculty and employee data, used for updating personal records and determining individual benefits. Members can view their monthly contributions and dues, and the system provides a decision support system to evaluate if members can claim their benefits. Additionally, the system generates monthly reports and keeps records in the database system.

The prototyping model was used in software development, and the ISO 25010 criteria for software evaluation was adopted to evaluate the system. Five IT experts and ten FEA members were randomly selected to evaluate the system, and based on the given criteria, the overall result of the evaluation was "very effective."

The system meets the characteristics of software quality set by ISO 25010 standards, including functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. Overall, the Record Management System with Decision Support System is an effective tool for managing records and supporting decision-making for the Faculty and Employees Association in Miagao Campus.

Keywords: Record Management System; Decision Support System; Faculty and Employees Association; ISO 25010 criteria; Database system; Software evaluation

1. Introduction

The Faculty and Employees Association of ISAT Miagao Campus has established a policy to cater to the needs of its members in availing of their benefits. This policy, however, is excessively time-consuming, especially in scanning and updating personal records as it is done manually. Without a system to accurately track monthly contributions and balances, the treasurer must write monthly contributions in a record book. A calculator is used to compute the total annual contribution. Erroneous data is an inevitable corollary to this way of recording and managing data. Consequently, personnel has a hard time determining if the members are already availing of the benefits, especially that of the household members. Sometimes, a bias in determining and giving corresponding benefits is identified.

In the study of Johnson on the Computer Based Records Management System Method [1], a computer-based records management system is equipped with an information filter to assure that the record data it stores in the system is complete and non-redundant. Essin also conducted a study on the Computer Based Records Management System

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Method (2010) [2], where the record management system provides the opportunity to reuse the data for additional reasons, such as creating invoices like Medicare bills that have to adhere to arbitrary standards. To do this, a variety of encoding techniques are automatically superimposed on each text. Another feature is the Decision Support System which provides predictions and recommendations based on correlative analysis. The process of developing the model may involve selecting identification variables to be gathered from several dissimilar data sources to obtain relevant information. Benson and Fistonich also conducted a study on this topic [3].

However, the researchers found a gap in the previous study which is the lack of a decision support system on record management, wherein to provide information and data history of the previous transaction of each member.

The decision is utilized to support system functions as a technique for developing the functional aspect of enhanced decision-making and data management. This study is beneficial to the Faculty and Employees Association of the Miagao Campus, specifically for updating personal records and determining individual benefits. The members can view their monthly contributions and monthly dues. It will provide a decision support system to evaluate if members can claim their benefits. Moreover, the system will generate monthly reports and keep records in the database system. Its Target Beneficiaries are the FEA Officers and members.

The following outputs are to be expected in this study; enable the organization to maintain records and ensure efficiency to eliminate unnecessary duplication of the records, organized individual records to trace required information, updated monthly payments and monthly dues, provide support in Decision Making Process

Statement of Objectives:

This study aims to develop Record Management with Decision Support System for Faculty and Employees Association in Miagao Campus. Specifically, it aims to:

- Create a record management system for faculty and employees' data;
- Create a database system for monthly contributions;
- Develop a decision support system for claiming benefits; and
- Evaluate the systems' effectiveness based on iso 25010 criteria.

2. Conceptual Framework

The conceptual framework discusses the flow of the system where the system user where inputs Faculty and Employee Personal Data, Monthly Contributions, and Evaluation Criteria these raw data serve as the basis of the collection of data for the system Decision algorithm. The FEA office staff encodes payments and updates the claims of each member.

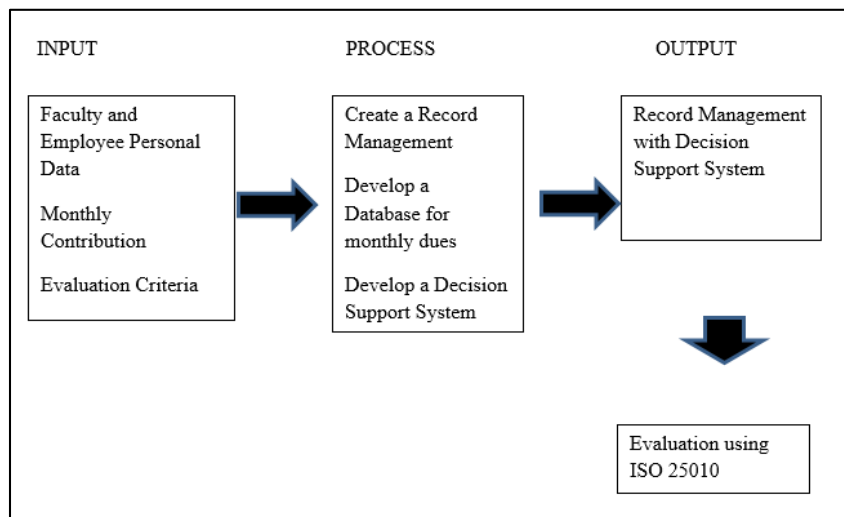


Figure 1 Conceptual Framework

The Process may include a record management system for employees' personal data and generate their monthly reports of payments and dues, these data are stored in the database server. All payments and contributions can be viewed per

day, month, and year. The system developed a Decision support recommender algorithm to display the list of Faculty and employee records for approval or disapproval of their claims and benefits. For the Output, the researcher developed a record management system with a decision support system for the efficiency of the system for their clientele. The system's effectiveness will be evaluated by the Information Technology Experts and selected Faculty and Employees using the ISO 25010 software quality standard.

3. Material and method

The Prototyping Model was used in this research. A software development model that can be used to create a record management system throughout the process. The process composes of planning, designing, and building a prototype to satisfy the needs of the end user.

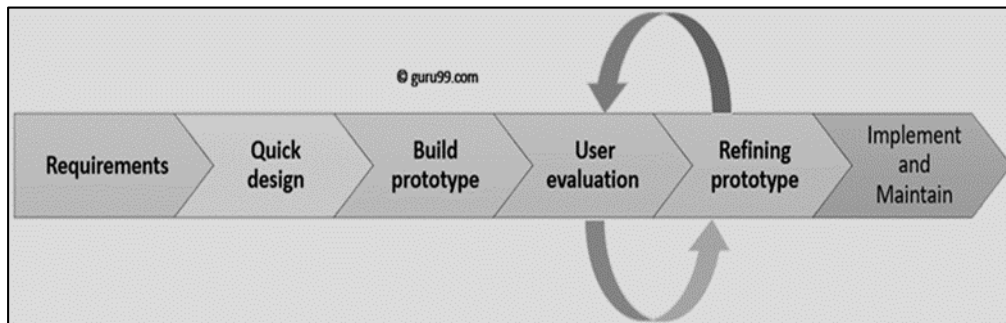


Figure 2 Prototyping Model, Martin (2021)

3.1. Phases of the Prototyping Model are as follows

3.1.1. Step 1: Requirements Gathering and Analysis

The first step in a prototyping model is requirement analysis. During this phase, the system's requirements are defined. As part of the process, system users are interviewed about the manual operation of the existing system. The issue was recognized, along with the suggested solution for the issue at hand.

3.1.2. Step 2: Quick Design

During this phase, the researcher created a design to address the need of the clientele and includes all possible solutions to address the gap in the existing system. However, it only gives a broad overview of how to design a system based on the needs of the end user. It is also the user's brief idea or concept. This stage makes a significant contribution to the prototype's development.

3.1.3. Step 3: Build a Prototype

During this stage, the researcher created a system prototype based on the information gathered, designed it according to the needs of the office, and developed a prototype system. It includes software development, design, and testing of the implemented algorithm.

During this phase, the researcher analyzed the system for record management and decision support including payments and monthly contributions for Evaluation

3.1.4. Step 4: Initial User Evaluation

The designed system was at this phase presented to the client for a preliminary assessment. It aids in identifying the advantages and disadvantages of the working model. Client comments and recommendations are compiled and sent to the researcher.

The system was assessed during this phase using the ISO 25010 software evaluation standards. Five (5) end users from the Students and the Office Staff and ten (10) IT experts were chosen to evaluate the system using a Likert scale.

3.1.5. Step 5: Refining Prototype

The researcher must now debug the system prototype using the users' comments and recommendations. The user needs would not be satisfied until this phase was completed. A final system was developed based on the developed prototype once the user granted it their acceptance.

3.1.6. Step 6: Implement Product and Maintain

After the system was developed based on the final prototype, the technology was thoroughly evaluated before being introduced to Faculty and Employees Associations Officers The monthly system maintenance was performed during this phase. To minimize errors and bug downs, the system was evaluated each month.

4. Results and Discussion

This study utilized the prototyping model in software development life cycles adapting the ISO 25010 criteria for software evaluation.

This study utilized the prototyping model in software development.

While the ISO 25010 criteria for software evaluation was adopted to evaluate the system. Five (5) IT Experts and ten (10) FEA members were identified to evaluate the system using Likert Scale Rating.

Table 1 The Likert Scale Rating

Scale	Description
5	Excellent
4	Good
3	Fair
2	Poor
1	Very Poor

Table 1 shows the Likert Scale Rating with a description from scale 5 as Excellent; 4 as good; 3, fair, 2, poor and 1 very poor

Table 2 Interpretation of the result using the Likert Scale Rating

Scale	Description
4.50 – 5.00	Very Effective
3.50 – 4.49	Effective
2.50 – 3.49	Moderately Effective
1.50 – 2.49	Ineffective
1.0 – 1.49	Very Ineffective

Table 2. shows the ISO 25010 criteria for software evaluation was adopted to evaluate the system. Ten (10) IT Experts and five (5) Faculty and Employees Staff as end Users

Table 3 shows the system evaluation given by Five (5) IT Experts. The results revealed that the system is “very effective” as shown in the overall all results (M= 4.6167, SD= 0.0456) and in terms of Functional Suitability (M=4.7333, SD= 0.1491), Performance Efficiency (M= 4.4776, SD= 0.1856), Compatibility (M= 4.4, SD= 0.3456), Usability (M= 4.8667, SD= 0.0745), Reliability (M= 4.4, SD= 0.1369), Security (M= 4.8400, SD= 0.0894), Maintainability (M= 4.5600, SD= 0.2006), and Portability (M=4.6667, SD= 0.0000). This is an indication that any changes made during the maintenance period would not have an impact on the system's ability to modify its services and would require less effort to do so.

Moreover, it conforms to the standard and is highly adaptable to alterations, effortlessly responding to shifts in a particular area without impairing its functionality

Table 3 Evaluation results of five (5) Expert

IT Expert	N	Sd	Mean	Description
Functional Suitability	5	0.1491	4.7333	very effective
Performance Efficiency	5	0.1856	4.4667	Effective
Compatibility	5	0.3456	4.4000	Effective
Usability	5	0.0745	4.8667	very effective
Reliability	5	0.1369	4.4000	Effective
Security	5	0.0894	4.8400	very effective
Maintainability	5	0.2006	4.5600	very effective
Portability	5	0.0000	4.6667	very effective
Over All Result	5	0.0456	4.6167	very effective

Table 4 Evaluation results of ten (10) FEA members

FEA MEMBERS	N	SD	Mean	Description
Functional Suitability	10	0.1571	4.7333	very effective
Performance Efficiency	10	0.2250	4.7667	very effective
Compatibility	10	0.2415	4.6500	very effective
Usability	10	0.0946	4.6500	very effective
Reliability	10	0.1318	4.6250	very effective
Security	10	0.1350	4.7400	very effective
Maintainability	10	0.1294	4.7600	very effective
Portability	10	0.1054	4.6333	very effective
Over All Result	10	0.0433	4.6865	very effective

Table 4 shows the result of the evaluation of the system by ten (10) FEA Members. As revealed in the data, the overall result signifies that the system is “very effective” (M= 4.6865, SD= 0.0433). The same result is shown as to the system’s Functional Suitability (M= 4.7333, SD= 0.1571), Performance Efficiency (M=4.7667, SD= 0.2250), Compatibility (M= 4.6500, SD=0.0946), Usability (M= 4.6500, SD= 0.0946), Reliability (M= 4.6250, SD= 0.1318), Security (M= 4.7400, SD= 0.1350), Maintainability (M= 4.7600, SD= 0.1294), and Portability (M= 4.6333, SD= 0.1054).

The overall result of the IT Expert and FEA member’s evaluation of the system based on ISO 25010 criteria was “Very Effective” with a mean score of 4.6865 and a standard deviation of 0.0433. The SD further suggests that the system may be able to adhere to the ISO 205010 standards for software quality. This suggested that the software is of high quality and could effectively serve its users.

5. Conclusion

In conclusion, this study has successfully developed a Record Management System with a Decision Support System for the Faculty and Employees Association in Miagao Campus. The system met the objectives of creating a record management system for faculty and employees' data, creating a database system for monthly contributions, and developing a decision support system for claiming benefits. The system also generated monthly reports and kept

records in the database system. Moreover, the study utilized the prototyping model in software development and evaluated the system's effectiveness based on the ISO 25010 criteria for software evaluation. The evaluation involved five IT experts and ten FEA members, and the system received a 'very effective' overall rating.

The developed system offers several benefits, such as easy access to personal records and the ability to determine individual benefits. It also provides a transparent record management organization with a specific policy. Overall, the system is highly functional and effective in enhancing decision-making and data management in the Faculty and Employees Association in Miagao Campus.

Recommendation

Based on the results and conclusions of this study, the following recommendations are suggested:

- Conduct an orientation program for the faculty and employees of ISAT U Miagao to introduce them to the new Record Management with Decision Support System. This will enable them to understand the system's features and functions and how to utilize it effectively.
- The ISAT U Faculty and Employees Association must fully implement the system to maximize the benefits it provides. It is also recommended to establish a team to oversee the system's implementation and ensure its proper utilization.
- Future researchers may consider expanding the system's scope to cover other areas, such as student records management or other departments within the institution. This can provide more comprehensive data management for the entire institution.
- It is also suggested to continuously monitor and evaluate the system's effectiveness and efficiency to identify any areas for improvement and ensure that it continues to meet the institution's needs. Regular updates and maintenance should also be performed to ensure the system's longevity and usability.

By implementing these recommendations, the ISAT U Faculty and Employees Association can improve their record management and decision-making processes, resulting in more efficient operations and improved overall performance.

Compliance with ethical standards

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