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Faculty Profile Information System and Training Recommender

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Abstract

A document management system (DMS) is a critical asset in speeding up processes, lowering risk, and reducing operational costs. A DMS provides the technology and methods needed to capture, manage, share, and secure information within an organization. In this paper, the researcher implemented a Document Management System using Bayesian network model in dealing with employee appraisal criteria for faculty training recommendation based on their specialization. Part of the software will be used in uploading of certificates or any document that may be used by the administrator for faculty development program and the faculty members may upload their performance/credential certificates as a proof for faculty promotion. The system was evaluated based on its Functionality and Usability.

***Keywords*:** Document Management System, Recommender System, Decision Support System

1. INTRODUCTION

Document management, often referred to as a Document Management Systems (DMS), is a software that controls and organizes documents throughout an organization. [1] It provides the technology and methods needed to capture, manage, share, and secure information within an organization. In the case of Document Locator, this includes electronic documents, images, email messages, and other computer files, as well as scanned paper documents, electronic forms, and more. [2] Document management system, however, is designed to improve your business's handling of electronic files.

There are a lot of document management software that are available, but in order for it to be classified as an effective DMS it should contain some key features: It must be focused on managing documents, though they are often capable of managing other electronic information. Each unit of information or document must be self-contained. There should only be few links between documents. It should be focused primarily on storage and archiving document life-cycle management including document expiry. It must include powerful workflow for incorporating business processes into the management of the documents. It has to be targeted at storing and presenting documents in their native format. Document access should be restricted at a folder or document level and other models may be applied, and lastly it should have limited ability to create web pages. [3]

Document management systems transform how you manage business information in your organization. From basic operations such as search and retrieval, to the most complex business functions like regulatory document control. Its benefits include, the efficiency and productivity in business processes, compliance with regulatory, legal, and quality requirements, consistency and repeatability of business operations, faster process cycle times, elimination of paper-based costs, storage fees, and shipping and improved business continuity planning.

2. RELATED WORKS

Dokmee, a secure, easy to use document management system for efficient document capture and storage, search and retrieval, and file sharing; all at an attractive price point. Dokmee adapts to any business model and is the result of cutting edge technology developed to ensure efficient, streamlined productivity and profitability. Dokmee may be quickly and effortlessly integrated into any size company across multiple industries. [4]

DocManager is today's fastest, most efficient and most cost-effective enterprise-wide solution for processing every stage of document management, including scanning, indexing, storing, sending and creating reports for system auditing and workload analytics. [5]

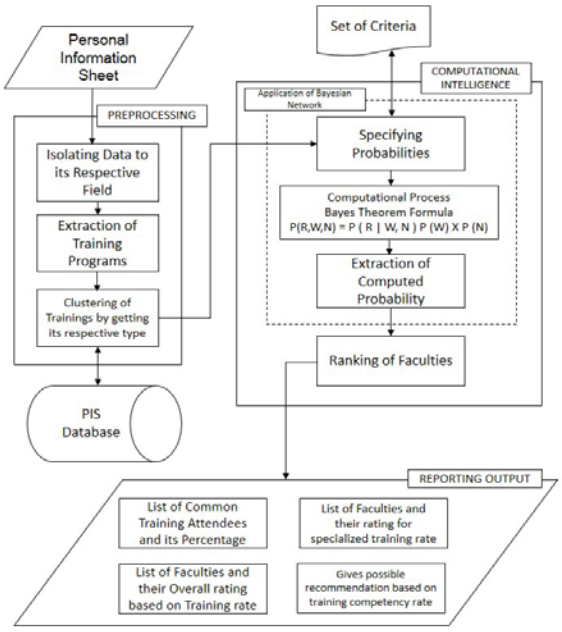
LogicalDoc is a flexible document management software that can adapt to various client needs may it be banks, healthcare, mechanical industries and/or medium-sized municipalities. It helps any kind of organizations all around the world to gain control over document management, with particular focus on fast content retrieval and business process automation. LogicalDoc enables

clients to create, co-author, and coordinate any amount of documents. LogicalDoc increases collaboration and productivity via next-generation web interface, integration into Microsoft Office and Outlook, and automatic import from your shared folders. [6]

In today's world, decision support and knowledge management processes are strategic and interdependent activities in many organizations. The firms take measures to change own strategies, structures, technologies and operational mechanisms. Moreover the great amounts of documents generated during working activities impose a correct management to avoid loss of important knowledge. Ribino et al. developed an ontology-based knowledge management framework using two Bayesian Networks in order to support decision maker for project planning and to document management and content analysis. The system is composed of different modules, an expert system for decision support and a document management engine. [7]
Another field where we can apply Bayesian Networks is in Competency Based Evaluation. Alhendawi and Baharudin developed a system focused on the employment of belief network including influence and Bayesian nets models in modeling the uncertainties and decision making process. It attempts to model and optimizes one of the most important functions of the human resources called Competency Based Evaluation (CBE). It is concerned with modeling the uncertainties of the CBE through AI modeling approaches as well as developing a new optimization algorithm towards decreasing the evaluation features of the employee performance. [8]

3. METHODOLOGY

The Trainer Recommender architecture (see Figure 1) is sub-divided into two parts, the preprocessing and the computational intelligence phase. First, there are set of fields that will be considered by the system called as performance sheet form that will be used to get the input of the faculty. After answering the said form, the data that had been obtained inside the form was saved in the database as record of faculty for the training and seminar information; and after that, the process continued and it goes to the preprocessing phase where in the data is being isolated according to the filed they are under respectively. The next process is the Extraction of Training Programs where the given trainings and seminars are being isolated among the other fields for computation and then the extracted training programs are clustered to its type as common training or specialization training.
The next phase which is the computational intelligence calculates the competency training rating. First, the system specified probabilities given in the set of criteria then goes to the computational process which is the Bayes Theorem Formula having the formula p(R, W, N) = p(R|W, N) p(W) X p(N) and the computed probability is then extracted. The last process for the computational intelligence is the Ranking of faculties depending on the user is need



(ascending or descending).

Fig. 1 Training Recommender

The system's output list of common training attendees and its percentage, list of faculties and their rating for specialized training rate, then, it gives possible recommendation based on training competency rate and lastly list of faculties and their overall rating based on training rate.

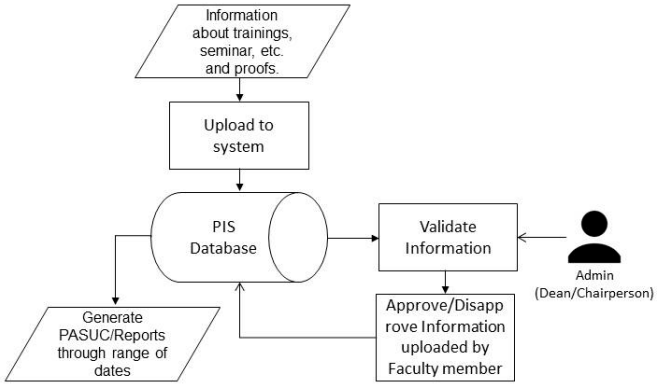


Fig. 2 Faculty Profile Information System

The added functionality of the system which is the file management phase stores and manages the files which are

uploaded in the system. This part of the system makes sure that all the files to be used in report generation are all valid according to the admins (dean/chairperson). Along with this, the user (faculty member) could actually add, edit and delete the information and proofs they have uploaded in the system.

4. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

The respondents of the survey were from the College of Computer and Information Sciences (administrator and faculty members). The respondents assessed the software on functionality and usability.

In analyzing the responses the result of the computed mean and its verbal interpretation was based on the scale used by WebCost and EducaNextPortal, see Table 1. A result between 1.00 and 1.99 indicates that the user was satisfied and agreed with the specific measurements of the system. If between 2.00 and 3.00, this means that the user less agree or is undecided. Moreover if the result is between 3.00 and 4.00, this indicates that the user totally disagrees that the software developed is functional and usable.

Table 1: Attribute in Evaluation Form

Scale	Agree	Undecided	Disagree
Value	1.00-1.99	2.00-2.99	3.00-4.00

Table 2: Result of User Evaluation Test

Functionality		
Questions	Numerical Rating	Verbal Interpretation
The instructions and prompts are helpful	2.165	Undecided
The way the system information is presented is clear and understandable	1.495	Agree
The software documentation is very informative	2.165	Undecided
The system interface is easy to navigate and interact with	1.495	Agree
I can understand and act on the information provided by this software	1.83	Agree
Tasks can be performed in a straightforward manner using this software	1.495	Agree
The software has a very attractive presentation	1.495	Agree
It is relatively easy to move from one part to another	1.83	Agree
Average	1.746	Agree

Usability		
Questions	Numerical Rating	Verbal Interpretation
There is no instance that the software has stopped unexpectedly	1.83	Agree
The software commands are easy to learn	1.495	Agree
Learning how to use new functions is easy	1.83	Agree
The system is beneficial to the faculty/user	1.495	Agree
The system is useful in case of needs	1.495	Agree
The system provides adequate, complete, and reliable results to the user	2.165	Undecided
I would recommend this software to my colleagues or other faculty department	1.83	Agree
Average	1.734	Agree

The response of the users clearly states that the user agreed that the developed software is functional. This states that it there will be no problem seen when this software was evaluated. As to the usability of the software it was very enjoyable to see the users giving a thumbs up with regards to this criteria. A usable software means that it satisfies the need of the users and they were able to appreciate the use of the software developed

5. CONCLUSIONS AND RECOMMENDATIONS

Based on the data gathered in implementing this study, the researcher come up with these following conclusions:

1. The evaluation of the research tool based on the responses of 3 respondents from PUP CCIS in terms of functionality, and usability showed that the user mostly agreed that the system was functional and usable as indicated in our results above.
2. There were only two situations where in the results showed that the users were undecided. They belonged to the undecided group in terms of informative documentation (functionality) and system's reliability, adequateness, and completeness of results for the user.

A. Recommendations

After a thorough analysis of data, the following recommendations that might be helpful for the future developer and researcher are hereby made by the respondents:

1. The researcher recommend the implementation of the system to other colleges and departments to test more the functionality and usability of both study and system.
2. Improving the User Interface in the admin side of the system to show notifications when there are files to be evaluated by the admin (chairperson/dean). Along with this, including a reason for disapproval of a file would also be beneficial
3. Improving the capability of the system to cope up with the users by saving previous inputs on fields in the system so that the outputs during report generation and PASUC are standard for all faculty members.

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