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Quality Analysis Of Logistics Management Information System Software Using MCALL

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ABSTRACT

The development of information technology is so rapid to make the needs of technology increase. The progress of an organization depends on the information technology used. But in using an information technology must be concerned with the quality of information technology used. Software testing is one of the most important things in determining software quality. This research was conducted to determine the quality of the Logistics Management Information System software that has been used at the Bandung Institute of Technology. This test uses the McCall model framework in which the quality factor variables tested are correctness, reliability, efficiency, integrity, usability, maintainability, flexibility, testability, portability, reusability and interoperability. The data collection method used is the observation method used for information gathering by directly observing the activities of the research object environment and the interview method used to collect data regarding information on Logistics Management Information System software through interviews with several employees who understand the Information System system. Logistics Management. Based on the results of research that has been done there are still some shortcomings including the factors of reliability, efficiency, usability and interopability. While the factors of correctness, maintainability, flexibility, testability, portability and reusability have met the software quality factors and organizational needs.

1. Introduction

At this time to obtain a software is not too difficult, this is because many software developers have provided it for free download on the internet. Especially at this time with the development of applications that are open source which has been very easy for anyone who wants to create and develop applications. However, of the many applications that are free of charge the internet may not necessarily have good quality software so that it can result in failure in use.

In building an application it is necessary to check the suitability of the function so when making an application it is necessary to do the testing process. Testing in this study will be carried out on the logistics management information system at the ITB Logistics Directorate. Testing on the logistics management information system (SIMAJIK) is very necessary to find out the weaknesses and weaknesses contained in the application. So that the results of testing can later be improved. At present testing of the logistics management information system (SIMAJIK) of the ITB Logistics Directorate has not been specifically carried out using testing methods.

In the current condition, the logistics management information system (SIMAJIK) of the ITB Logistics Directorate still needs to be tested so that weaknesses can be identified and the causes of the weaknesses. So that future improvements can be made to produce SIMAJIK better and quality. The main problems of the research to be carried out by the logistics management information system (SIMAJIK) have not been specifically tested using the software testing method and there are still some shortcomings in the SIMAJIK application. The research to be carried out has the aim of knowing the shortcomings that still exist in the SIMAJIK application of the ITB Logistics Directorate and the use of test results as a form of analysis to improve the ITB Logistics Directorate.

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2. Literature Review

In the journal "Analysis of Software Quality Against Information Systems UNIKOM" [3] in 2013, according to McCall the classic model of software quality factors consisted of 11 factors. The other model consists of 12 to 15 factors proposed by Deutsch and Willis and by Evans and Marciniak. The difference in alternative models is not much different from the McCall model. This difference can be seen in the perspective of the creator of each model. The McCall factor model classifies all software requirements into 11 quality factors. The eleven factors are divided into three categories into product operation factors, product revision factors, and product transition factors. The McCall quality model on product operating factors [4] contains:

a. Correctness
   The level of fulfillment of the program to the requirements specified and meet the goals / mission of the customer is correct A software can be said to be true if it can produce the correct output for every possible input by the user, carry out the process that should (no less and not excessive), and must formally can be proven mathematically.
b. Reliability
   Some functions may not work in software execution, so they are considered inappropriate. However, software can still be accepted by customers because execution that causes the system to fail may not often occur when the system is deployed. In addition, customers may occasionally accept software failures. Customers may still consider the wrong system to be reliable if the failure rate is very small and does not affect their goals / mission. Conformity is a customer's perception, and wrong software can still be considered appropriate.
c. Efficiency
   There are two notions of the efficiency of a software. McCall defines it as the use of resources such as processor processing time (execution), usage of storage media (memory, space, bandwidth). While according to ISO 9126, efficiency is related to the relationship between software performance and the amount of resources used.
d. Integrity
   This factor looks at the extent to which access to software and data by unauthorized parties is controlled by the information system.
e. Usability
   This factor sees the ease of software to be used and studied [6]. Usability has academic elements such as psychological, ergonomic, and human factors.
f. Maintainability
   Maintainability is the ease of software being maintained, such as repairing damage, finding new needs, making subsequent maintenance easier, overcoming a changing environment. A software is said to be able to be maintained if correction of minor bugs requires little effort.
g. Flexibility
   Flexibility is the ease of making the changes needed due to environmental changes (McCall) and modifying the code to facilitate the changes that have been determined.
h. Testability
   Is the ability of the software to be tested. In addition, testability is the degree that a system has to facilitate the testing criteria and the performance of the tests to measure the extent to which these criteria are met.
i. Portability
   Software is said to be portable if the cost of moving it (transport and adaptation) to a new environment is smaller if compared to the cost of building the software from scratch.
j. Reusability
   Reusability is a property of software that allows software or its modules to be reused for other systems. A software is said to be good if the modules can be reused for other applications.
k. Interoperability
   Interoperability is the ability of a software to work with other devices without experiencing difficulties.

3. Research Methodology

A. Research Object

The object of research was conducted at the Directorate of Logistics at the Bandung Institute of Technology with an evaluation service in the form of a Logistics Management Information System (SIMAJIK).

B. Research Methods

1) Literature study of software quality factors

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2) Making a list of software quality factor variables
3) Software quality assessment
4) Processing the results of filling out the results of interviews on the quality of the software
5) Evaluate the results of filling in the software quality factor.

4. Results and Discussion

The preparation of information is determined by referring to the fact of software quality using the McCall method. The processing and test results are as follows:

a. Correctness
   The correctness factor is related to the completeness of the functionality in the Logistics Management Information System that has fulfilled business processes according to the Chancellor's Decree and all functionalities are running well. Based on data obtained from ITB Logistics Directorate employee responses to the suitability of the information provided by the Logistics Management Information System that the information displayed and the resulting report does not meet the needs of the Employees.
b. Reliability
   Based on data obtained from ITB Logistics Directorate employees' responses to reliability.User factors in using the Logistics Management Information System that the system sometimes fails to process data storage due to slow internet network problems.
c. Efficiency
   Based on data obtained from ITB Logistics Directorate employee responses to the efficiency of using the Logistics Management Information System that this information system is not fully efficient for users because business processes are not fully handled by the Logistics Management Information System.
d. Integrity
   Based on data obtained from ITB Logistics Directorate employee responses to integrity factors in the Logistics Management Information System that this information system is safe from controlling people who are not entitled to access information from the Logistics Management Information System.
e. Usability
   Based on data obtained from ITB Logistics Directorate employee responses to usability factors in the Logistics Management Information System that this information system when a new user uses will find it difficult to use because of the many features applied and must study the business processes in the application, if the user is accustomed it will be easy to use it.
f. Maintainability
   Based on data obtained from ITB Logistics Directorate employees' responses to the maintenance of the Logistics Management Information System that this information system is easy to maintain if there are problems in the software because some features are developed by employees at the ITB Logistics Directorate. So that if there is a problem it is easy to do repairs by internal employees themselves.
g. Flexibilitilty
   Based on data obtained from ITB Logistics Directorate employee responses to the flexibility of the Logistics Management Information System that this information system easily adjusts module additions or functional additions and functional changes.
h. Testability
   Based on data obtained from ITB Logistics Directorate employees' responses to the functions of the Logistics Management Information System feature that this information system as a whole is functioning properly and there are no problems whatsoever.
i. Portability
   Based on data obtained from ITB Logistics Directorate employee responses to the portability of the Logistics Management Information System that this website-based system is easily accessible provided that a computer browser is available.
j. Reusability
   Based on data obtained from ITB Logistics Directorate employee responses to the reusability of the Logistics Management Information System that the modules that have been used cannot be used only in part, because the system has been integrated between one process to another.
k. Interoperability

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Based on data obtained from ITB Logistics Directorate employee responses to the Logistics Management Information System interoperability that this information system in terms of data transfer to other applications is already working well but if there is too much data often there are delays during the transfer.

5. Conclusions

Based on data obtained from employee responses to the Logistics Management Information System using the McCall model, it is found that there are still deficiencies based on reliability, efficiency, usability and interoperability factors. Some of these deficiencies are in the application's ability to display information to employees that is still not appropriate. It also lies in handling the failure of the software. However, the use of this application can meet the needs of the Organization when viewed from the factors of correctness and flexibility.

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