QUALITY ASSESSMENT OF CV. FREDAVELOP NOTARIAL DEED FIDUSIA SOFTWARE

Muhlis Sul Aen[1] , Alif Finandhita[2]

Informatics Engineering – Indonesia Computer University
Jl. Dipati Ukur No. 112-116, Bandung
E-mail : muhlissulaen@gmail.com[1], finandhita@gmail.com[2]

ABSTRACT

CV. Fredavelop is the company which are engaged in IT (engineering information). CV. Fredavelop producing a web application specially designed to help improve performance notary in making the deed in practice , that is a notarial deed fidusia. The application of fidusia a notarial deed is currently having sound judgment that is less either by virtue of the questionnaire user satisfaction. It becomes a problem that owned the application of a notarial deed fidusia. One of best solutions to assess the quality of a system software is through evaluation process to know more detailed problems owned by a web the application.

One standard used to support evaluation process the quality of software is standard ISO-25010. The standard iso-25010 done through the software pendefinisian needs based on the relationship between characteristic of the software. In assessing factors the quality of used a questionnaire that created based on characteristic of software, with the approach Goal Question Metrics (GQM), which are then used to do weighting in each factors and sub-Factors the quality. After shall be the category of software from the measuring process. The quality of internal metric committed using metric Chidamber and Kemerer (CK). Assessment structure code and class the program would be conducted to know the code and class which that needs to be repaired at software.

Kata kunci : *Software Quality, ISO-25010, Goal Question Metrics (GQM), Metrics Chidamber and Kemerer (CK)*

1. INTRODUCTION

Web is software shape the simplest having hypertext which presents information by using text , a picture , animation , sound , and others is in a the internet [1]**.** One example of application a web for making the birth certificate namely fidusia. Application fidusia is an application web-based used by a notary to transact agreement debt receivable between creditor and debitor by involving insurance. On the application this specially designed to help improve performance notary in making the deed in practice produced by CV .Fredavelop.

Application a notarial deed fidusia is built with the concept of OOP (Object Oriented Programing)[2][3], and was detected of a structure code can affect respond an application [4]**.** Problems that arise when this application new used after launching , are bumps in which there have been complaints users that is any response from the application of a slow fidusia when accessed , that led to the user the effect of work be slower**.** It caused the design of the architecture design code and architecture class that is not appropriate, so that it will affect the quality of the application [5].

Based on the research in do by the boehm and jones, error it has existed scientifically in any development software that ve just done development possible there are error so application become more Heavy [6]. In order to support the quality of on the application fidusia, assessment software done from with products, so that impact on improving system for in the future.

To know the quality of of a software, can use the ISO standard / IEC 25010 in which used to evaluate system software specifically[7] and for the judgment of structure code and class use metric chidamber and kemerer (CK) [8].

2. CONTENT OF RESEARCH

2.1.1 Theoritical

2.1.1 Software Quality

Software quality can is defined as conformity to which is expected in all software that built relating to the function software are especially and to labor software [9]. According to a standard the international (IEEE, ISO) there is some points of view to describe the quality of software .The iso standard describe three view the quality of [10], namely :

1. Views users
2. Views developers, and
3. Views manager

2.1.2 Standard Software Quality

Standard used to assess software quality is standard ISO 25010. ISO 25010 is one of the methods international standards who used to assess the relative quality standards a software that is released by ISO / IEC [11][12]. Standard iso 25010 can be used to evaluate the quality of a software product .Following the model of software products quality from standard iso 25010 can be seen from Figure 1.

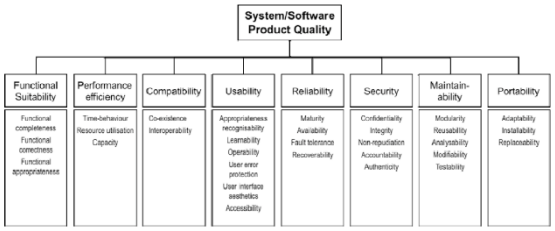


Figure 1. Diagram Model Product Quality

2.1.3 The Goal Question Metrics (GQM)

The goal question metric (GQM) is a method of hierarchical structure in start with a (set purpose of measurement, the object to be measured, the issues to be measured and size of the point of view of which to be taken). The purpose of GQM is to form a few questions, every question then formed into metric. Some metric can be used to the questions different with a common purpose. Some method of GQM can also have questions and metric same [13].

A measurement gqm is 3 levels , namely :

1. Goal : Objectives set to an object , for various reasons , with respect to several models quality
2. Question : Sets of questions used to describe way judgment or the accomplishment of some purpose.
3. Metric : A set of data relating to every question to answer by means of quantitative.

Following are hierarchical structure method gqm as seen in Figure 2

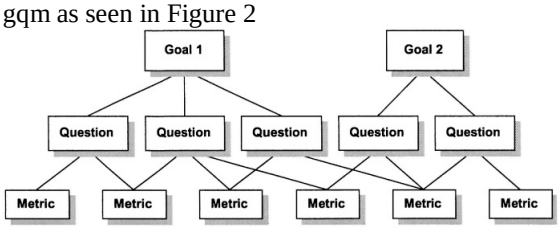


Figure 2. Hierarchical Structure GQM Method

2.1.4 Chidamber and Kemerer Metrics

Metric of Chidamber and Khemerer for measuring coding / program of application notarial deed OOP fidusia the event.

According to Chidamber and Kemerer metric for measuring and pass judgment based software object oriented can use six metric [14] [8], namely:

1. Weight Methods per Class (WMC)

Measurement metric WMC is counting the method implemented in a class. To find out so calculated all method local on a software

Formula : m1+m2+m3+.....+Mh (1)

2. Depth of Inheritance Tree (DIT)

Tally DIT is lane maximum inhereitance of a class. Depth of a class in a hierarchy hereditary measured by DIT.

Formula : If any inheritance is set 1 and if there is no is set 0.

3. Number of Children (NOC)

measurement of NOC is measuring the number of children or class kid.

Formula : If there are children given a score and if they were not given a score.

4. Coupling Between Objects (CBO)

Coupling is dependence module one with modules other , coupling is a coupling that low in which module one with modules the rest are interdependence.

Formula : Counting the method local access to external method

5. Respon for a Class (RFC)

Measurement RFC the count local method implemented plus method called in object.

Formula : Number of method local + number of method external.

6. Lack OF Cohesion in Method (LCOM)

LCOM was metric to calculate a cohesi. Cohesi is a function involved in a module. Cohesi is cohesi high, the higher cohesi the better design. Measurement LCOM done by counting the number of connections at method [14][15][16].

Formula:

LCOM*= (m – sum (Mu) / a) / (m-1) (2)

Where:

M is the sum method in class.

A is the number of variable in class.

Mu is the number of variables who has been recalled.

2.1.5 Stage Quality Assessments Of Software

Step in assessing software by order and particular procedure permanent and using quantitative methods [17]. Following is the of the stage quality assessments of software is presented in Figure 3.

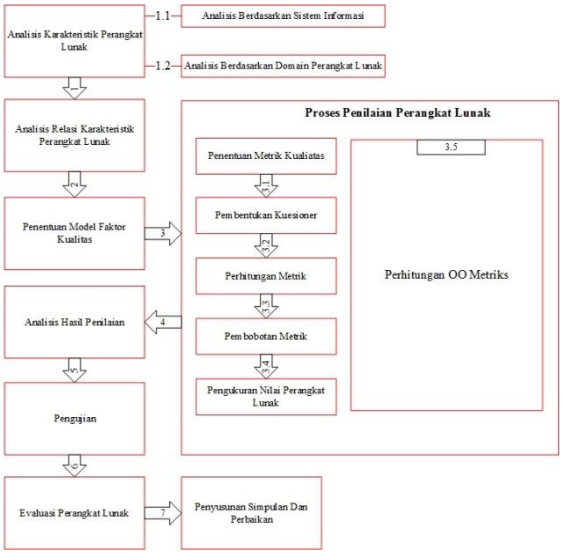


Figure 3. Stage Quality Assessments Of Software

2.2 Analysis System

2.2.1 Analysis Characteristic Software

Analysis characteristic software is by way of components analyze based on information systems and domain software.

1. Analysis of its components information system

Analysis system components that were on a notarial deed application fidusia. Following are an analysis of its components information system as follows [18] :

a. Characteristic Inputan

Characteristic Inputan on the application the menu fidusia inputan branches to mengisikan branches anywhere used in certificate, the menu able to show the indorsee, the menu user to include users application, registration menu to be used to make notarial deed.

b. Characteristic Models

Characteristic Models is a component with the process connection database to application , connections will be called table selected to then directed to a controller.

c. Characteristic Views

Characteristic Views is output or output of application fidusia i e as follow: showing page login , a major dashboard monitoring the amount deal has been carried out by user , showing data branches , power , user , registration as inputan shall enter into a view on the menu certificate

d. Characteristic Controllers

A group of process consisting of process showing, process added, process remove, process of change, and complicated searching and generate certificate.

e. Characteristic Aunthentification

Set right user namely access , owner , admin and editor. In setting any rights access having main tasks and functions of each.

f. Characteristic Database

Characteristic Database that are used in application fidusia having table-table mutually connected , consisting of a structure table that has primary key each table.

2. Analysis domain software

Based on analysis characteristic domain software explain functionality located on application fidusia. Characteristic owned by fidusia application is as follows [18] :

a. Informational

Application fidusia having appearance of dashboard as a means of than informative in showing amount of data in input by user.

b. Customizable

User can replace the theme or background the application in keeping with the theme provided , this feature used to costume view on demand user.

c. Interaction

Interaction that interwoven on the application fidusia that was between tasks and functions user each interconnected

d. User Input

Fidusia application having facility user input , branch as the input , power of attorney , user and registration.

e. Help

On application fidusia provided functionality as guidance in using application, so that user can knew how to operate through functionality.

2.2.2 Determination Quality Model Factor

Factor analysis quality software explain analysis of quality software model, metric entanglement characteristic with a model quality software. Here is result of mapping entanglement based on system components information and domain software against a standard ISO 25010 [5], can be seen in Table 1.

Table 1. Factors and Sub factors Used

Factors	Sub-Factors
Functional Suitability	Functional Completeness
	Functioanl Correctness
	Functioanl Appropiateness
Performance Efficiency	Time Behaviour
	Resouce Utilization
	Capacity
Usability	Appopriateness Recognizability
	Operability
	Use Error Protection
	Use Interface Aesthetentics
	Accessibility
Reliability	Maturity
	Availability
	Fault Tolerance
Security	Confidentiality
	Integrity
	Authencity
Maintability	Reusability
	Analysability
	Testability
Portability	Replaceability

2.2.3 Formation Of Questions With Methods Goal Question Metrics (GQM)

Following is an explanation regarding by using method GQM to formation of based on quality of t factors in a scale likert [19] and scale guttman [20], as shown by table 2.

Table 2. Questions Based On Formation Sub-factors

Goal	Looking for value sub-factors quality
Question	Some questions based on sub-factors quality
Metric	M1 = Weights Scale Likert x Results Respondents Answers $x = \sum \frac{Total}{n}$
	M2 = Weights Scale Guttman x Results Respondents Answers $x = \sum \frac{Total}{n}$

2.2.4 Calculation Metric

Here is result obtained from question that had made. Following is an example calculation metric which is found in factors functioanl suitability with sub-factors functioanl completeness, functional correctness, and functional appropriatness.

Functioanl Comlpeteness

Following is a calculation of value of an average of 20 respondents answer admin, 5 respondents editor and 1 respondents owner against individual questions relating to sub-factors functional completeness.

Table 3. Respondents Admin Response To Sub-factors Functional Completeness

No. Question	Answear		Number of Value		Total	Average
	Yes	No	Yes	No		
1	8	12	40	12	52	2,6

Table 4. Respondents Editor Response To Sub-factors Functional Completeness

No. Question	Answear		Number of Value		Total	Average
	Yes	No	Yes	No		
1	1	4	5	4	9	1,8

Table 5. Respondents Owner Response To Sub-factors Functional Completeness

No. Pertanyaan	Jawaban		Jumlah Niali		Total	Rata-rata
	Ya	Tidak	Ya	Tidak		
1	1	0	5	0	5	5

After obtained value averages for each as seen Table 3, Table 4, and Table 5 can calculated value sub-factors functional completeness. Following calculation sub-factors functional completeness seen Table 6.

Table 6. Calculation Sub-factors Functioanl Completeness

Sub-Factors	Perhitungan
Functional Completeness	$x = \sum \frac{Total}{n}$ Xadmin = 52/20 = 2,6 Xeditor = 9/5 = 1,8 Xowner = 5/1 = 5 XFunctioanal Completeness = (2,6 + 1,8 + 5)/3 = 3,13

So, value sub-factors functional completeness based on calculation of in table 6 is 3,13.

2.2.5 Formation Weightings

Weighting on factors quality standards uses the Rank Order Centroid (ROC) needed to calculate factors quality [21]. Following is a formula to the equation ROC or can be described as follows:

If Cr1 ≥ Cr2 ≥ Cr3 ≥ ... ≥ Crn

Then W1 ≥ W2 ≥ W3 ≥ ... ≥ Wn

Next , if k is many criteria , then

$$W1 = \frac{1 + \frac{1}{2} + \frac{1}{3} + \cdots .... + 1/k}{k}$$

$$W2 = \frac{0 + \frac{1}{2} + \frac{1}{3} + \cdots .... + 1/k}{k}$$

$$W3 = \frac{0 + 0 + \frac{1}{3} + \cdots .... + 1/k}{k}$$

In general weighting roc can formulated as follows :

$$Wk = 1/k \sum_{i=1}^{k} (1/i) \quad (3)$$

W = Criteria weighting value

K = Number of criteria

I = Alternative value

The k owned by factors quality is 7 can be seen from many rigorous, then weighting factors quality standards are following seen in table 7.

Table 7. Calculation Of Weighting Quality

Factors	Calculation weighting
Functional Suitability	$\frac{1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \frac{1}{7}}{7} = 0,37$
Maintability	$\frac{\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \frac{1}{7}}{7} = 0,23$
Usability	$\frac{\frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \frac{1}{7}}{7} = 0,15$
Security	$\frac{\frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \frac{1}{7}}{7} = 0,11$
Reliability	$\frac{\frac{1}{5} + \frac{1}{6} + \frac{1}{7}}{7} = 0,07$
Performance Efficiency	$\frac{\frac{1}{6} + \frac{1}{7}}{7} = 0,04$
Portability	$\frac{\frac{1}{7}}{7} = 0,02$

Weighting sub-factors quality needed to calculate value sub-factors quality. Value k owned by sub-factors quality vary according to sub-factors owned by factors quality [21]. Can be seen the number of sub-factors owned by every factors a quality on table 8.

Table 8. Number Sub-factors For Each Factors

Factors	Number Sub-Factors
Functional Suitability	3
Performance Efficiency	3
Usability	5
Reliability	3
Security	3
Maintability	3
Portability	1

Based on table so will be processed weighting of sub-factors quality , from standard factors quality. Calculation weight quality of factors based on equation ROC can be seen in table 9.

Table 9. Weighting sub-factors quality

Factors	Sub-Factors	Calculation weighting
Functional Suitability	Functional Completeness	$\frac{1+\frac{1}{2}+\frac{1}{3}}{3}=0,61$
	Functioanl Correctness	$\frac{\frac{1}{2}+\frac{1}{3}}{3}=0,28$
	Functioanl Appropiatenes s	$\frac{\frac{1}{3}}{3}=0,11$
Performanc e Efficiency	Time Behaviour	$\frac{1+\frac{1}{2}+\frac{1}{3}}{3}=0,61$
	Resouce Utilization	$\frac{\frac{1}{2}+\frac{1}{3}}{3}=0,28$
	Capacity	$\frac{\frac{1}{3}}{3}=0,11$
Usability	Appopriatenes s Recognizabilit y	$\frac{1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}}{5}=0,46$
	Accessibility	$\frac{\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}}{5}=0,26$
	Operability	$\frac{\frac{1}{3}+\frac{1}{4}+\frac{1}{5}}{5}=0,16$
	Use Error Protection	$\frac{\frac{1}{4}+\frac{1}{5}}{5}=0,09$
	User Interface	$\frac{\frac{1}{5}}{5}=0,04$
Reliability	Maturity	$\frac{1+\frac{1}{2}+\frac{1}{3}}{3}=0,61$
	Availability	$\frac{\frac{1}{2}+\frac{1}{3}}{3}=0,28$
	Fault Tolerance	$\frac{\frac{1}{3}}{3}=0,11$
Security	Confidentiality	$\frac{1+\frac{1}{2}+\frac{1}{3}}{3}=0,61$
	Authencity	$\frac{\frac{1}{2}+\frac{1}{3}}{3}=0,28$
	Integrity	$\frac{\frac{1}{3}}{3}=0,11$
Maintabilit y	Testability	$\frac{1+\frac{1}{2}+\frac{1}{3}}{3}=0,61$
	Reusability	$\frac{\frac{1}{2}+\frac{1}{3}}{3}=0,28$
	Analysability	$\frac{\frac{1}{3}}{3}=0,11$
Portability	Replaceability	$\frac{\frac{1}{1}}{1}=1$

2.2.6 Measurement Of Value Software

Based on calculation metric a quality on Table 2 and weighting that was done on Table 7 and Table 9, so measurement of value software can be done in a weighted summation [22]. Here are results of any factors quality against application fidusia use equation $score\ (Ci) = \sum_{i=1}^{n} Wi.Xi\ (Ci)$ can be seen as follows.

Functional Suitability

Following are calculation of value factors quality of functional suitability using an equation $score\ (Ci) = \sum_{i=1}^{n} Wi.Xi\ (Ci)$ (4)

C_1 = ($W_{functional\ completeness}$.$X_{functional\ completeness}$) + ($W_{functioanl\ correctness}$.$X_{functioanl\ correctness}$)+ ($W_{functional\ appropriatness}$.$X_{functional\ appropriatness}$)

= (0,61*3,13) + (0,28*2,73) + (0,11*3,5)

= 1,91 + 0,76 +0,38

= 3,05

Here are results of seen in table 10.

Table 10. Result Of Reckoning Factors Quality

No.	Factors	Value
1	**Functional Suitability**	3,05
2	**Performance Efficiency**	3,34
3	**Usability**	2,98
4	**Reliability**	1,61
5	**Security**	3,36
6	**Maintability**	3,1
7	**Portability**	2,77

Based on value factors which is found in Table 10, so those values are would be seen categorized as which. Determination of category refer to metric external quality of software is three category, formation of category it can be seen in Table 11.

Table 11. Quality Category

Category	Intervals Value
High	3,36 – 5
Medium	1,68 – 3,35
Low	0 – 0,167

Can be seen in Table 12 the assessment and creation of category.

Table 12. Value Factors Quality

Factors	Value	Category Quality
Functional Suitability	3,05	Medium
Performance Efficiency	3,34	Medium
Usability	2,98	Medium
Reliability	1,61	Low
Security	3,36	High
Maintainability	3,1	Medium
Portability	2,77	Medium

Following score for each factors seen in Table 12 and 13 sub-factors in table.

Table 13. Value And Factors Quality

Sub-Factors	Value	Category Quality
Functional Completeness	3,13	Medium
Functioanl Correctness	2,73	Medium
Functioanl Appropiateness	3,5	High
Time Behaviour	3,15	Medium
Resouce Utilization	3,22	Medium
Capacity	3,93	High
Appopriateness Recognizability	3,6	High
Accessibility	2,38	Medium
Operability	2,93	Medium
Use Error Protection	1,87	Medium
User Interface Aesthetics	1,47	Low
Maturity	1,32	Low
Availability	2,15	Medium
Fault Tolerance	1,88	Medium
Confidentiality	3,8	High
Authencity	3,18	Medium
Integrity	1,33	Low
Testability	3,93	High
Reusability	1,98	Medium
Analysability	1,4	Low
Replaceability	2,77	Medium

2.2.7 Assessment Model Quality Of The End Product Quality (External)

Weighting product quality based on Table 8 and judgment factors of Table 13, so assessment the end of products quality can be done in a weighted summation [22]. Here are the results of any factors quality against application fidusia use equation $score\,(Ci) = \sum_{i=1}^{n} Wi.Xi\,(Ci)$

C_1 = ($W_{functional\ suitability}.X_{functional\ suitability}$) + ($W_{maintainability}.X_{maintainability}$) + ($W_{usability}.X_{usability}$) + ($W_{security}.X_{security}$) + ($W_{reliability}.X_{reliability}$) +($W_{performa\ effeciency}.X_{performa\ effeciency}$) + ($W_{portability}.X_{portability}$)
= (0,37.3,05) + (0,23.3,1) + (0,15.2,98) + (0,11.3,36) + (0,07.1,61) + (0,04.3,34) + (0,02.2,77)
= 1,13 + 0,71 + 0,45 + 0,37 + 0,11 + 0,13 + 0,05
= 2,95

After value questionnaire krom user application notarial deed fidusia processed from 26 respondents which includes admin 20 respondents, 5 respondents editor , and 1 respondents owner use facility, then obtained final score after weightings and measurement is 2,95 which means application notarial deed fidusia categorized medium(enough good). 2.95 value was taken from the mapping based on Table 11.

2.2.8 Determination Calculation OO Metric (*Internal*)

Here is result of analysis internal use metric chidamber and khemerer obtained result table analysis internal that can be seen in Table 14.

Table 14. Calculated CK-Metrics

WMC	DIT	NOC	CBO	RFC	LOCM
7,62	0,95	18	1,24	11	0,72

Based on influence quality and value metric, then threshold values can be determined. The recommended threshold value on CK-Metric aimed at Table 15.

Table 15. ValueTreshold Quality For CK-Metric

Metric	Value
WMC	low,< 11
DIT	low,< 4
NOC	low,< 8
CBO	low,< 3
RFC	low,< 12
LCOM	low,< 4

In this study, quality value be divided into high and low [14]. Based on Table 14 to Table 15, so can be concluded results of value that has been in analysis, can be seen in table 16.

Table 16. Final Score

Metric	Value	Categoty
WMC	7,62	Low
DIT	0,95	Low
NOC	18	High
CBO	1,24	Low
RFC	11	Low
LCOM	0,72	Low

Metric value recommended to get software qualified seen in Table 17.

Table 17. Quality Value Recommended For CK-Metric

CK Metric	Recommended
WMC	Low
DIT	Low
NOC	Low
CBO	Low
RFC	Low
LCOM	Low

Based on Table 16 and 17, so for metric NOC will repaired

2.3 Improvements Systems

Improvements to systems is the next step of the systems analysis in which there was the result assessment software notarial deed fidusia. Repairs done based on judgment that has been done. Following improve software fidusia notarial deed, based on category low mapping value seen in Table 18.

Table 18. Results Mapping Recommendations For Improvement

Sub-Factors	Value	Quality Category
User Interface aesthetics	1,47	Low
Maturity	1,32	Low
Integrity	1,33	Low
Analysability	1,4	Low

Based on Table 18, it can be elaborated improvement on the application notarial deed fidusia as follows :

1. User Interface Aesthetics

With responsive in which to sub-factors a user interface aesthetics has value being low. Therefore repair will be done with responsive by applying design responsive in web application notarial deed fidusia.



Figure 4. Design Responsive Source New CSS For Desktop Computer Screen

2. Maturity

Based on Table 17 in sub-factors of maturity it has value low in which a problem on user experience[23] also is where web application notarial deed fidusia not having error messages, if admin do a mistake like a sample when wrong admit data should numerical or figures but admin admit data are the type character or letters



Figure 5. Error Message

3. Integrity

Based on Table 17 on that sub factors integrity in that it has value low who is also a problem demanding on user experience[23] is where a web application fidusia certificate not have a function on a page in the form of the right of access , to prevent unauthorized access

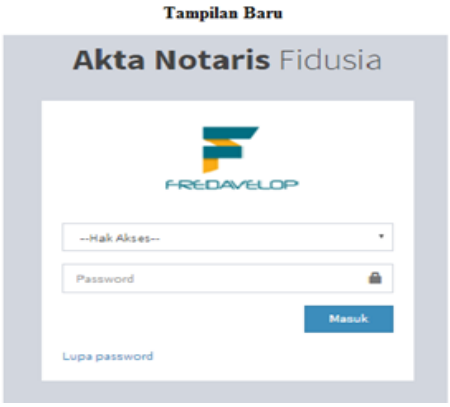


Figure 6. Application Right Access

4. Analysability

Source structure is based on assessments has done and based on scores in Table 17 obtained sub factors analysability has value low, so as to repair structure code [24]. Improving the standard of code application anotarial deed fidusia use codeigniter guide, following are samples application standard code with a file naming.

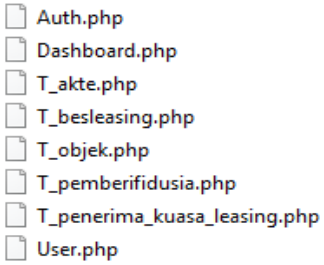


Figure 7. Application Of File Naming

5. Repair class metric NOC

Improvement in metric class NOC is based on assessments has done and based on scores in Table 16 obtained NOC high, while the recommended value NOC from Table 17 is low, so repair class. Following improvement NOC on the application notarial deed fidusia.

Table 19. Improvement NOC

Class	Jumlah NOC
Auth	0
T_fungsional	0
T_transaksi	0
T_fungsional _model	0
T_transaksi _model	0
My_*controller*	3
CI_model	2
Total	5

Based on Table 19 obtained results of value improvement NOC is 5 with quality low based Table 15, while value NOC earlier on Table 14 is 18 with quality high, it can be said improvement NOC are considered either because in line with approach recommended.

2.4 Testing System

Testing system will be conducted testing to know faults or shortcomings in web applications certificate fidusia notation improved recommended. Testing this system also aims to know whether web applications notarial deed improved fidusia have filled purpose or no. System testing that is done is using test User Accepatance Testing (UAT).

2.4.1 Testing User Acceptance Testing (UAT)

Testing UAT is tests carried out with respect to necessity users last or end user with a view to determine whether software that built have filled or not criteria for receiving and to allow users, customers or other body authorities determine whether software have qualified received or not [25]. Testing uses method the questionnaire to users of application notarial deed fidusia.

2.4.1.1 Questionnaire Testing

As for the question of questionnaire testing beta is equal to clear in Table 2. Here are the responses of any questionnaire to be distributed to 26 user, covering 20 admin , 5 editor , and 1 owner seen in Table 20.

Table 20. Answear Question

Scale Likert		Scale Gutmann	
Answear	Description	Answear	Description
A	Sangat Setuju	A	Ya
B	Setuju	B	Tidak
C	Biasa Saja		
D	Kurang Setuju		
E	Tidak Setuju		

2.4.1.2 Questionnaire

As for result of testing is based on Table 18 in which will test results sub-factors a user interface aesthetics, maturity, integrity, and analysability Following testing the questionnaire as follows:

1. Results of a questionnaire about testing the number 10 for sub-factors user interface aesthetics.

Table 21. Results Testing The Questionnaire Respondents Admin About No.10

Answear	Description	Respondents Admin	Number of value
A	Yes	11	55
B	No	9	9
Total		20	64
Average		3,2	

Table 22. Results Testing The Questionnaire Respondents Editor About No.10

Answear	Description	Respondents Admin	Number of value
A	Yes	2	10
B	No	3	3
Total		5	13
Average		2,6	

Table 23. Results Testing The Questionnaire Respondents Owner About No.10

Answear	Description	Respondents Admin	Number of value
A	Yes	1	5
B	No	0	0
Total		1	5
Average		5	

Table 24. Result Of Testing No.10

Respondents	Result of Testing
Admin	3,2
Editor	2,6
Owner	5
Total	10,8
Average	3,6

Based on testing in Table 21, Table 22, and Table 23 in be results seen in Table 24 with final score 3,6 on application which has a fix. Can be seen comparison value on the application of old in Table 18 have final score 1,47 and new applications in Table 24 with final score 3,6. For more details ,comparison can be seen in Table 25.

Table 25. Comparison Testing About No.10

Old Application		New Application	
Respondents	Result of Testing	Respondents	Result of Testing
Admin	1,6	Admin	1,6
Editor	1,8	Editor	2,6
Owner	1	Owner	5
Total	4,4	Total	10,8
Average	1,47	Average	3,6

Here is result comparison of sub factors that time with improved seen in Table 26 and Table 27.

Table 26. Comparison Sub-factors Value

Old Application			New Application		
Sub-Factors	Value	Quality	Sub-Factors	Value	Quality
User Interface aesthetics	1,47	Low	User Interface aesthetics	3,6	High
Maturity	1,32	Low	Maturity	3,73	High
Integrity	1,33	Low	Integrity	3,08	Medium
Analysability	1,4	Low	Analysability	3,87	High

Table 27. Comparison Value Software

Old Application			New Application		
Factors	Value	Quality	Factors	Value	Quality
Usability	2,98	Medium	**Usability**	3,06	Medium
Reliability	1,61	Low	**Reliability**	3,08	Medium
Security	3,36	High	**Security**	3,55	High
Maintability	3,1	Medium	**Maintability**	3,37	High

Here are results of any factors quality of recommended application fidusia to use equation $score\ (Ci) = \sum_{i=1}^{n} Wi.Xi\ (Ci)$

$C_{i=}$

$(W_{Functional\ Suitability} \cdot X_{Functional\ Suitability}) +$
$(W_{Maintability} \cdot X_{Maintability}) +$
$(W_{Usability} \cdot X_{Usability}) + (W_{Security} \cdot X_{Security}) +$
$(W_{Reliability} \cdot X_{Reliability}) +$
$(W_{Performa\ Effecency} \cdot X_{Performa\ Effecency}) +$
$(W_{Portability} \cdot X_{Portability})$

= (0,37.3,05) + (0,23.3,37) + (0,15.3,06) + (0,11.3,55) + (0,07.3,08) + (0,04.3,34) + (0,02.2,77)
= 1,13 + 0,77 + 0,46 + 0,39 + 0,21 + 0,13 + 0,05
= 3,14

After value of the questionnaire user fidusia application notarial deed made of 26 respondents which includes 20 respondents admin, 5 respondents editor, and 1 respondents owner use of facility, then got final score after weighting and measurements is 3,14 categorized medium (good enough) in which the application is 2,95 points.

3. CLOSING

Analysis based on discussion had been made very clear then a conclusion can be drawn and suggestions as follows:

3.1 Conclusion

Based on results or in this research , so obtained conclusion that:

1. Can be concluded that application notarial deed fidusia approach recommended more attractive and comfortable accessed. It is seen of the comparison of the an assessment of software standard uses ISO-25010.
2. Can be concluded that standard usage a program code provide facilities for development team to do maintenance, and this gives work maintenance faster.

3.2 Advices

And to advise future delivered as follows:

1. Quality assessments of could be done from user not only in terms of software.
2. To test quality of application notarial deed fidusia can be added by means of assess display UI / UX him.

BIBLIOGRAPHY

[1] I. Sommerville, Software Engineering, Software Engineering, 2010, pp. 56-81.

[2] A. Martinez, "Introduction to Object-oriented Programming," *Java.net*, pp. 1-32, 2014.

[3] E. Fernandi, F. Alfandri, G. A. P. P. O. dan R. Mathias, "Analisis dan Design Berorientasi Objek (OOAD)," no. 52412513, 2014.

[4] E. Marcotte, Responsive Web Design, 2010, pp. 1-22.

[5] J. Tian, "What Is Software Quality?," pp. 15-26, 2005.

[6] D. Galin, Software quality assurance: from theory to implementation, Software Engineering, IEEE, 2004, p. 616.

[7] "ISO/IEC 25010," [Online]. Available: http://iso25000.com. [Diakses 4 September 2016].

[8] S. Chidamber dan C. Kemerer, "A Metrics Suite for Object Oriented System," pp. 476-493, 1994.

[9] J. Simarmata, Rekayasa Web, N. WK, Penyunt., Yogyakarta: Andi, 2010.

[10] R. Pressman, Rekayasa Perangkat Lunak, Yogyakarta: Andi, 2002.

[11] S. C. Ag, "iso 25010, ISO/IEC JTC1/SC7 N4098," no. Resolution 937, p. 42, 2008.

[12] S. Wagner, Software product quality control, 2013, pp. 1-210.

[13] V. R. Basili, G. Caldiera dan R. H. D. , "The goal question metric approach," *Encyclopedia of Software Engineering*, vol. 2, pp. 528-532, 1994.

[14] P. Antony, "Predicting Reliability of Software

Using Thresholds of CK Metrics.," nternational Journal of Advanced Networking, vol. 1785, no. 6, pp. 1778-1785, 2013.

[15] I. Permana dan Zarnelly, "Penerepan Herarchical Clustering Pada Pengukuran Kohesi Kelas," vol. 12, no. 1, pp. 136-145, 2014.

[16] R. Seban, "An overview of object-oriented design and C++," Proceedings of 1994 IEEE Aerospace Applications Conference Proceedings, no. March, pp. 65-86, 1994.

[17] Z. A. Hasibuan, "Metodologi Penelitian Pada Bidang Ilmu Komputer Dan Teknologi Informasi," no. Universitas Indonesia, pp. 1-192, 2007.

18 W. G. S. P. Prawita and L. A. A. R. Putri, "Komponen Penilaian Kualitas Perangkat Lunak berdasarkan Software Quality Models," *Seminar Nasional Teknologi Informasi & Komunikasi Terapan 2012 (Semantik 2012)*, no. Semantik, pp. 89-94, 2012.

[19] W. Budiaji, "LIKERT (The Measurement Scale and The Number of Responses in Likert Scale)," vol. 2, no. 1, pp. 125-131, 2013.

[20] BPS, "Alat Ukur Penelitian Skala Linkert dan Skala Guttman," *Alat Ukur Penelitian*, pp. 1-3, 2010.

[21] E. Roszkowska, "Rank ordering criteria weighting methods," *Optimum. Studia Ekonomiczne*, vol. 5, no. 5, pp. 1-20, 2013.

[22] I. Y. Kim dan O. de Weck, "Adaptive Weighted Sum Method for Multiobjective Optimization," *10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*, no. September, pp. 1-13, 2004.

[23] S. Farrell and J. Nielsen, "User Experience Careers," p. 194, 2014.

[24] D. Gunawan, "Analisis dan Implementasi Metode Heuristic Evaluation dan Metode Code Refactoring pada Situs Web Museum Sribaduga Jurnal Ilmiah Komputer dan Informatika (KOMPUTA)," *Jurnal Ilmiah Komputer dan Informatika (KOMPUTA)*, pp. 1-8

[25] H. Brian dan V. G. Pauline, "Testing Basic For UAT," dalam *User Acceptance Testing- A step - by - step guide*, BCS Learning & Development Limited, 2013.