APPLICATION OF PROPOSITIONAL CALCULUS IN DETERMINING VB.NET-BASED STUDENT SCORE

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ABSTRACT

In this era of globalization, human life is always followed by various problems that must be taken with a decision. There is no day without a decision being made. There is an opinion that all his behavior is a reflection of the results of the decision-making process through his mind so that humans often make decisions. Through the process of identifying the problem until the selection is the best solution and this is what is called the decision-making process. The method used in this journal is propositional calculus. This method has the concept of determining a statement in which there are premises from which then through a truth table, one's statement can be drawn a conclusion. and after understanding what propositional Calculus is we can apply that material by creating a VB.NET-based app project with the aim of facilitating the work of lecturers or other instructors.
Keyword : Propositional Calculus, VB.net

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1. INTRODUCTION

At various universities, thousands of students and several lecturers are effective in several subjects. So that the assessment system often makes lecturers experience difficulties and takes a lot of time. Appraisers also usually use excel which incidentally is not very effective for assessment. Because each student is stored in one sheet only. So the authors created this assessment system to make it easier for lecturers and to help store data more structurally. In this study we used the propositional calculus method, seeing this problem we want to make an app or program using VB.net to make the lecturer's work easier or it can also be used by other teachers. Logic is the science of the works of reason (ratio) to guide towards the right. The goal of logic is to develop a system of methods and principles that can be used as criteria for judging someone else's argument and as a guide for constructing one's own argument. A proposition is a declarative sentence that is either true or false, but cannot be both. The truth or falsity of a sentence is called its truth value. In mathematics, not all sentences are related.

In this era of globalization, human life is always followed by various problems that must be taken with a decision. There is no day without a decision being made. There is an opinion that all his behavior is a reflection of the results of the decision-making process through his mind so that humans often make decisions. Through the process of identifying the problem until the selection is the best solution and this is what is called the decision-making process. The method used in this journal is propositional calculus. This method has the concept of determining a statement in which there are premises from which then through a truth table, one's statement can be drawn a conclusion. and after understanding what propositional Calculus is we can apply that material by creating a VB.NET-based app project with the aim of facilitating the work of lecturers or other instructors.

2. RESEARCH METHOD/MATERIAL AND METHOD/LETERATURE REVIEW

In this mini-research research design, we use an application design using VB.NET 6.0 programming, we conduct experiments and tests on applications that are made by studying the literature related to the

application development material to calculate student grades by applying it to the Proposition Curriculum method. by entering numbers into programs or applications.

The system design technique used by the author in this study is to use the VB.NET 6.0 programming to design an application to calculate student grades. to reach the goal. The system in this study is in the form of how the application works and is combined with the numbers entered in the Propositional Calculus material.

System design is the phase of system development that defines how the system in the application will be with logic. Only sentences that are true or false are used in reasoning. These sentences are called propositions. Then, on this occasion, we implemented it through the VB.NET application in order to design a program to calculate student passing grades. Students do what must be done to get results and solutions in this research.

Propositional calculus is a method used to calculate the truth value of a proposition. Propositional calculus is commonly studied by various groups of students, from high school to college. Propositional calculus studies the truth value (True/False) of a proposition. Example of Proposition Curriculum:

a. Humans are one type of creature on earth
b. Bandung is in the province of Central Java
c. Sumatra is a province.

The sentences above are propositions because the truth value can be known. Sentences (a) and (c) are true, while sentence (b) is false.

Microsoft Visual Basic (often abbreviated as VB only) is a programming language that offers a (real) visual integrated development environment for creating software programs based on the Microsoft Windows operating system using a programming model (COM). Programmers can build applications using components provided by Microsoft Visual Basic, programs written in Visual Basic can also use the Windows API or do not require additional external function declarations.

3. RESULTS AND DISCUSSION

A. Making a program using the propositional calculus method

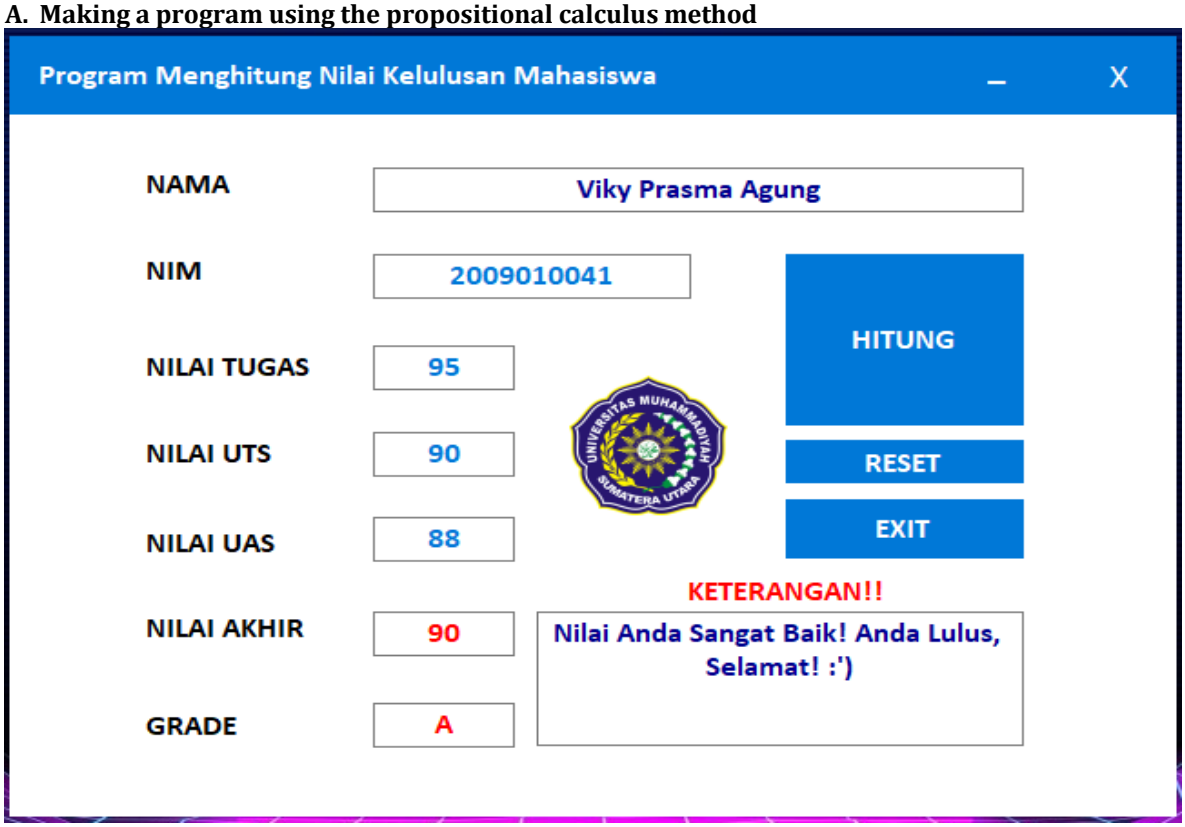

Figure 1. Program for Calculating Student Graduation Grades with Good Grades

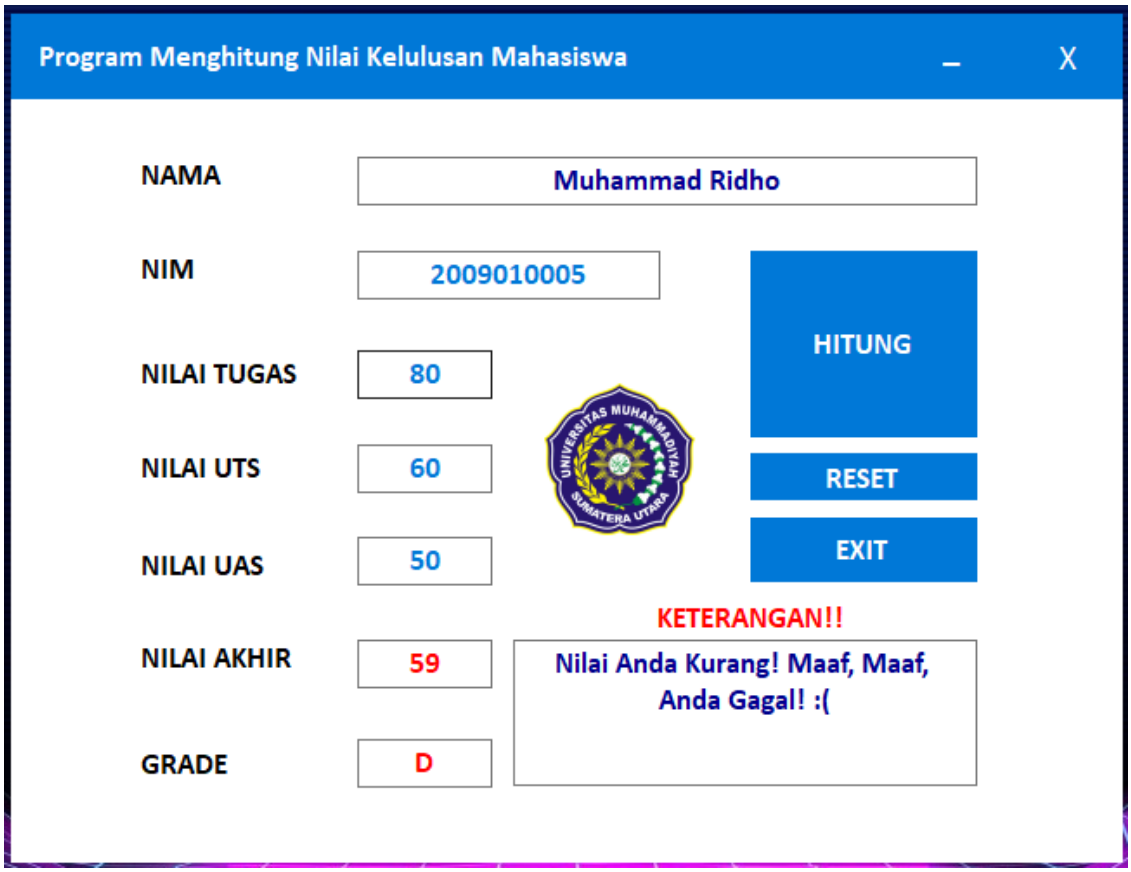

Figure 2. Program for Calculating Student Pass Scores with Failing Grades

We can issue the output by pressing calculate then the result is shown above i.e. in the final value and we will implement it to the truth table.

EXAMPLE:

1. If Viky gets a final score of 90 then he passed and got grade

A P = if viky gets the final score 90
q → = then he passes
∧ r = and get grade A
We can mean that statement
conclude with (p → q) ∧ r

Table 1. Truth Value

p	q	r	$(p \rightarrow q)$	$(p \rightarrow q) \wedge r$
B	B	B	B	B
B	B	S	B	S
B	S	B	S	S
B	S	S	S	S
S	B	B	B	B
S	B	S	B	S
S	S	B	B	B
S	S	S	B	S

2. If ridho gets a final score of 59 then he does not pass and get grade D
   p → = if ridho gets value end 59 then
   q → = he did not pass
   ∧ r = and get grade D
   we can conclude with
   (p → ∧ q) ∧ r

Table 2. Truth Value

p	$\neg q$	r	$(p \rightarrow \neg q)$	$(p \rightarrow \neg q) \wedge r$
B	S	B	S	S
B	S	S	S	S
B	B	B	B	B
B	B	S	B	S
S	S	B	B	B
S	S	S	B	S
S	B	B	B	B
S	B	S	B	S

3. Here we try to combine Premise of examples 1 and 2 as follows, If Viky gets a final score of 90 then he passed and got grade A If ridho get a final score of 59 then he doesn't pass and get grade D We can conclude with (p →q) ∧ r(p →∧ q) ∧ r.

Table 3. Truth Value

$(p \rightarrow q)$	$r \wedge (p \rightarrow \neg q)$	$\wedge r$ $(p \rightarrow q) \wedge r(p \rightarrow \neg q) \wedge r$
B	S	S
B	S	S
S	B	S
S	S	S
B	B	B
B	S	S
B	B	B
B	S	S

4. CONCLUSION

Based on research results and discussion that has been described before it can be concluded as follows:

1) A multimedia application has been created learning with subject matter Propositional Calculus of the eye Informatics Logic course, Department Information Systems, Study Program Faculty of Computer Science and University Information Technology Muhammadiyah, North Sumatra. This multimedia application contains Introductory material or method Compound Propositional Calculus and implement by creating an application determines the value students using VB.NET.
2) Tests have been carried out on program that shows that applications that have been made can works well and can used as one alternative for convenience the work of special teachers the lecturers and the program are very effective and real time.

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