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DESIGN OF ONLINE-BASED STUDY PROGRAM DETERMINATION APPLICATION

Vera Alviani1*, Ramdana2*

1,2 Prodi Ilmu Komputer, Fakultas Ilmu Komputer, Universitas Megarezky, Makassar. Email Address: veraalviani3@gmail.com1, Imuda931@gmail.com2

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Abstract
Application simulation for determining study programs based on online and implementing simulations to assist prospective students in choosing study programs at STMIK AKBA Makassar. The tests in this thesis include the DAT (Differential Attitude Test) test. Making this simulation using the PHP programming language and using the Bootstrap Framework where the database uses the MySQL database. System testing has been carried out using the Black Box testing method. The results of this study indicate that this application can run well. This simulation does not precisely provide a decision on the problems faced by prospective students in determining the study program but only complements information before making a decision.

Keywords: Simulation, Application, DAT (Differential Attitude Test), Study program, Online

1. Introduction
Many students are not mature enough in preparing themselves to choose majors in higher education, as a result many people are constrained in taking education in lectures. We often hear of many students who fail in the middle of the road or drop out when they have been accepted in college. There are also many cases of students who feel that they do not match their interests when they have obtained the material on the lecture bench, and eventually they change majors. Situations like this are certainly self-defeating, considering the costs and time that have been sacrificed to attend lectures that are not in accordance with our interests. Therefore, before students choose the right major, they must first know their interests for sure.

Generally, to find out someone's interest, an interest test is carried out. Sticky tests are associated with measuring the mastery of certain materials or the abilities of a person. The results of the test can be used to make decisions. Test results are considered valid evidence from individuals, which can be used for example for grade promotion, graduation, or determining majors in an educational institution.

Usually, tests are carried out in writing on paper (paper-based tests), but along with the development of information technology, written tests have begun to shift to being replaced by computer-based tests. computer. Various educational institutions have developed interest test instruments, but in practice, it is still done manually so it is not efficient in terms of examination.

There are many advantages of conducting tests via computer, including being able to conduct tests at the right time for participants, reducing time for test examination work and making written reports, and
eliminating logistical work such as distributing. Taking into account these advantages, the manual learning interest test needs to be replaced with a computer-based learning interest test with the aim of making it easier for students to find out their interests quickly and efficiently and making it easier for them to choose the appropriate major.

2. Literature Review

2.1. Differential Aptitude Test (DAT)

The Differential Aptitude Test (DAT) multiple-aptitude test series, which in Indonesian can be used as the Aptitude Difference Test, is one of the most widely used multiple-aptitude test series in education and work. The DAT was first published in 1947, and was revised in 1963. The authors of the DAT were G. Bennett, H.G. Seashore, and A.G. Wesman from the USA. DAT uses the PMA model of intelligence factor group theory or Mental Ability (KMP) from Thurstone. The purposes and objectives of the DAT include:

a. As an academic means to obtain scientific, integrated, and standard assessment procedures for students.

b. Designed for educational and vocational (occupational) guidance.

c. Can be used in the industrial sector for employee placement and further promotions (development of factory employee development). The description of the sub-test is:

1. Verbal Reasoning (VR)/Verbal Reasoning Test Designed to measure the ability to think abstractly, generalize, and constructively understand verbal concepts. The vocabulary used in this test includes vocabulary commonly used in various fields, including history, geography, literature, and science. This test material is in the form of a simple analogy, which is commonly used in general intelligence tests, although this simple analogy has been based on association rather than thinking. The results of this VR test measurement are expected to predict success in a field that emphasizes understanding verbal concepts.

2. Numerical Ability (NA) / Arithmetic Ability Designed to measure the ability to understand numerical relationships and solve problems related to numerical concepts. This test measures computational ability rather than numerical reasoning. This test is very important for prediction in the fields of mathematics, physics, chemistry, engineering, and other fields that require the ability to think quantitatively. Predictions in occupations such as accounting, statistics, and laboratory assistants. NA together with VR is used to estimate General Learning ability.

3. Abstract Reasoning (AR) / Abstract Reasoning Designed to measure non-verbal reasoning. Each test item requires a logical understanding of the principles used to modify diagrams and the ability to distinguish small differences in lines, areas, and shapes. AR is used for prediction in the fields of education and professions that require understanding the relationship between objects or objects. The AR score can be used as a consideration to understand one's reasoning if someone has language difficulties and gets a low score on the VR test.

d. Relations (SR) / Spatial relations or space Measuring the ability to visualize the construction of three-dimensional objects that are built from two-dimensional patterns and the ability to imagine the various ways used to rotate the object so that it has a building as shown in the picture.

e. Mechanical Reasoning (MR) / Mechanical Reasoning This test is a new form of the Spatial Mechanical Comprehension aptitude test. Each item of this test presents a picture of a mechanical situation accompanied by questions in simple words. This test measures understanding of the principles of mechanics and physics in familiar situations. This test score will be influenced by individual experience, even if it only increases a few points. These results are used to predict success in study and work that demands an understanding of the general principles of physics.

f. Clerical Speed Accuracy (CSA). This test is designed to measure the speed and accuracy
of responses in tasks that require simple perception. The testee's task is to choose the same combination of numbers or letters with a low score indicating that the testee has difficulty in terms of success, accuracy, and speed in doing the task.

2.2. PHP

PHP is known as a scripting language that is integrated with HTML tags that are executed on the server and is used to create dynamic web pages such as Active Server Pages (ASP), or Java Server Pages (JSP). Since 1996, PHP has been widely used in websites around the world. A software development group consisting of Rasmus, Zeev Suraski, Andi Gutman, Stig Bakken, Shane Caraveo and Jim Winstead worked together to perfect PHP 2.0. Finally, in 1998, PHP 3.0 was launched. Improvements continued to be made so that in 2000 PHP 4.0 was issued. Does not stop there, PHP's capabilities continue to grow to this day. The weaknesses and strengths of PHP are:

a. Advantages
   1) PHP programming language is a scripting language that does not compile in its use.
   2) Web server that supports PHP a lot.
   3) Can run on all operating systems.
   4) PHP has the ability to process images, PDF files, and flash movies.
   5) PHP is supported by many databases.

b. Deficiency
   1) Not detail for large-scale development
   2) Does not have a true object-oriented programming system.
   3) Unbiased to separate the display with logic properly.

3. Research Methodology

The system that will be built is a system that is useful for prospective STMIK AKBA students in determining the study program to be taken when they want to continue their education at STMIK AKBA. The system built will be accessible to all students by accessing the website address that will be determined to run the system to be built.

The hardware used in building this system is:
   a) Processor Intel core i3
   b) 2GB RAM capacity
   c) Nvidia GEFORCE GT520M
   d) 500 GB Hard Drive Capacity
   e) Keyboard
   f) Mouse

The software required to build this system is:
   a) DreamWeaver, serves to design the appearance of the system created.
   b) XAMPP, serves as a liaison between the computer and the local network
   c) PhpMyadmin, functions as a database design that will be used.
   d) Windows 7 Ultimate Operating System
   e) Web Browser, used to access the system address created. A web browser that
      1. used like Mozilla firefox, interexplorer, etc

The design of this application system uses object-oriented design methods using UML (Unified Modeling Language) to determine, visualize, construct, and document information used or generated in a system creation process.

Based on the analysis that has been done in making this application, it can be seen what is the (input), output (output), the method used, and the system interface is made, so that the system is made as expected. The results of the design are in the form of an overview of the application as a whole which will explain the implementation process of the system.

4. Result And Discussion
System testing is carried out to check the results of the designed and implemented system performance. The main purpose of system testing is to ensure that the elements or components of the system being tested are functioning as expected. The test method used is the black box testing method, namely testing the fundamental aspects of the software. This method is used to find out whether the software is functioning properly based on the software specifications.

Analysis of the system on the admin to be made:

a. Admin accesses the web address of the system that has been created.
b. Then the admin is required to log into the system.
c. After logging in, the main menu display from the system will appear and the admin can see data from users who have registered on the system or data from questions available in the system.
d. Then the admin can update the question data, delete the question data, and delete the registration data that has registered on the system.

Here are the system test results

1. User System Test

In the admin form when logging in, you must enter a user name and password that matches the user name and password that have been inputted in the admin form and stored in the database. When the user enters the wrong username and password, when the login button is pressed, the message "USER NAME:" will appear. OR "WRONG PASSWORD" and when the user enters the correct user name and password, the message “LOGIN SUCCESSFUL” will appear and all admin menus will be active. The question form is used to find out the talents and interests of new students.

![Input SCOL](image)

Gambar 1. Question Form Display
The system will provide information to the user about the chosen major. The results or answers from students will be a determining indicator of the majors that students will choose.

Gambar 2. Student Test Score Form

5. Conclusion

The output of this system is used as a reference in advising the selection or determination of majors for new students, but this system has not used a special method that can analyze the shortcomings of each department in accordance with the talents and interests of new students. This system is also equipped with a report facility to print the results of each input made by Adam or the user.

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