

## Pencak Silat Match Score Assist Application

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**Abstract.** In 1973 for the first time, pencak silat competed precisely at PON VIII in Jakarta. Until now, matches have always been held at the district level and even ASEAN in the annual activity agenda. In a match, of course, there is an assessment to find the final result of a match, the match assessment tool in each match event is still manual, which uses paper and pen media to determine the value of the match, but such a scoring model has problems in the time of accumulation of total assessments, the loss of assessment data paper after the match and the high costs incurred to buy match assessment tools. It is hoped that the Pencak Silat Match Assist Score Application can help assess pencak silat matches and enjoy its usefulness in all pencak silat martial arts games at the regional, district, and even national levels.

**Keywords:** Pencak Silat, Match, Rating, Application Score

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## INTRODUCTION

Pencak silat or silat is a traditional martial art originating from Indonesia. It is a martial arts system inherited by ancestors as the culture of the Indonesian nation so it needs to be preserved, fostered, and developed. The martial art of pencak silat is widely known in Indonesia, Malaysia, Brunei, Singapore, and southern Thailand following the spread of the archipelago. One martial art that requires a lot of concentration is Pencak Silat. There are influences of Chinese culture, Hinduism, Buddhism, and Islam in pencak silat. Usually, every region of Indonesia has a distinctive pencak silat flow.

For example, West Java is famous for Cimande and Cikalang flows, in Central Java there is the White Pigeon flow and in East Java there is the Perisai Diri stream. At the national level, martial arts Pencak silat has become one of the nation's unifying tools, even making the nation proud, and becoming the nation's identity. One of the places to practice these traditional martial arts is called Cahaya Hati pencak silat college, precisely on Jalan Alun-Alun Palimanan, Cirebon Regency. Many from children to adults participate in practicing martial arts there.

In a match, of course, there is an assessment to find the final result of a match, the match assessment tool in each match event is still manual, which uses paper and pen media to determine the value of the match, but such an assessment model has problems in the time of accumulation of total assessments, the loss of assessment data paper after the match and the high costs incurred to buy match assessment tools. The rapid development of technology, starting from these problems, the reason for choosing the title "Pencak Silat Silat Match Assist Score Application" is expected to provide a solution to the above problems. On that basis, it is hoped that the creation of the "Pencak Silat Match Assist Score Application" can create an application to help the assessment of pencak silat matches and enjoy its usefulness by all pencak silat martial arts at the regional level of Cirebon Regency.

## LITERATURE

The word "application" has many meanings and uses in different contexts. It can refer to a formal request for something, such as a job or a grant, or to the action of putting something into operation, such as a technique or a law. It can also refer to the action of applying something to a surface, such as paint or cream, or to the sustained effort required to achieve something, such as a goal or a skill. Additionally, it can refer to a software program that performs a specific function, such as a browser or a game, or to the practical lesson or conclusion that can be drawn from a speech or a writing. The word "application" is used because each of these things has a specific application for the user or the situation. Application is the application, storing things, data, problems, and work into a media that can be used to apply existing problems so that they turn into a new form without losing the basic values of data, problems, and the work itself. (Jogiyanto, 2013).

Pencak silat is a martial arts system inherited from our ancestors as the culture of Indonesian society. It is a way of protecting oneself that involves hitting, wrestling, tossing, and using weapons, and it has many diverse forms and traditions throughout the islands. Pencak silat is more than just a bodily skill, but also a mental one, as it expresses the beliefs and principles of the Indonesian people. Pencak Silat is a martial arts system inherited from our ancestors as the culture of Indonesian society so it must be preserved, fostered, and developed.

Indonesia is the center of traditional pencak silat, the official term pencak silat in several different regions, for example in West Sumatra with the terms silk and yuan, in

West Java with the terms Maenpok and Penca, at the 1973 pencak silat seminar at Tugu Bogor the standard term is pencak silat was produced. In the Big Indonesian dictionary, the term pencak silat means a game (skill) in self-defense with the ability to parry, attack, and defend yourself, both with weapons and without weapons. (Erwin, 2015)

XAMPP is a free and simple software package that includes Apache, MariaDB, PHP, and Perl, which are important components for web development. XAMPP is an open source and free software package that gives you a full web development environment on your computer. It contains Apache, MariaDB, PHP, and Perl, which are the essential components for making and running web applications. XAMPP is made to be simple to install and use, and it works with different operating systems such as Windows, Linux, and Mac OS X.

Puspitasari (2011), argues that "XAMPP is an Apache web server software in which there is already a MySQL database server and PHP programming support. XAMPP is a free easy-to-use software that supports installation on Linux and Windows. Another advantage is that only installing 1 time is available for Apache web server, MySQL database server, PHP support (php4 and php5), and several other modules only the difference if the Windows version is always in the form of a graphical installation and the Linux one is in the form of a compressed file. Another advantage that is different from the version for Windows is that it has a feature to activate a server graphically, while Linux is still in the form of commands in the console. Therefore, the version for Linux is difficult to operate".

Android is a mobile phone operating system and touch screen tablet computer based on Linux. But along with its development, Android turned into a platform that was so fast in innovating. This cannot be separated from the main developer behind it, namely Google. It was Google that acquired Android, then made a platform. The Android platform consists of a Linux-based operating system, a GUI (Graphic User Interface), a web browser, and End-User applications that can be downloaded and also developers can freely work and create the best and open applications for use by various devices (Kasman, 2015).

According to Fifin, Hakiky. M, Ichwan. (2012) API stands for Application Programming Interface and allows developers to integrate two parts of an application or with different applications simultaneously. APIs consist of various elements such as functions, protocols, and other tools that allow developers to create applications. The purpose of using APIs is to speed up the development process by providing separate

functions so that developers do not need to create similar features. The implementation of the API will be felt if the desired feature is very complex, of course, it takes time to make something similar to it. For example, integration with payment gateways. Many different types of API systems can be used, including operating systems, libraries, and the web.

In simple terms, a database can be expressed as an organization of data with the help of computers that allow data to be accessed easily and quickly. In this case, the notion of access can include obtaining data and manipulating data, such as adding and deleting data (Kadir, 2010: 2). Database or often also spelled database, is a collection of information stored in a computer system so that it can be checked using a computer program to obtain information from the database. The software used to manage and query databases is called a DBMS database management system. Database systems are studied in information science (Masria, 2012).

Pencak silat college is an educational institution that trains and teaches the knowledge and practice of Pencak Silat. Cahaya Hati pencak silat college is a university in Cirebon Regency, This organization was named Pencak Silat Martial Arts College (PSBDPS) Cahaya Hati (CH) on May 1, 1999, by the son of PGRI under the care of Sukari S.Pd and Casmita, NA, BA (Alm) in Palimanan, inaugurated by the head of PPLP PGRI Palimanan Kab. Cirebon until an indefinite time. (Ad/Art, 2015)

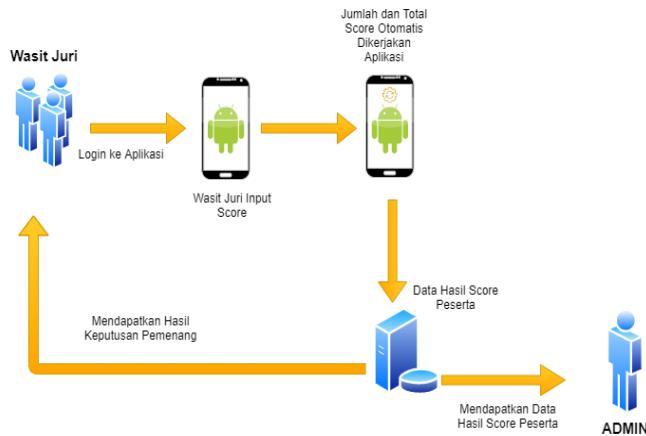
Pencak silat has a very visible element of art, especially if you look at the development or interest of pencak silat and the fighting element of Pencak silat has become a competitive sport that is competed. With the strengthening of the IPSI XII Munas pencak silat is an achievement sport consisting of four categories, namely the sparring, singles, doubles, and team categories. An athlete participating in the sparring category requires technique, tactics, a good mentality, and stamina (Munas XII IPSI, 2007: ii).

The sparring category is a pencak silat match category featuring 2 (two) fighters from different camps. Both face each other using elements of defense and attack, namely parrying/evading/attacking/dodging at the target and knocking down the opponent. The use of tactics and competing techniques, endurance stamina, and fighting spirit, using rules and step patterns that utilize the wealth of skill techniques, get the most value. (Munas XII IPSI, 2007: 1)

Score or Score is the result of scoring work (giving scores) obtained by adding numbers for each item that the testee (a term for the person taking the test) has answered correctly, taking into account the weight of the correct answer (Sudijono, 2003).

## METHOD

The match scoring system uses the Assist Score application where the process already uses a system that uses Android smartphone digital media connected to the internet network. The match scoring system is illustrated in Figure 1:



**Figure 1. Flow Diagram New System the Match Scoring**

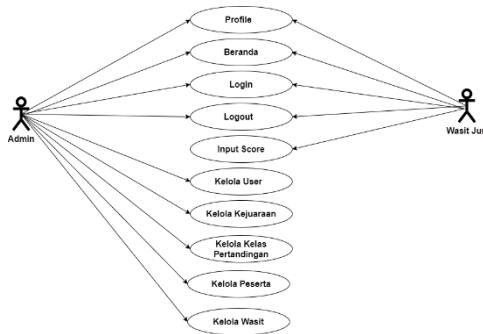
The Assist Score application is an application that processes data in judging matches played by referees using the Android operating system, mobile phone operating systems and Linux-based touch screen tablet computers, GUI (Graphic User Interface), and downloadable End-User applications, for the committee using PHP is supported by a MySQL database which is useful for storing relatively large amounts of data.

System requirements analysis determines all existing needs in the complete system. Functional needs analysis. Includes: 1) The system must be able to display the assessment board on the screen of the Android smartphone. 2) The system must be able to add scores on both sides of the participant when the match starts. 3) The system must be able to display various match classes in the pencak silat championship 4) The system must be able to store the results of the match scores. 5) The system must be able to display the instructions for the use of the application 6) The system must be able to display information about the application.

Non-Functional Needs Analysis includes: 1) Used on smartphones with Android OS (Operating System). 2) Android OS at least Lollipop version (5.0). 3) RAM requirement of at least 1 GB.

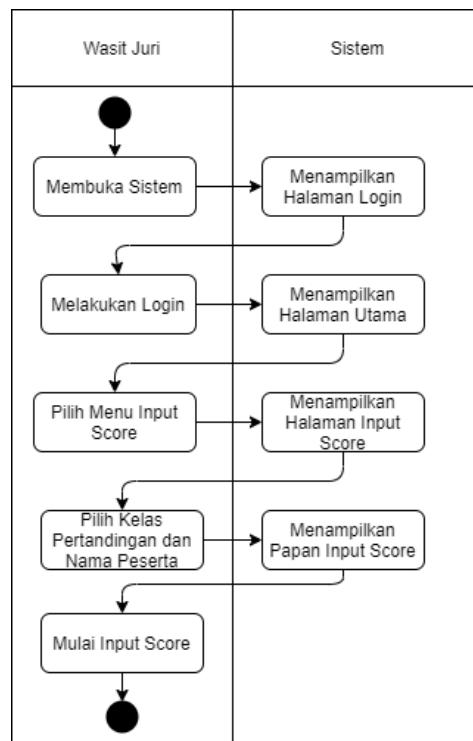
The design of system procedures is the result of changes and corrections of the current system so that the proposed system can cover the shortcomings of the running system.

The purpose of designing system procedures is to make it easier for users to understand how the system works, describe the expected functionality of the system, and represent how actors (users) interact with the system.



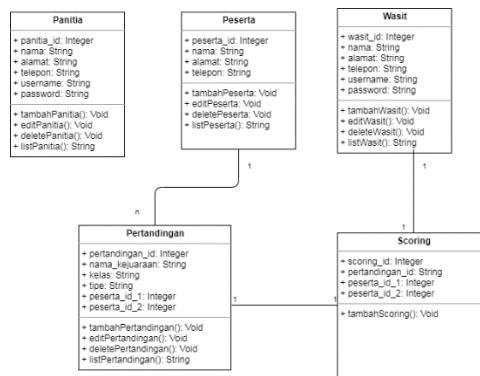
**Figure 2. Use Case Diagram**

Figure 2 describes each description of the use case diagram performed by the Committee, Admin, and Referee Judges. Starting from the Login process, managing the championship, Input Score to Logout. Activity diagrams illustrate the various activity flows in the designed system, how each flow begins, the possible decisions, and how they end. The depiction of activity diagrams has similarities to flowchart diagrams. Activity diagrams model the events that occur in the use case and are used to model the dynamic aspects of the system.



**Figure 3 Activity Diagram Input Score**

Figure 3 illustrates how the process of actors (referees, judges) assessing each participant by pressing the number keypad.

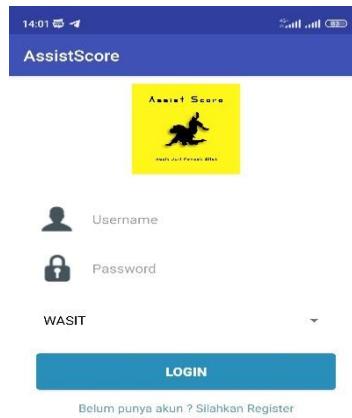


**Figure 4. Class Diagram**

Figure 4 shows class diagram. A class diagram is a specification that generates an object and is at the core of object-oriented development and design. Class diagrams describe the state (attributes/properties) of a system while offering services to manipulate those states (methods/functions).

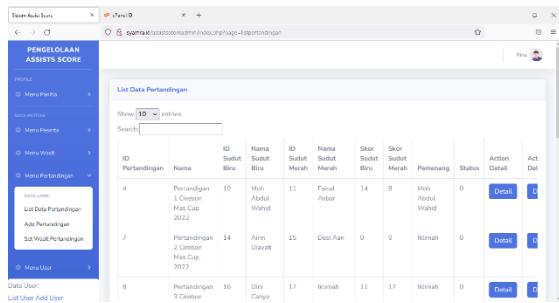
## DISCUSSION

The application produced from the system designed is the Assist Score application in the form of an android-based pencak silat championship processing application to assist the committee and referees in facilitating the running of match events.



**Figure 5. Login Menu**

Figure 5 shows the menu for logging in to application users. Through this menu the user can enable other menus in the application. One of the features of the application is the login menu, which allows the user to access their account and use other functions of the application. The login menu requires the user to enter their username and password, or to create a new account if they don't have one. By logging in, the user can enable other menus in the application, such as settings, profile, messages, and more.



**Figure 6. Match**

Figure 6 shows the match menu. There is a match list, Add Match, Match Referee Set. The application has a match menu, which displays the information and options related to the matches. The user can see a list of matches that have been scheduled, completed, or cancelled, and view the details of each match, such as the date, time, venue, teams, and score. The user can also add a new match by entering the necessary data, such as the match's name, type, category, and participants. The user can also assign a referee for each match by selecting from the available referees in the application.



**Figure 6. Input Score**

In Figure 6 The score input page is a page accessed by the referee to input the score printed by participants on both sides. The application allows the referee to input the score of each match on the score input page. This page can be accessed by the referee after logging in to their account and selecting the match that they are assigned to. The score input page shows the name and category of the match, as well as the names of the participants on both sides. The referee can enter the score for each participant by typing in the numbers or using the buttons on the screen. The referee can also edit or delete the score if there is a mistake or a change. The score input page helps the referee to record and update the score of each match accurately and easily.

## CONCLUSION

Based on the results of the design of the Android-Based Assist Score application, it can be concluded: First, after analyzing and designing, the results are obtained, namely the Assist Score application can calculate the score automatically and make it easier for the Referee Judges; Second, in the application, there is registration via the web making it easier for admins to register for Pencak Silat championship events.

To continue to improve this application, this application needs to continue to be developed, including: First, create an application that incorporates elements of artificial intelligence in determining the referee who officiates; Second, create a score calculation application with additional camera history features integrated with the application.

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