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# ICT application in cyber counseling as a teacher accelerator with optimizing WhatsApp based mobile computing

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**Abstract.** This long-term study aims to make it easier for teachers to describe one model of counseling services. Teachers are required to be able to provide good and best service through the process of counseling guidance. The development of Information and Communication Technology (ICT) can be utilized in cyber counseling and handling of various services, for example, almost all students have mobile phones which on average can already be utilized to build the system by optimizing WhatsApp based mobile computing capable of providing e-counseling services and saving time and cost. Service Guidance and counseling is not always face to face. There is an easier service that is with cyber counseling that allows counseling not feel embarrassed or awkward that can be done anytime and anywhere. Utilization of Information and Communication Technology (ICT) in contemporary times become very relevant when applied in guidance and counseling activities. Therefore, it is expected to also increase the researcher both skill and competence that will boost the institution where the researchers work, namely: Kanjuruhan University Malang.

## 1. Introduction

In this study aims to help teacher's guidance and counseling (BK) in order to carry out their duties and responsibilities optimally. Counseling guidance both at school and outside the school is required to have insight, knowledge, skills and values and attitudes in achieving the goals of counseling services. The impact on solving the problem must be reoriented. We no longer have to think about how to solve problems (problem solving), but how to recognize potentials and anticipate problems with this potential. This is continuous with the reorientation of current guidance and counseling (BK). That the concentration of BK is currently not on the problems of students that must be resolved, but how to recognize the potential and use preventive-developmental strategies to help students embody their potential [1] It is not surprising that counseling disciplines have been influenced by technological developments. The more technology is increasing, the more professionals who help need to utilize new technology. The internet is a new technology that influences the field of counseling psychology [2]. Along with the explosion of the cyber world for connection, learning and entertainment, there is a phenomenal rapid growth in demand by individuals of all ages for the world of counseling or e-therapy [3]. Cyber counseling or e-Therapy is considered a realistic way of responding to mental health service requests, a demand that is expected to increase exponentially in the coming years [4]. Besides that, facilities and infrastructure are also needed, for example the availability of counseling rooms, books, visual media (recording counseling) and instrument application programs that are used to assist



counseling guidance in schools as a model describing counseling services namely e-counseling and utilizing Information Technology in BK. Therefore, it is very important to prepare students for social workers to utilize competently technology in their practice [5]. According to Statsky said that A smartphone is a mobile phone that performs many of the functional of a computer the device operates by touchscreen [6]. That is a smartphone (smart phone) is a cellphone that functions a lot from a computer, the device operates with touch screen [7]. In this study we will optimize WhatsApp based on mobile computing because almost all vocational high school students have mobile phones, so the teacher can do such counseling and guidance services not always face to face or face to face. There are easier services, namely cyber counseling that allows counseling to not feel shy or awkward that can be done anytime and anywhere. The use of Information and Communication Technology (ICT) in contemporary times is very relevant when applied in counseling and guidance activities. The latest study shows that the most popular instant messenger is WhatsApp [8]. Therefore, this is expected to be effective to help teachers and individuals optimally develop and adapt to the progress of the times without being eroded by negative influences.

## 2. Literature review

### 2.1. Definition of Information and Communication Technologies (ICT)

According to Fitrihana, ICT is a system or technology that can reduce the limits of space and time to retrieve, move, analyze, present, store and convey data information into information [9]. And in the context of learning, ICT includes all things related to the use of computers to process information and as learning aids as well as a source of information for teachers and students.

### 2.2. Understanding cyber counseling

2.2.1. *Cyber counseling.* Moh. Surya suggests that in line with the development of computer technology, the interaction between counselors and clients is not only done through face-to-face relationships but can also be done through virtual (virtual) relationships through the internet in the form of "cyber counseling" [10]. This guidance and counseling service is one of the innovative counseling service models in an effort to show practical services and can be done anywhere as long as there is a connection or connected to the internet [11].

Cyber Counseling is a virtual guidance and counseling strategy or counseling that takes place through the help of an internet connection. In this case the counseling process takes place through the internet in the form of web sites, e-mail, Facebook, videoconferencing (Yahoo messenger) and other innovative ideas. The counseling process using cyber counseling or virtual counseling means that the counselor and the client are not physically present in the same time and space [12].

2.2.2. *The concept of cyber counseling.* Cyber word is a term from the internet. The term of the internet is certainly no stranger to our ears, because since its emergence in 1969 and experienced very rapid development in 1993/1994, the presence of the internet has brought significant changes to various changes in aspects of human life, especially in terms of freedom to obtain and disseminate information without knowing geographical limit. There are currently three opinions that say that the internet is an abbreviation of International Network, Internetworking, and Interconnected Network. But some experts tend to call it Interconnected. Deeper the internet is a collection of world computer networks consisting of millions of small units, such as education networks, business networks, government networks, etc., which together provide information services such as e-mail, online chat, transfers file, and take care of each other.

Forms of guidance and counseling services that can be sought are consulting services, information services, individual counseling services, group counseling services, and other services that can be developed by each counselor and in accordance with counseling needs.

### 2.3. *Android-based Smartphone Application*

2.3.1. *Understanding smartphone applications based on Android.* The application comes from the word application which means application, application, usage. Understanding the application is a ready-to-use program that can be used to execute the commands of the user with the aim of getting more accurate results in accordance with the purpose of making the application [13].

To be able to use the Android application, the user must first download and install the file with the extension .apk, this facility can be accessed through an application called Play Store which is available on every Android phone [14].

### 2.4. *WhatsApp*

WhatsApp is an instant messaging application that allows us to send files, messages, pictures, videos, photos and online chat like Blackberry Messenger. But WhatsApp is more attractive on iPhone users, like what WhatsApp first appeared for the Apple iPhone. Along with the development of WhatsApp, now this application is available for the Android version, Windows Phone Blackberry and Symbian. WhatsApp, is also one of the best-selling applications downloaded worldwide, especially for Smartphone user [15-17].

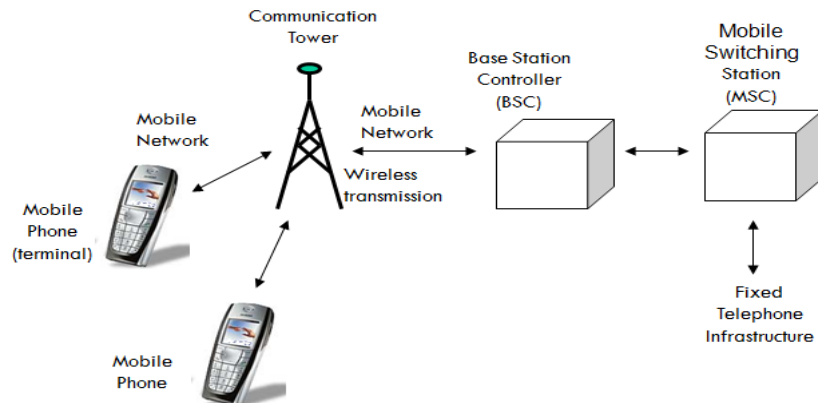
The WhatsApp application does not require pulses like SMS to operate, because it only requires an internet data package (EDGE / 3D) or Wi-Fi. WhatsApp contact users can be automatically detected on our smartphone device if our phone also uses WhatsApp application. Currently WhatsApp is very popular for users of Smartphone Android, Blackberry, iPhone, iPad, Tablet, and also Windows phones. WhatsApp can be downloaded for free on Google Play Store (Android), Blackberry App World, Nokia OVI Store, Windows Phone Marketplace, iPhone App Store or on the official WhatsApp website

2.4.1. *Advantages of WhatsApp.* WhatsApp is an instant messaging application that is popular for smartphone users. Of course WhatsApp also has advantages compared to similar applications. Here are some of the advantages of WhatsApp [13,18].

- We can see WhatsApp contacts on Phonebook, because WhatsApp contacts are synchronized automatically with phonebook contacts.
- We can replace avatars on WhatsApp manually or automatically synchronize phonebook or Facebook photos
- Unlike Blackberry Messenger that uses a PIN, the PIN on WhatsApp is a telephone number so that we can call directly from this application.
- There are Broadcast Message and Group facilities to build communities.
- Not only text, but also images, photos, videos, locations (GPS) that can be sent directly to chat (not in the form of links)
- Many Emoticons provide various themes ranging from the emotions of people, objects, weather, and so on.
- There are also blocking facilities, copy paste and search.
- Save Bandwidth

### 2.5. *Mobile computing*

Understanding mobile computing is the ability of technology to deal with the movement / movement of humans in the practical use of computers. Some notions of mobile computing include [12,19,20]:

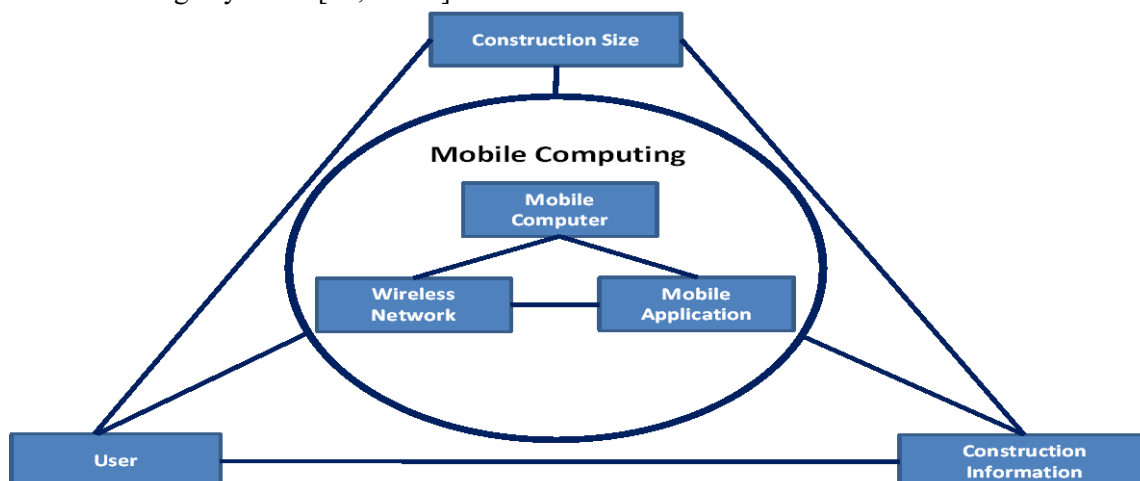


**Figure 1.** Wireless computing.

- Mobile computing is a new paradigm of technology that is able to communicate. even though the user moves.
- Is the advancement of computer technology, often referred to as mobile computers (portable computers) that can communicate with wireless networks (wireless).
- Is a set of equipment (hardware), data, and application software that mobilizes / moves locations.
- Is a particular class of distributed systems where several nodes can escape from distorted operations, move freely, and reconnect to different networks.
- Not the same as wireless computing.

By using mobile computing, we will get a lot of advantages. These advantages include:

*2.5.1. Mobility.* You don't need to tie yourself to a certain place. You can do your work while sitting in a car or train. You can communicate with other people while sitting anywhere in the world. You can chat online with your friends and family members while sitting on the beach. You can do your office work while sitting anywhere [12, 21-23].



**Figure 2.** Mobile Computing Concept.

- Portable technologies
- Internet access on the go.
- Laptops, PDAs, standard cell phones.
- Indispensable way of life.

2.5.2. *Effectiveness*. By using mobile computing, more work can be done because of flexibility in terms of workplace.

### 3. Methodology

The methodology used in working on this research is as follows:

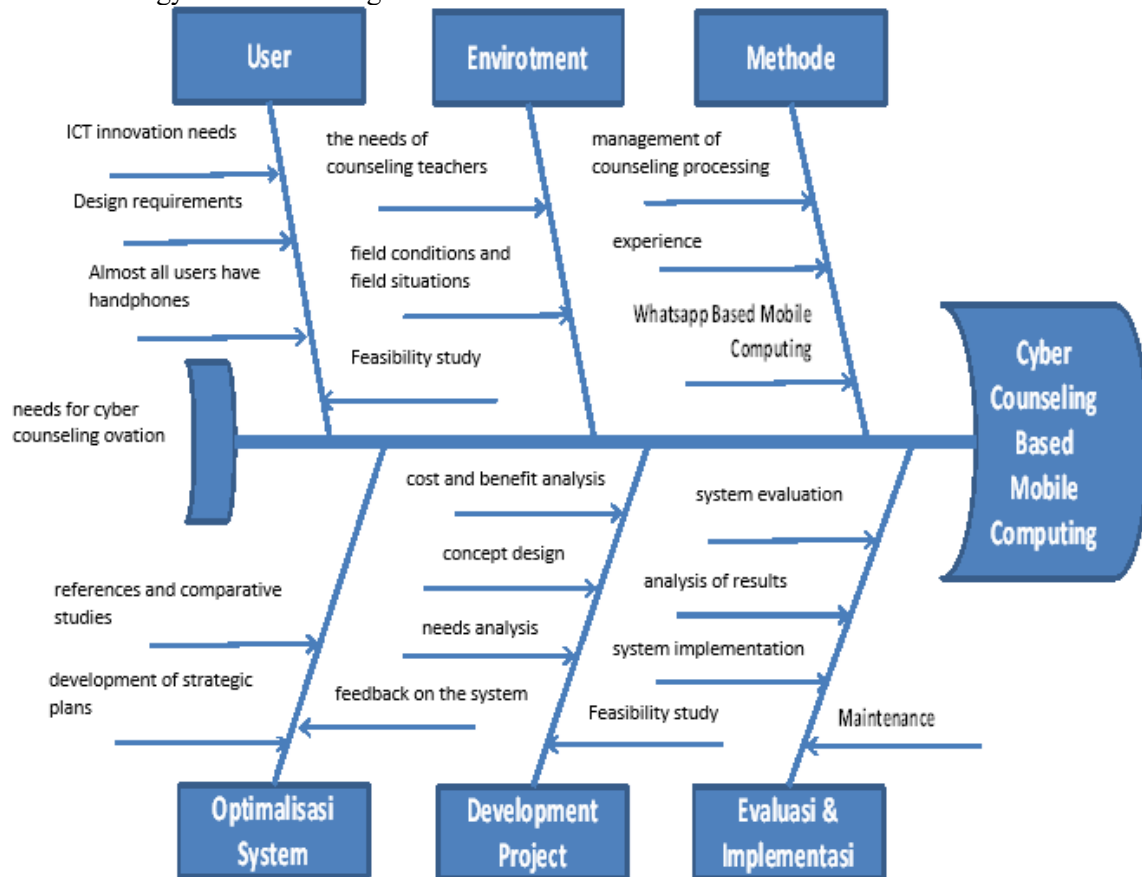


Figure 3. Research Methods (FISHBONE Diagram).

- Observation: Is a direct observation of decision makers and their physical or direct observation of an activity that is running. By conducting research and analyzing directly in the field assisted by teachers counseling guidance in Vocational Schools in Malang City and Regency.
- Interview: Is a method by asking questions with parties related to the issues discussed. Performed with parties that are directly related to counseling guidance for vocational children.
- Literature Study: Learn and understand the theoretical basis related to the issues to be discussed.
- System Analysis and Design: Create and design a cyber counseling system as teacher accelerators by optimizing WhatsApp.
- Implementation of the Program: At this stage, the cyber counseling system will be implemented as an accelerator for teachers by optimizing Android-based WhatsApp.
- Program Evaluation: Conduct trials and evaluations of systems that have been designed. This process is needed to ensure that there are no errors in the system and to know the advantages and disadvantages of the system that has been made.

#### 3.1. System design

The devices used to describe a system include the following:

3.1.1. Data flow level 1 admin diagram

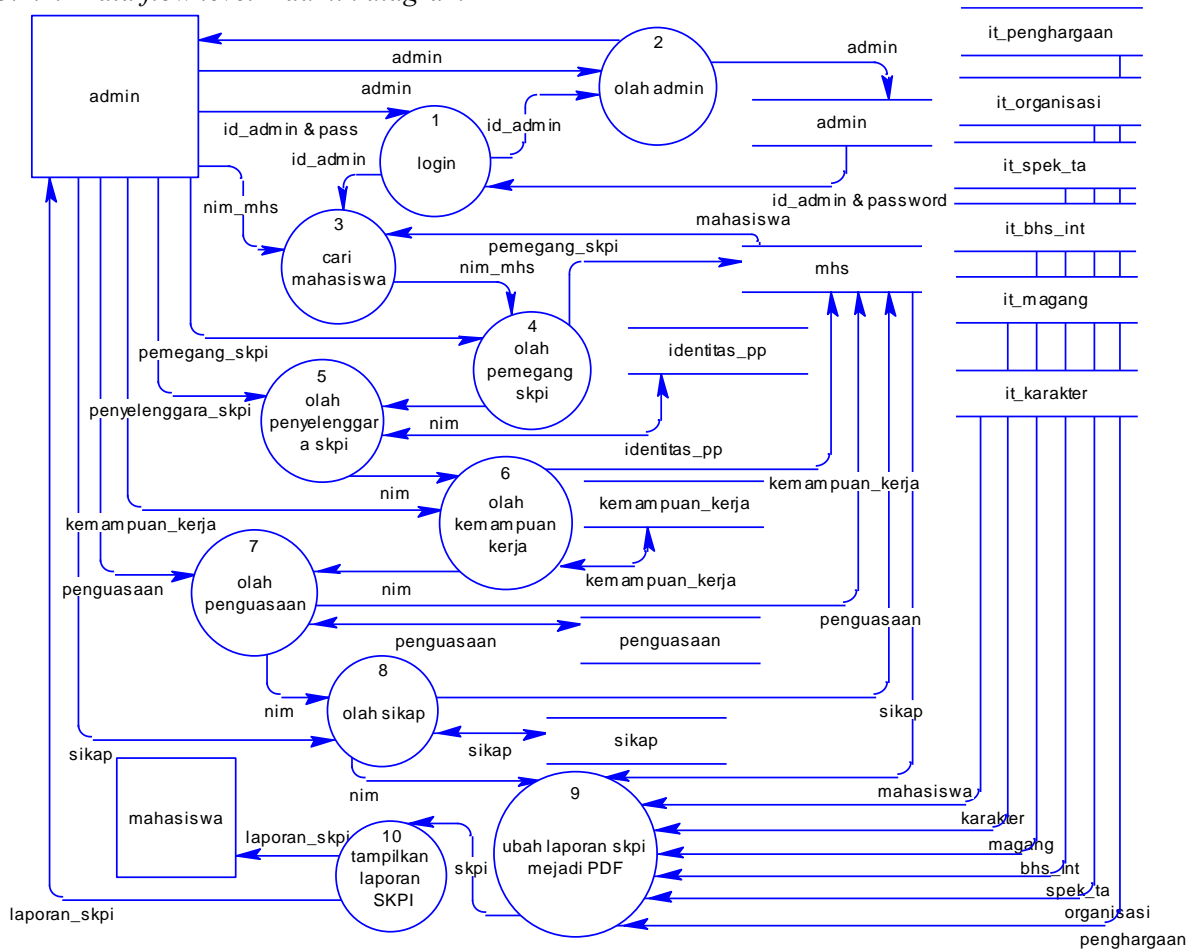
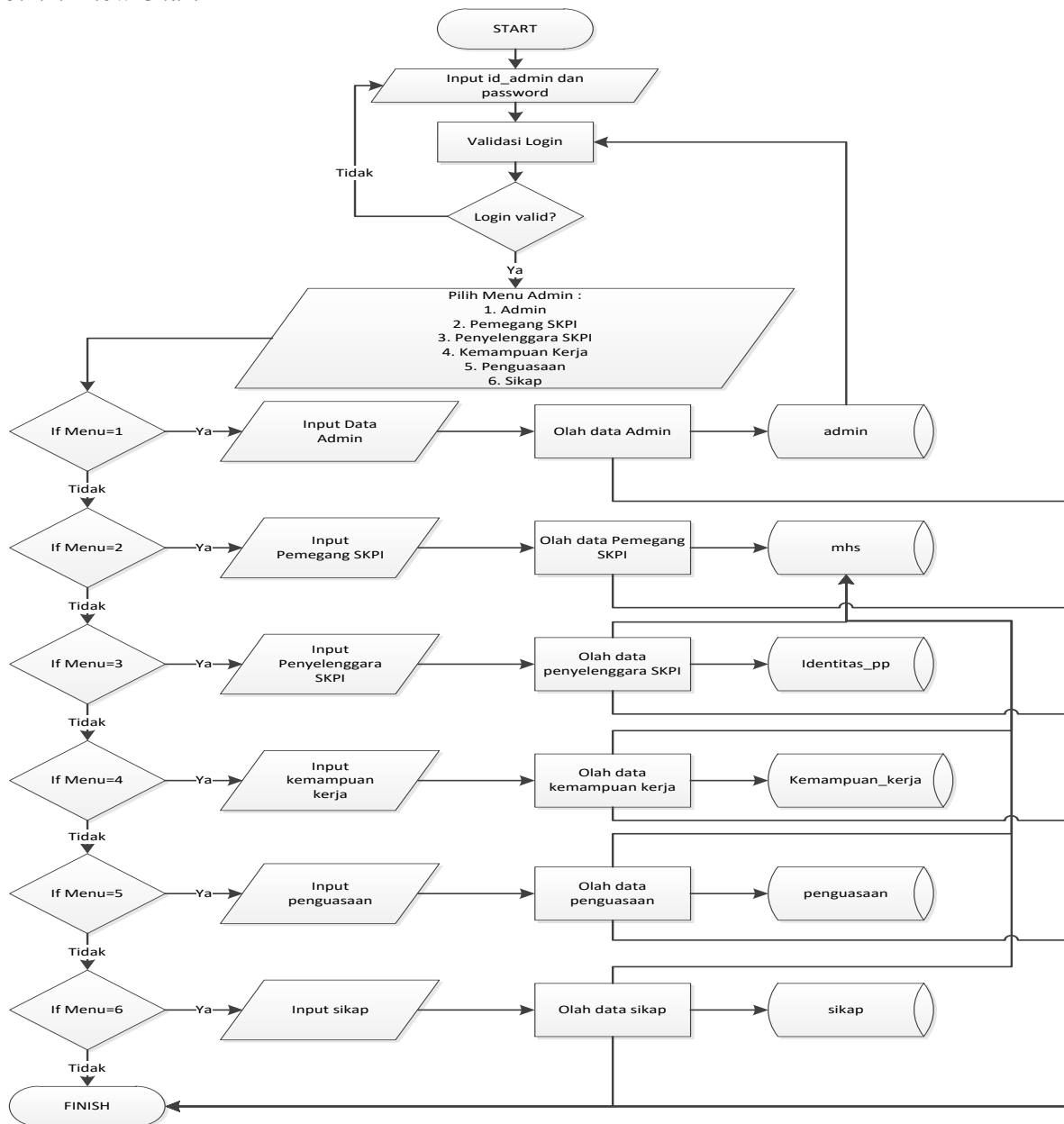


Figure 4. Picture of level 1 DFD - Admin Login & Complementary Information Process student data.

In figure 4 DFD level 1 - the admin login process and the supplementary information processing of student data, where the admin must log in first by entering *id\_admin* & password then the login data is validated by the system by matching the data in the admin database, then the admin inputs *ni\_sis* then the system will search student data in the student database. Furthermore, the admin processes the data of student data holders and is stored in the database of students, then the admin processes data on student data organizers and stored them in the *identity\_pp* database, then the admin inputs the student's ability data and is stored in the work ability database and student database, then the admin enters student mastery data and is saved in the mastery database and student database, then the admin input student attitudes data and stored in the database of students' attitudes and databases, then completeness data of student data stored in the database of students and visited by awards, *it\_organisasi*, *it\_spek\_ta*, *it\_bhs\_int*, *it\_magang* and *it\_karakter* used to complete student data reports, before the student data report is submitted to the admin and students report student data is converted first into a pdf so that it is easily stored by students and admin.

### 3.1.2. Flow Chart



**Figure 5.** Login and Admin Process.

In the figure 5, flowchart Admin Login starts with inputting admin id and password then the login data is checked in the database and if the login data is valid then the system will display the admin menu. After the admin chooses the admin menu then the admin enters the data on each menu then the input data is processed in the system and stored in the database.

## 4. Results and discussion

Based on the research that has been done, there are several results that can be taken:

- Researchers have been able to build a cyber counseling information system that is very helpful as a teacher's guidance in conducting counseling to students.
- The application made can be used to support the teacher in making decisions in counseling guidance on students' problem situations.

- This system is made very effective and efficient to solve problems that have been faced by teacher counseling teachers, so it is very helpful for students and parents of students
- It is clear that optimizers of WhatsApp are the basis of mobile computing is very important and very helpful for teachers in conducting counseling on the resolution of student problems and their solutions.

## 5. Conclusion

By optimizing WhatsApp based on mobile computing, researchers have been able to assist teachers in solving student counseling problems with 80% accuracy. It is expected that this system can use applications built by researchers so that it can help accuracy and speed in solving the problems of counseling students in every school.

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