

Beauty Clinic Information Systems Based on Android

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Abstract -- As the times progressed, the world of beauty seemed to expand quite rapidly. Beauty clinics are increasingly emerging like Esthedica Clinic Face and Body Treatments. However, information on the clinic Esthedica still somewhat less for the customer. This can be seen from the customers who always ask about the details of treatment, doctor's schedule, and promotion at the clinic. Not infrequently customers also have to wait long to perform treatment or counseling because of the queue of patients that are sometimes quite a lot. This affects the customer relationship that may feel the lack of convenience provided by the clinic to the customer. Customers also find it difficult to get clinical information that they usually get through telephones and chat apps that are personal and not uncommon too slow response. Therefore, the authors make the application of information systems based on the android beauty clinic Esthedica Face and Body Treatments using GRAPPLE (Guideliness for Rapid Application Engineering) method. In this thesis android based applications will be built to provide information on the Esthedica clinic that is information on various treatments available at the clinic, doctor schedule information, and clinic promotion. Through this application also customers can make booking treatment or consultation with a doctor.

Keywords: Android, Beauty Clinic, GRAPPLE, Information Systems, UAT

I. INTRODUCTION

Beauty clinic is a clinic that offers services in the field of health care and beauty of skin, hair, nails, and more. In this modern era, awareness of appearance are considered important for women and men found as a supporting appearance. So that today there is more beauty clinic. One of them is Esthedica Clinic which located in Ciledug area. Esthedica clinics like other beauty clinic that offer a kind of treatments and beauty products to their customers. However, Esthedica clinic had some problems on the service side to their customers. The problems include the patient can not see the details of treatment, doctor schedule, a monthly promo, and medical records in real time. Customers also need to

make booking treatment at that clinic that sometimes causes a long queue.

Based on the existing problems, hence the need for an information system that can be used by customers to find out about the information on the Esthedica clinic. The information in the form of a schedule doctor, patient medical records, detailed list of treatment, monthly promos, and then the tools to make booking reservations treatment or cream. The information system is packaged in the form of Android based mobile application so that customers can download and use it wherever and whenever.

II. LITERATURE REVIEW

A. Literature Review

Based on the journal entitled "Developing Mobile Applications for Healthcare Domain" [1] in the Journal of Advanced Global Research is the identification and analysis of the importance of mobile technology in developing healthcare solutions and medical applications as a solution to improve care services. In the journal explained that the *mobile* application to facilitate and streamline the handling of patients by ordering through his smart phone. In addition there are features of the patient medical record that has been computerized. It also aims to reduce the use of paper such as patient registration, schedule a visit to the clinic and some health tips that can be viewed online by the patient.

In the journal titled "Android Application Development Software-Android Studio and Eclipse" [2] on IJFEAT discussing the software to develop Android applications. In this case the Android Studio and Eclipse. In the journal described a comparison between Android Studio and Eclipse as well as features found in both. According to the journal, Android Studio has advantages such as ease of making UI design compared to Eclipse. In Android Studio also comes with *the* concept of *modules* with a *library* that can be downloaded. Eclipse is a Java software, which, if we want to run the *project*, it will require considerable time and sometimes we have to restart the computer

for the Eclipse software use a lot of RAM and CPU space. Android Studio has a stable editor and do not need to restart the computer every few moments. Android UI Design Studio is also *user friendly* and a *real eye candy*.

IEEE journal entitled "Development of Handled Healthcare Information System in an Outpatient Physical Therapy Clinic" [3] discusses the efficiency comparison between the approaches of traditional *paper-based* method and system applications. In this paper, described on the application of the system, there are several functions that simplify business processes at health clinics the ability to display the total patient visits each week, the ability to clear the list of patients who have come and yet to come, the ability to record a history of the condition of patients with a detailed description of at each consultation, the ability to *follow-up* appointment with the doctor, as well as the ability to record data existing *treatment* at the clinic. There is also a comparison table between *paper-based* systems and applications that show a very significant difference. Faster system applications almost doubled from *paper-based* method. The final results of these studies showed that the clinic staff preferring to use the application systems to assist their work by looking at the efficiency and effectiveness of a given.

Based on the literature review above it is developing an Android-based information system for clinical Esthedica which can record all the data and business processes contained in the clinic as well as facilitate the member clinics.

B. Beauty Clinic

Beauty clinic is a clinic that offers services in dermatology. Dermatology (from Greek: derma means skin) is the branch of medicine that studies the skin and the parts related to the skin such as hair, nails, sweat glands, and others. Thus, it can be concluded, a beauty clinic is a clinic that offers services in the field of health care and beauty of skin, hair, nails, and more.

C. Information Systems

The information system is a set of components that are interconnected, which works to collect and store data and process them into information used [4].

According to Tata Sutabri [5] in Information Systems Analysis book, The quality of the information depends on three things, that information must be accurate (*accurate*), timely (*timeliness*), and relevant (*relevance*).

- a. Accurate (*Accuracy*) : Information should be free of errors - errors and not misleading.

- b. Timely (*Time Lines*): Information coming to the receiver should not be too late. Outdated information has no value anymore.
- c. Relevant (*Relevance*): Such information has benefits for the wearer.

D. GRAPPLE

GRAPPLE is a process modeling in software development that emphasizes the actions carried out in a number of stages, each stage will produce a working product to the shape of the object-oriented. In GRAPPLE, the stages can be arranged in a form that is not static, so that each stage can be done by working order not to be in accordance with the existing order. Stages used in GRAPPLE include system requirements analysis, development models and diagrams, manufacture ode to the installation and evaluation phase. Here are the stages of the method GRAPPLE:

1. Requirements Gathering

This stage of the analysis of the problem is the functions and components of products that will be made (*system requirements*). This stage is important, because the other stage is not could be made corresponding with that desirable if no underst and products will created.

2. Analysis

Stage of the model development data and information obtained from the *requirements gathering*. Model constitute form transition from information basis in the form of models and diagram.

3. Design

Is the phase of implementation and design of models and diagrams that have been analyzed.

4. Development

Is the stage of application of models and diagrams that have been formed, such as by developing *source code*, checking and *test code*, as well as the manufacture of *User Interface*.

5. Deployment

The system that is formed will be integrated with the hardware and the operating system used.

E. Android

Android constitute a heap perangkat soft for device mobile which includes the operating system, *middleware*, and *keyapplications* [6]. The operating system used on its own Android-based Linux designed for mobile devices such as smartphones and touch screen *tablet computer*. For Android application itself was developed in the Java programming language using the software development kit Android (SDK) and the user can install the app via a third party, whether derived from app stores such as Google Play, Amazon Appstore, or by downloading and installing the file APK on site third party. Software needed to develop android apps of the Android SDK, Eclipse or

Android Studio IDE and JDK (Java Development Kit).

F. Database (Database)

The database is a collection of data that is divided and connected logically and descriptions of the data that is designed to meet the information needs of an organization[7].

The database is a collection of various data or information that relate to each other and stored systematically in the computer so that could be treated or manipulated use something device soft to obtain information. The purpose of the database is to determine the data - the data required in the system so that the information generated can be met properly. Database design needs to be done to avoid repetition of data.

G. MySQL

MySQL is the *database server name*. Database servers are servers that function to handle the database. The database is an organizing data, which facilitates storing and accessing data. By using MySQL, we can store the data and then the data can be accessed with a simple and fast."

MySQL uses the standard language SQL (*Structured Query Language*) as an interactive language in managing data. SQL commands often called *Query*. Fast query performance and insufficient for the needs of database companies that small to medium size. MySQL is also *open source* (not paid) and a first database supported by the script programming language for the Internet (PHP and Perl).

H. UML

UML is a standard modeling language which has syntax and semantics. UML is a modeling language for systems or software paradigm (*object-oriented*). Modeling (*modeling*) actually used for the simplification of the problems that the complex such that it is easier to learn and understood.

Based on some of the opinions expressed above can be deduced that the "Unified Modeling Language (UML) is a language based on graphics or images to visualize, specify, build and documentation of a software development system based Objects (OOP) (*Object Oriented Programming*)", UML diagrams are divided into several types, among others:

- a. *Use Case Diagram*
- b. *Activity Diagram*
- c. *Class diagram*
- d. *sequence diagram*

I. Entity Relationship Diagram (ERD)

Diagrams are used to describe the concept of logical database is *Entity Relationship*

Diagram (ERD). ERD is used to describe the relationship between one entity to another entity [7].

J. Java

Java constitute language programming level high that oriented objects (*Object oriented programming*). Java applications are usually compiled into *byte code*, which means the java code that has been compiled to run on any platform that supports java without need compilation repeated and could walk on machine Virtual Java (JVM) regardless of computer architecture. By 2015, Java is one of the most popular programming languages in use, particularly for *client-server web* applications, with a reported 9 million developers. Java was originally developed by James Gosling at Sun Microsystems (which has since been acquired by Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. This language derives much of its syntax C and C++, but it has a low-level facilities of less than one of them.

K. Extensible Markup Language (XML)

XML is a specification for storing information and also the specification to describe the structure of the information. XML is markup language (as HTML) XML no have label own. In this case allowing people define their own markup language.

III. METHODOLOGY

The method chosen and used on the topic of this thesis is the Guideliness for Rapid Application Engineering (GRAPPLE) method. The GRAPPLE method is an object-oriented approach to system development that includes a development method and tools. The stages of workmanship to be performed as follows:

1. Requirement Gathering

At this stage the authors conducted interviews with Esthedica Clinic owners about the system to be created. Analysis of problems, functions, and system requirements are included in the Requirement Gathering stage. The author records all data and requests owner Esthedica.

2. Analysis

The author conducted an interview data analysis and development of data that will be used later for the manufacture of the system. This analysis also aims to understand the business processes desired and what happened before.

3. Design

In the design stage, the authors designed the solutions produced at the analysis stage. So it was decided to create an information system

based on android to solve the problems that have been known at the time of requirement gathering. The author also performs the implementation of models and diagrams that have been analyzed and made System design.

4. Development
This stage the authors begin to build programs and user interfaces. System testing and system documentation is also done by the author at this stage.
5. Deployment
Deployment stage is the stage of distribution of products produced to the user. At the stage this The author will do installation and Planning Backup data when Requested by the user in accordance with the agreement previous.

IV. DESIGN AND IMPLEMENTATION SYSTEM

The built application is quite simple. To be able to use the beauty clinic information system on a smartphone, the user is required to install the Esthedica clinic application first. Then the user can use the tools in the information system of the beauty clinic. Users can choose one of the menu on the initial view of the application, the clinic schedule, treatment list, beauty tips, clinic promo, medical record, and booking.

There is also a user profile display. In clinic schedule menu, treatment list, beauty tips, clinic promo, promo and profile, user can only view related information on the menu. On the medical record menu, users can view the history of the patient's illness as long as the user performs treatment at Esthedica Clinic by inputting the date of consultation ever done by the user on the medical records page. Then the system will display a list of patient medical records. On the booking menu, the user can order treatment and consultation doctor. If the user chooses the booking menu, then the system will display the booking form which then must be filled by the user. On this booking menu there are two types of booking. After filling booking type, user must fill some transaction data. There is also a list of customer bookings that can be seen by the customer after booking. If the user chooses logout tools, then the user exits the Esthedica clinic application account.

A. Requirement Gathering

1. Functional Requirement

From the analysis of the above problems, we get an idea of what system needs are needed in this application, namely:

- a. Clinic Schedule
Useful features to provide members information about clinic operational hours and physician

consultation hours.

- b. Treatment List
This feature provides complete information about treatment, such as treatment description, length of workmanship, and treatment price.
 - c. Booking
This feature can facilitate members in ordering treatment, as well as a doctor's appointment.
2. Non Functional Requirement
 - a. Beauty Tips
This feature provides some beauty tips recommended by Esthedica Clinic.
 - b. Medical Records
This feature provides a history of disease records and complaints of patients (members) as well as any action ever undertaken during treatment at Esthedica Clinic.
 - c. Clinic Promo
Discounts for some treatments for a certain period of time and valid for Esthedica members with certain conditions.

B. Analysis

- a. Provides Clinic Schedule feature that serves as a media information for member clinics.
- b. The feature of Treatment List as information about the various treatments available at Esthedica clinic.
- c. Provide feature view beauty tips for Esthedica clinic members.
- d. Held Clinic Promo feature as a promo information media in the clinic.
- e. The Medical Record feature was created to allow members to view medical records during treatment at the Esthedica clinic.
- f. Provide booking feature so members can make an order online.

C. Design

This is the UML diagram of beauty clinic information system.

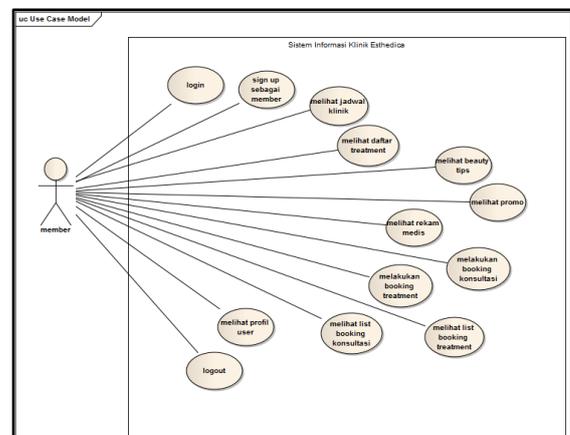


Fig 1. Usecase

REFERENCES

- [1] Gheorghe, Mihaela. 2012. *Developing Mobile Applications for Healthcare Domain*. *Global Journal of Advanced Research*. Faculty of Economic Cybernetics, Statistics and Informatics Bucharest University of Economic Studies. Romania.
- [2] Dinesh V. Rojatkhar, Ganesh M. Jengathe, Ashwini B. Khairnar, Swapnil A. Lengure. Maret 2014. *Android Application Development Software-Android Studio and Eclipse*. IJFEAT
- [3] Pei-Fang Tsai, I-Sheng Chen, Kevin Pothoven. 2014. *Development of Handled healthcare Information System in an Outpatient Physical Therapy Clinic*. Dept. of Industrial Engineering and Management National Taipei. University of Technology Taipei. Taiwan.
- [4] Hartono, Bambang. 2013. *Sistem Informasi Manajemen Berbasis Komputer*. Rineka Cipta. Jakarta.
- [5] Sutabri, Tata. 2012. *Analisis Sistem Informasi*. Andi. Yogyakarta.
- [6] Thakkar, Neha B. 2014. *Google Android: An Emerging Innovative Software Platform For Mobile Devices*. *International Journal for Innovative Research in Science & Technology*. Udaipur, Rajasthan, India: Pacific Institute of 103 Technology, Pacific Academy of Higher Education And Research University. Volume 1
- [7] Connolly, Thomas and Begg, Carolyn. 2015. *Database Systems A Practical Approach to Design, Implementation, and Management Fifth Edition*. Boston: Pearson Education.