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OUTPATIENT INFORMATION SYSTEM AT X BOGOR WEB-BASED CLINIC

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Abstract

The clinic as one of the public service agencies requires the awareness of an accurate and reliable information system, and is adequate to improve its services to patients and other related environments. With such a wide scope of service, of course there are many complex problems that occur in the service process in the clinic. The number of variables in the clinic also determines the speed of information flow required by users and the PHP clinic environment can also be integrated with HTML, JavaScript, Jquery, and Ajax. However, in general PHP is more widely used in conjunction with HTML-type files. By using PHP we can create a dynamic powerful website with the accompanied database management. In addition, the use of PHP, which can mostly be used on many platforms, is one of the reasons why you have to master PHP to become a reliable web development.

Introduction

The information era is a period that involves a lot of information in decision making, both by individuals, companies and government agencies, information has become easier to obtain, has become more varied of course and more useful (Muslihudin, 2016).

Information technology is one of the technologies that is growing rapidly at this time. For example, the use of computers as one of the supporting facilities in the information system can give more results for the output of a system, of course if the system inside has run well.

The clinic as one of the public service agencies requires the awareness of an accurate and reliable information system, and is adequate to improve its services to patients and other related environments. With such a wide scope of service, of course there are many complex problems that occur in the service process in the clinic. The number of variables in the clinic also determines the speed of information flow needed by the user and the clinic environment.

Data processing in clinics is one of the very important components in realizing an information system in the clinic. Manual processing of data, has many disadvantages, in addition to requiring a long time, accuracy is also less acceptable, because the probability of error is very large. With the support of information technology that exists today, the work of data collection by manual can be replaced with an information system using a computer. In addition to being faster and easier, data management is also becoming more accurate. Accurate

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information is very useful for making decisions, both for management and others (Sihotang, 2017).

Clinic services rely on information intensively. Information plays a vital role in decision making. Information systems can be used as a strategic means to provide patient decisionoriented services.

Health services in the clinic in the form of outpatient services that include medical services. According to (Hutahaean, 2015) outpatient services without a problem are growing faster than inpatient services. The development of computer-based clinical information systems, simple administrative procedures, is very appropriate if the clinic uses the advancement side of the computer, both software and hardware using computer programs, one of which is by using web programs (Esteria, 2016).

According to the Regulation of the Minister of Health of the Republic of Indonesia Nomor 028/Menkes/Per/I/2011 clinic is a healthcare facility that provides individual health services that provide basic and or specialist medical services, organized by more than one type of health worker and led by a medical personnel. In order to provide the best service to patients, the clinic is expected to be able to provide the necessary information, one of which is through the implementation of medical records.

The clinic has a medical record service procedure that records patient data when the patient starts registering until the patient returns home. Patient registration activities are the first source of data on patient services. Registration officers are required to be able to record patient data so that complete and accurate information can be presented. With the development of evidence-based medicine where data-based medical services are very necessary, the registration activities can be met with the availability of tools that can facilitate work, one of which is by using computerization (Schmidt et al., 2015).

X Clinic is one of the public health service providers. The clinic serves 2 categories of patients, namely general patients and company patients. General patients are residents or communities around the clinic while the company's patients are members of insurance companies that cooperate with the clinic. Arie Clinic provides 2 types of services, namely general practitioner services and Pediatric doctor services. General practitioner and Pediatric services are performed separately with different practice schedules (Huy & Phuc, 2020).

At X Bogor Clinic in the processing of medical record data is still done manually so as to search the patient's medical record number if the patient returns to treatment encounter difficulties and has not carried out the reporting of outpatient registration activities. This affects the speed of patient registration and the resulting information is less than maximum (Arraniri, 2014).

To that end, the author proposed a research topic titled "Outpatient Information System At X Bogor Web-Based Clinic."

Method

PHP (Hypertext Preprocessor) is a scripting language especially used for web development. Due to its nature the server side scripting then to run PHP must use a web server." (Atmaja, 2020).

PHP can also be integrated with HTML, JavaScript, Jquery, and Ajax. However, in general PHP is more widely used in conjunction with HTML-type files. By using PHP we can create a dynamic powerful website with the accompanied database management. In addition, the use of PHP, which can mostly be used on many platforms, is one of the reasons why you have to master PHP to become a reliable web development (Solichin, 2016).

PHP it also has the advantage of being able to perform the tasks it performs with CGI mechanisms such as retrieving, collecting data from databases, generating dynamic pages, or

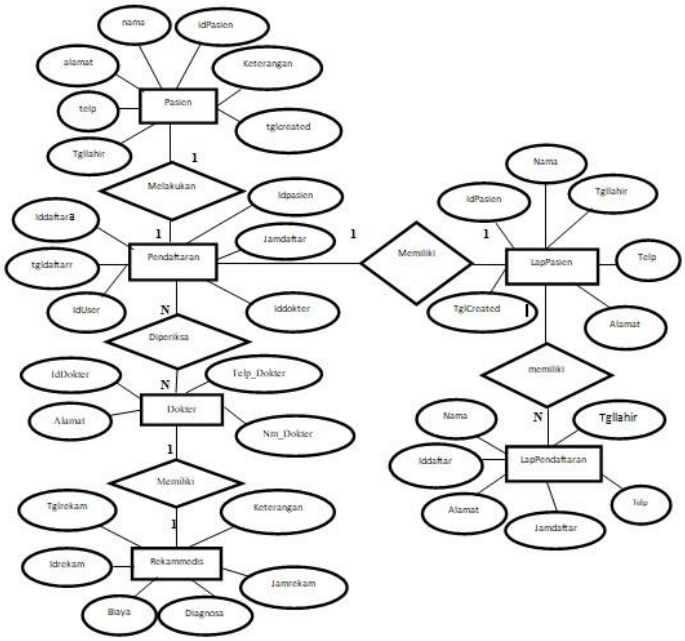
even receiving and sending cookies. CGI (Common Gateway Interface) is a mechanism that runs on a web server, tasked to serve two-way communication between a web server and a web browser.

And the priority of PHP is PHP can be used in several operating systems, including Linux, Unix, Windows, Mac OsX, RISC OS, and other operating systems (Sri, 2016).

Results and Discussion

A. Design

1. Design Entity Relationship Diagram / ERD



Design Entity Relationship Diagram / ERD

2. Normalization

a. Unnormal shape (abnormal shape)

Table 1
Abnormal Shape

Id_Pasien	Name	Adress	Phone	Date_birth	Date_ Register	Id_Dftr	Name	Adress	Status
P001	Mawar	Bogor	02123452	23-10-1991	12-11-2016	D001	Mawar	Bogor	general
P002	Budi	Bogor	02144356	21-02-1997	14-11-2016	D002	Budi	Bogor	Bpjs

b. Normal Shape 1 (1NF)

Table 2
First Normal Shape

id	Nama	Alamat	Tlp	Tgl_lahir	Tgl_dftr
P001	Mawar	Bogor	02123452	23-10-1991	12-11-2016
P002	Budi	Bogor	02144356	21-02-1997	14-11-2016

c. Second Normal Shape 2NF

Table 3
Second Normal Shape

Id_Pasien	Nm_Pasien	Id_Dftar	Tgl_Dftr	Id_Dokter	Nm-Dkter	Id_Rekam	Nm_Pasien	No_Daftar	Nm_pasien
P001	Mawar	D001	12-11-2016	2112	Dr.Reno	RM01	Ana	001	Mawar
P002	Budi	D002	14-11-2016	2113	Dr.Fery	RM02	Budi	002	Budi

d. NF normalization form from table above

Tabel 3
NF normalization form from table above

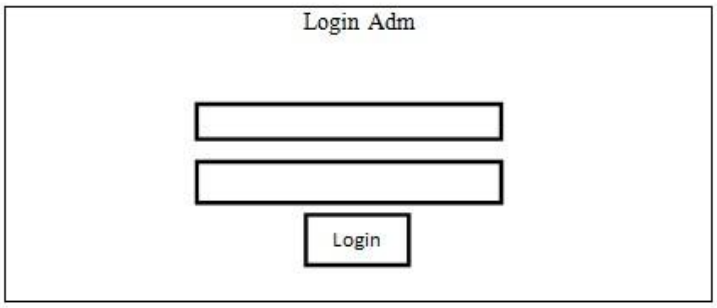
Id_Pasien	Id_Daftar	Id_Dokter	Id_Rekam	No_Daftar
P001	D001	2112	RM01	001
P002	D002	2113	RM02	002

e. Third Normal Shape (3NF)

Table 4
Third Normal Shape

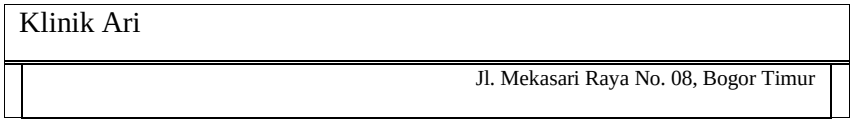
Id_Pasien	No_Rekam	Biaya	Total
P001	RM01	75.000	75.000
P002	RM02	80.000	80.000

3. Program View Design
4. Login Menu View Design



Login Menu View Design

a.Main Menu View Design



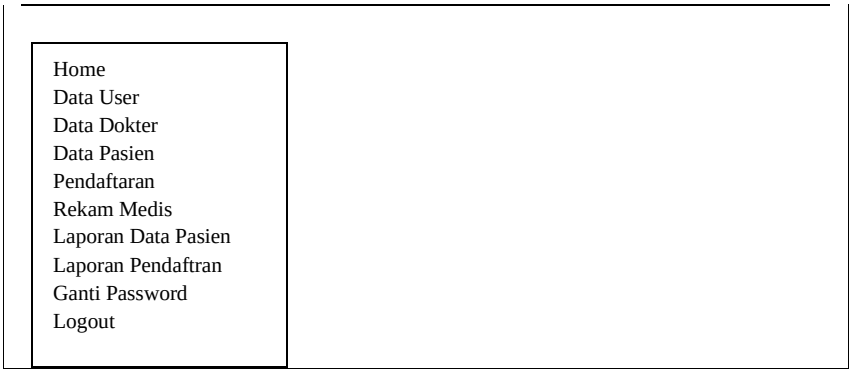


Figure 3
Main Menu View Design

b. Registration Menu Display Design

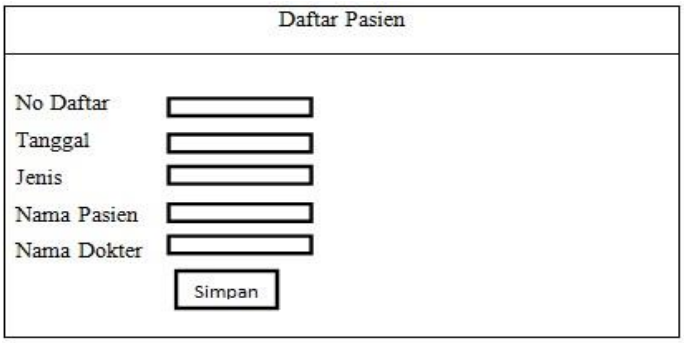


Figure 4
Registration Menu Display Design

c.Medical Record Menu Display Design

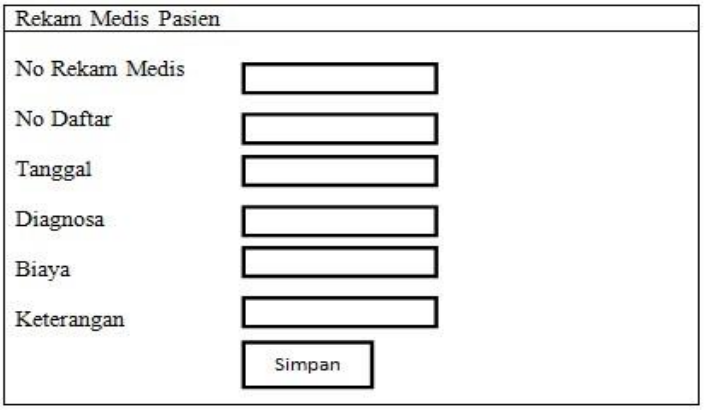


Figure 5
Medical Record Menu Display Design

d. Patient Report Menu View Design

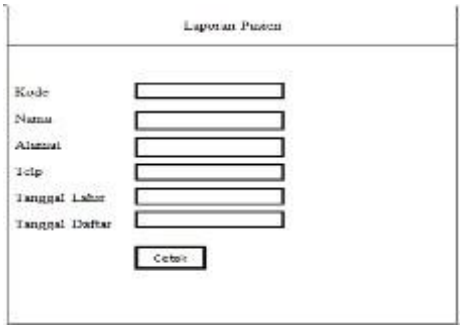


Figure 6
Patient Data Report Menu View Design

e. Registration Report Menu View Design

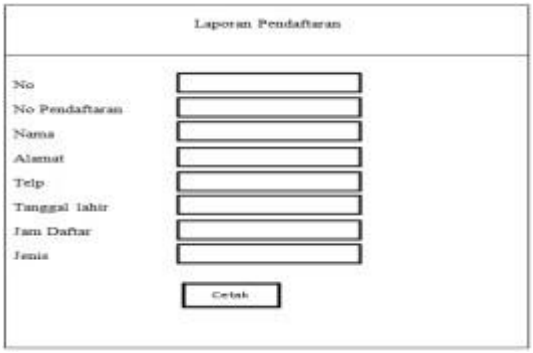


Figure 6
Registration Report Menu View Design

f. Change Password Menu View Design

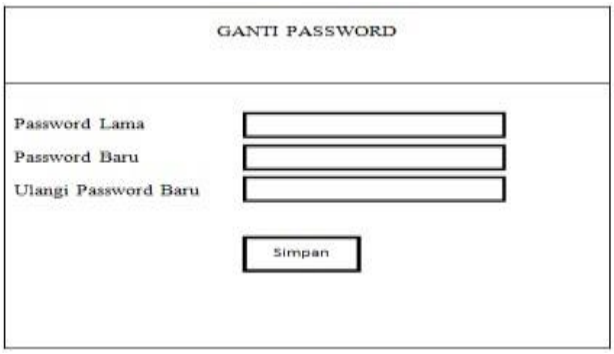
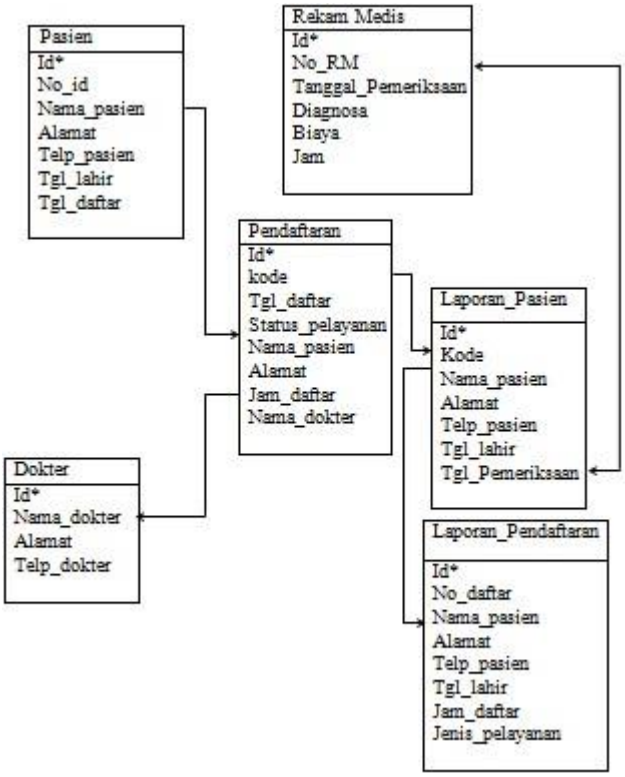


Figure 7
Passsword Replace Menu View Design

B. Implementation

1. Relationships Between Tables



2. Database Structure

Patient List Table

Table Name : db_pasien

Software : mySQL

Table 5
Patient List Table Structure

Nama Field	Type Data	Size	Keterangan
Id	Varchar	5	Primary key
Nama	Varchar	50	
Alamat	Varchar	100	
Telp	Varchar	11	
Tanggal Lahir	Varchar	10	
Keterangan	Varchar	200	
Tanggal daftar	Varchar	10	

3. Registration Table

Table Name : db_registrasi

Software : mySQL

Table 6
Registration Table Structure

Nama Field	Type Data	Size	Keterangan
Id Daftar	Varchar	9	Primari key
Tanggal Daftar	Varchar	9	
Id Pasien	Varchar	5	
Jam Daftar	Varchar	10	

Jenis	Varchar	5
No bpjs	Varchar	20
Id user	Varchar	5
Id dokter	Varchar	5

4. Medical Records Table
   Table name : db_rekammedis
   Software : mySQL

Table 7
Structure of Medical Records Table

Nama Field	**Type Data**	**Size**	**Keterangan**
Id rekam	Varchar	3	Primary key
Id daftar	Varchar	10	
Tanggal rekam	Varchar	10	
Diagnosa	Varchar	200	
Biaya	Varchar	11	
Jam rekam	Varchar	10	
keterangan	Varchar	200	

5. Table Doctor
   Table Name : db_dokter
   Ssoftware : mySQL

Table 8
Doctor Table Structure

Nama Field	**Type data**	**Size**	**Keterangan**
Id dokter	Varchar	5	Primary key
Nama	Varchar	50	
alamat	Varchar	100	
Telp	Varchar	12	
keterangan	Varchar	200	

6. Table Recipe
   Table Name : db_resep
   Software : mySQL

Table 9
Recipe Table Structure

Nama Field	**Type data**	**Size**	**Keterangan**
Id rekam	Varchar	10	Primary key
Nama obat	Varchar	50	
Dosis	Varchar	50	
Jumlah	Varchar	10	
Satuan	Varchar	5	
keterangan	Varchar	50	

7. Table User
   Name table : db_user
   Software : mySQL

Table 10
User Table Structure

Nama Field	Type data	Size	Keterangan
Id user	Varchar	5	Primary key
Nama user	Varchar	50	
Level	Varchar	50	
Username	Varchar	50	
Password	Varchar	8	
Email	Varchar	20	
Tgl created	Varchar	10	

8. Main Menu View, Program Input and Output

a.Login Menu View

Figure 9
Tampilan Menu Login

b. Main Menu View

Figure 10
Main Menu View

c.User Menu view

Figure 11
User Menu View

d. Doctor Menu View

Figure 12
Doctor Menu View

e.Patient Menu View

Figure 13
Patient Menu View

f. Registration Menu View

Figure 14
Registration Menu View

g. Medical Record Menu View

Figure 15
Medical Record Menu View

h. Patient Data Report Menu View

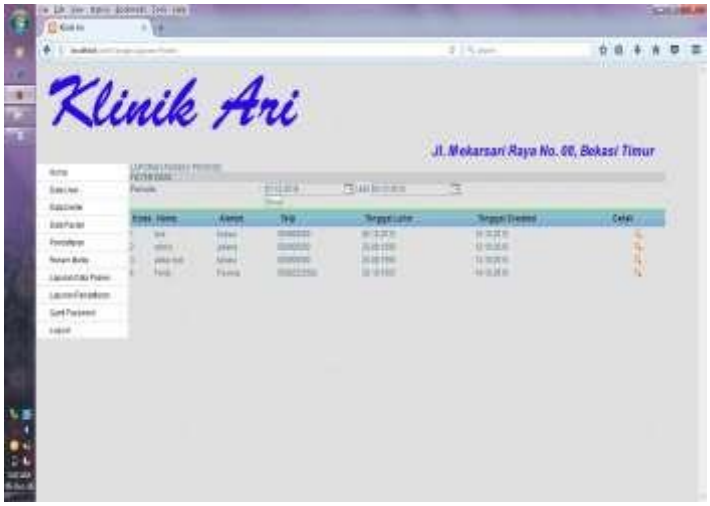


Figure 16
Patient Data Report Menu View

i. Patient Print Report Menu View

Figure 17

j. Registration Report Menu View

Figure 18

k. Print Registration Report Menu View

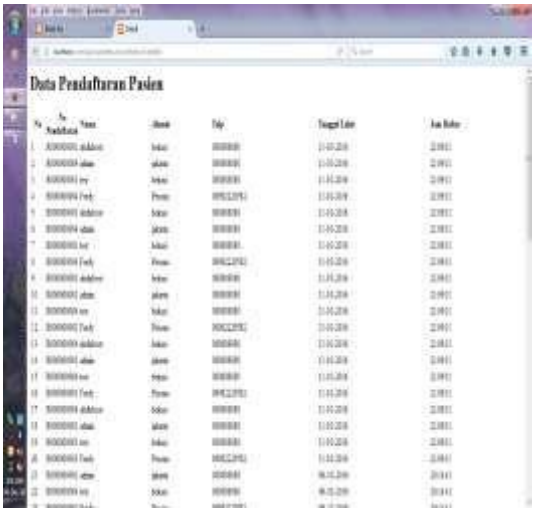


Figure 19
Print Registration Report Menu View

l. Change Password view

Figure 20
Change Password Menu View

9. Compile Program / Program End Result
    a. Prepare PHP program is changed in format.exe.
    b. Click start select exeoutput for PHP, after the initial view of exeoutput for PHP appears, select New Application.
    c. The first step of the welcome view click next
    d. The second step in the view "source folder path specify the location of the desired PHP project is changed to a file.exe at c:/xampp/htdocs/yanti then click next
    e. The third step in the index page view determines the index file of the project that has been created earlier. Index PHP, then click next.
    f. The fourth step in the output view of the file specify the location of the output, file, exe, c:/yanti/yanti.exe.
    g. The fifth langakah on the file output display gives the application title of the project created earlier in the application title, yanti, then click finish.
    h. After we finish doing some confriguration, click complile your application, wait until the process is complete in compile.
    i. The application can be run.

Conclusion

Based on the results of the application program that has been done, it can be concluded and proposed some suggestions that: 1) With the database in this application program, data processing and storage of patient registration reports can be easily quickly and accurately. 2) The application program is equipped with a storage button so it is not easily lost and is very easy to duplicate/ back up. 3) This application program data security is very maintained because there is user creation and password creation.

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