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CASE STUDY

IMPLEMENTATION OF AN ELECTRONIC HOSPITAL INFORMATION SYSTEM IN A DEVELOPING COUNTRY; A CASE STUDY OF FED.MED. CENTER OWERRI, NIGERIA

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Abstract

Concerned by the overwhelming increase in the population of patients attending our hospitals for medical attention and the problems associated with the sluggish, unreliable and insecure manual (paper work) method of keeping record of patient's information; the need for an electronic information system which makes it easier ,more reliable and more economical to keep and retrieve a patient,s information as at and when needed with high degree of speed, and precision has become inevitable in our medical system .Manual method of record keeping which has been in use in the hospital where this research was carried out was observed to be inadequate, often inaccurate and lacks flexibility. Personal interview carried out on both patients and staffs of the hospital showed that more than 70% of the respondents prefered an electronic system of information storage and retrieval that will reduce the time and energy wasted in sorting out files from heaps of files from racks when a patient is to be attended to. Due to this obvious problems, the researcher was motivated to develop a software that will handle this problem

Keywords: medical attention, sluggish

1 | INTRODUCTION

DEFINITION OF CLINIC INFORMATION SYSTEM:

Clinic information system (CIS) also called hospital information system (HIS) is a comprehensive, integrated information system designed to manage the administrative, financial and clinical aspect of a clinic. This encompasses paper-based information processing as well as data processing machines. As an area of medical informatics the aim of a clinic information system (CIS) is to achieve the best possible support of patient care and administration by electronic data processing .Clinic information system are sometimes separated from

hospital information system (HIS). The former concentrates on patient related and clinical-state-related data (Electronic Patients Record) where as the latter keeps track of administrative issues. The distinction is not always clear and there is contradictory evidence against a consistent use of both terms.

CLINICAL INFORMATICS

This is a subfield of medical informatics. It focuses on computer application that addresses medical data (collection, analysis, representation etc).Clinical informatics is a combination of information science, computer science and clinical science designed to assist in the management and processing of data, information and knowledge to support the practice and delivery of clinical care. The field of clinical informatics covers the following activities.

1).Medical data Mining 2). Electronic medical Record (EMR) 3).Hospital Information System 4).Laboratory Information System 5.)Decision Support System.

WEAKNESS IDENTIFIED IN THE SYSTEM:

As an organization grows in size and complexity as is the case in the hospital system under study, the volume of data also increases hence a resultant increase in paper work which gives rise to the following problems

- The mode of operation in the hospital system becomes cumbersome in nature and slow in data processing.
- There is insecure storage of data which can be lost or not easily accessed on demand.
- There is improper documentation of discharged patients.
- There is problem of ward allocation i.e. both the admitted and incoming patient.
- Delay in record accessibility due to the large number of files involved, one finds it difficult to find and update any needed file.
- It brings about data redundancy in a situation where by patient are given new files each time they come into the clinic to freshly put down their particulars.

OBJECTIVE OF THE NEW SYSTEM

The newly proposed system is expected to provide computerized process for the preparation of clinic informatics system in Nigeria by Effectively and adequately organizing the clinic database: the new system is expected to provide an effective database that would organized the patient information

To provide information for the preparation of ward allocation ,information needed for clinic ward allocation must be handy and always easy for retrieval when needed.

To ensure data security and integrity by ensuring that data is protected against misplacement and lost.It ensures that records are secured and made accessible only to authorized users.

Help to eliminate error in data due to manual processing information leads to wrong ward allocation. To avoid this, data should be free from error.

DATABASE SPECIFICATION

The first step in developing the new system is to develop the computer database that will be used to store clinic information. The database was designed using MS- access 7.0 formats using a real data provided by the clinic management. This database contains the required information about the admitted patient and the discharged ones. It organizes and manages information to obtain the clinic report required to support the patient and ward allocation process.

The database was designed as a relational database and all the common files rotates from one table to another.

A data dictionary lists name and attribute and representation of data, it contains

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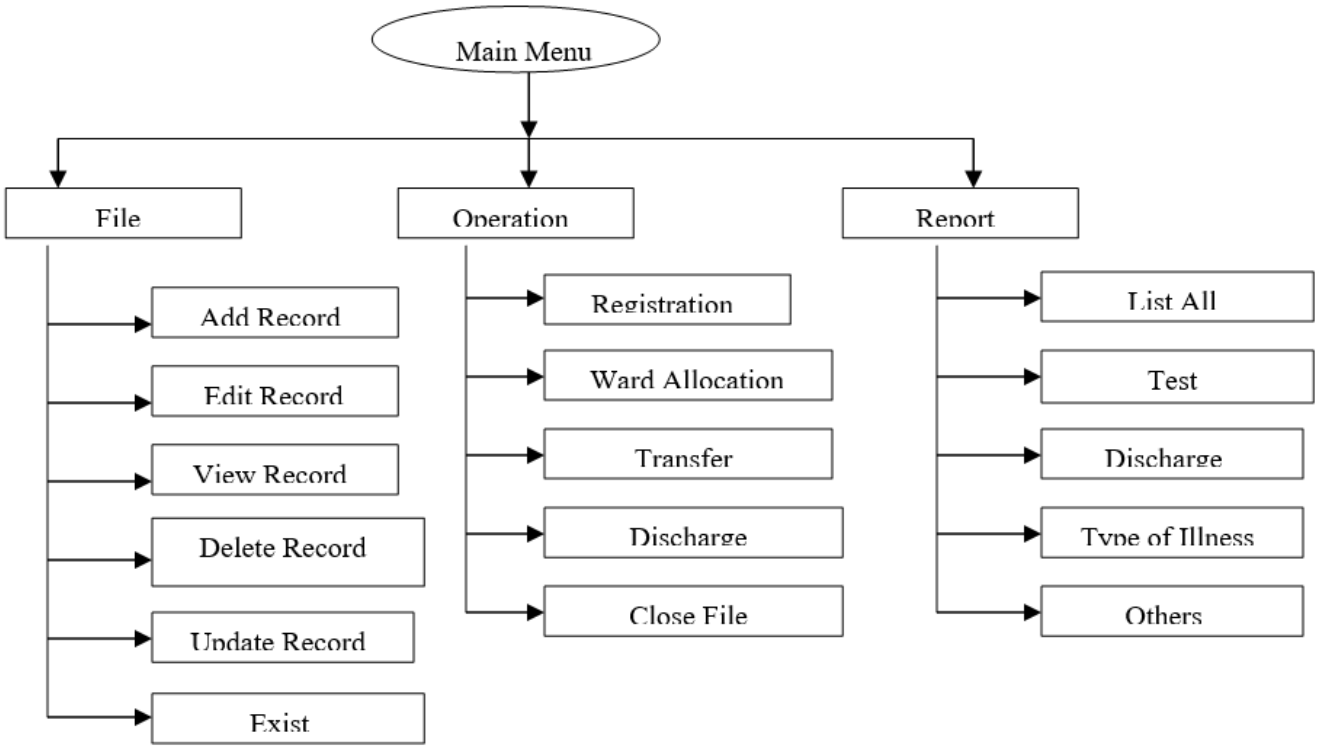

FIGURE 1: HIGH LEVEL MODEL OF THE PROPOSED SOLUTION TO THE WEAKNESS IDENTIFIED

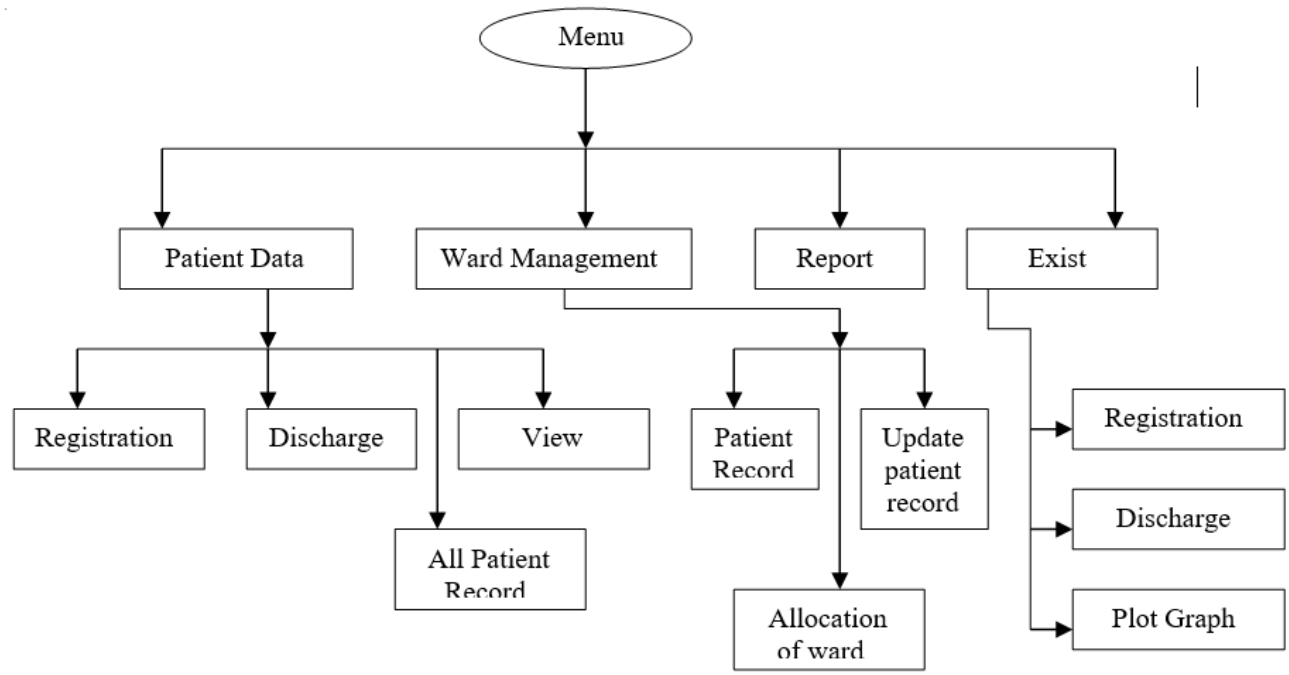

FIGURE 2: CONTROL CENTER

TABLE 1: REGISTER.PHP

S/N	FIELD NAME	FIELD TYPE	WIDTH
1	Name	Character	35
2	Age	Numeric	6
3	Sex	Character	9
4	Address	Character	29
5	Nationality	Character	26
6	Type of Illness	Character	20
7	Bill	Numeric	18
8	Ward	Character	8
9	Health Condition	Character	30
10	P-Card-Number	Character	45
11	DT-Discharge	Date	
12	State	Character	35
13	L.G.A	Character	30

TABLE 2: SECURITY.PHP

S/N	FIELD NAME	TYPE	SIZE
1	USERS NAME	CHARACTER	15
2	PASSWORD	CHARACTER	13

TABLE 3: PROGRAMMODULE SPECIFICATION

S/N	NAME	DESCRIPTION
1	INTRO.PRG	For introduction Screen
2	PROC.PRG	Procedure for sub-program
3	MENU.PRG	Control center for the entire program
4	CHAPS WD.PRG	Changing of existing password
5	BACKUP.PRG	For database protection
6	OPSTAF.PRG	Open staff file
7	EDSTAFF.PRG	Edit staff file
8	VSTAF.PRG	View staff file
9	DSTAF.PRG	Delete staff file
10	OPPATAF.PRG	Open patient file
11	EPATIF.PRG	Edit patient file
12	VPATF.PRG	View patient file
13	DPATF.PRG	Delete patient file
14	STAFIP.PRG	Staff information personal report
15	STAFFCR.PRG	Staff personal credentials
16	PATING.PRG	Patient information report
17	QUIT.PRG	To exist from the system to Ms-dos prompt

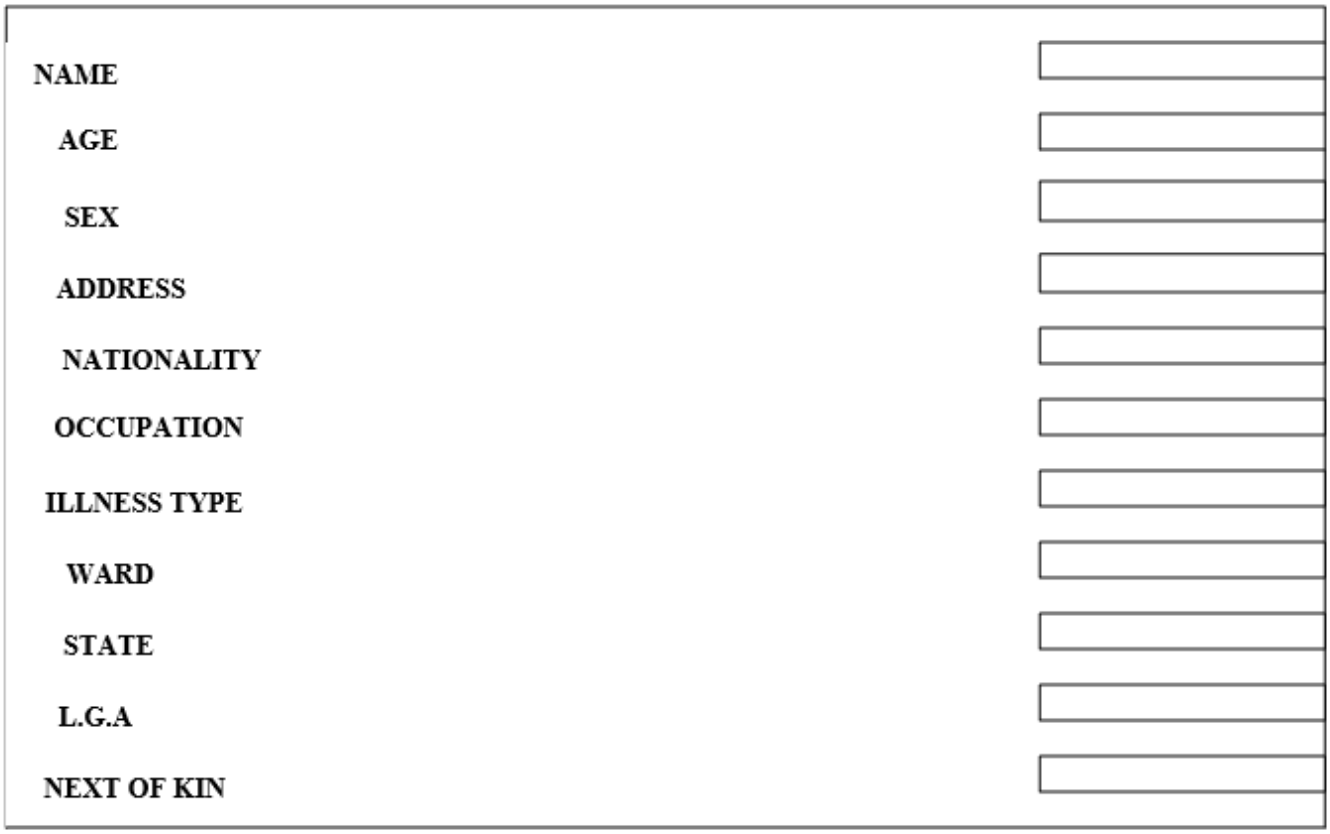

FIGURE 3: INPUT DESIGN SCREEN Patient's Registration form

TABLE 4:

S/N	ITEM	DESCRIPTION
1	Name	Patient's name starting with last name and first name
2	Age	The age of the patient
3	Sex	The fact that the patient is either male or female
4	Address	The number and name of town the patient lives
5	State	The state origin of the patient
6	Nationality	Country of the origin of the patient
7	Ward	Room made for the patient while in the clinic
8	Next of kin	Person to come if the situation needed someone
9	Health condition	Health state of the patient
10	Occupation	The type of job the patient is doing before illness
11	Type of illness	The type and nature of the sickness the patient have
12	Date of admit	The date a patient was admitted into the clinic
13	Date of discharge	The date the patient was discharged from the clinic
s14	Place of transfer	The new place the patient is been sent to
15	Discharging doctor	The doctor that sign that the patient has been discharged
16	Reason for transfer	The reason why a patient is transfer
17	Report	Annual report which the clinic authority present
18	Photograph	The current photograph of the patient
19	Lab result	The result of the lab conducted by the lab technicians

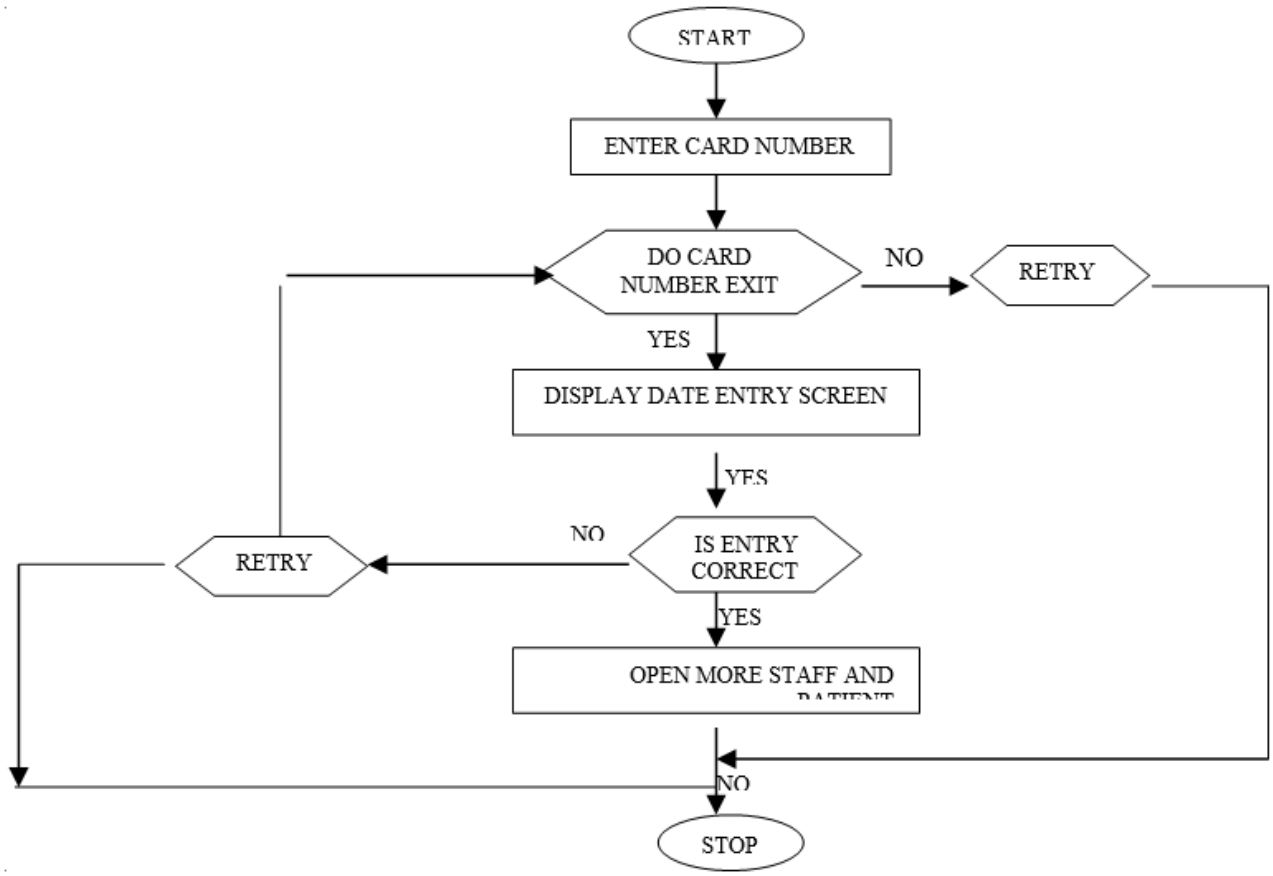

FIGURE 4: PROGRAM MODULE FLOW CHART

- A list of various data element required for the system.
- Attribute of data such as the length of the field
- The point in the system where data is required
- The type of access required
- The amount of data which must be stored
- The level of activity which can be expected from the data

CHOICE AND JUSTIFICATION OF PROGRAMMING LANGUAGE

There are thousand of programming language but each of these language perform some specification task, which depend on the nature of the program and the task to execute for the purpose and easily implemented at this project PHP via MY SQL is used.

PHP is a web development language, which comes with a set of graphic and a high-level language construct that makes it easy and quick to have an idea to a full running application. This programming language uses database to display database content attractively and the database used is MY SQL, which is database application program. Web is all about making vast store of information available to a more or less wide public. Data can be viewed, added, and removed because of your web user's keystroke and mouse click. PHP is a server-side script language, which embedded in HTML. You can connote a graphics, drag and drop it in your PC without being an expert in other programming language, because it is easy to learn PHP and require you to gain deep understanding of other programming language before you use it. In addition, PHP is easy and fun to use, because you will find yourself experimenting with your design and come up with a result. PHP is an open source program because its functionality is similar to that of Microsoft package. You can use PHP to add common

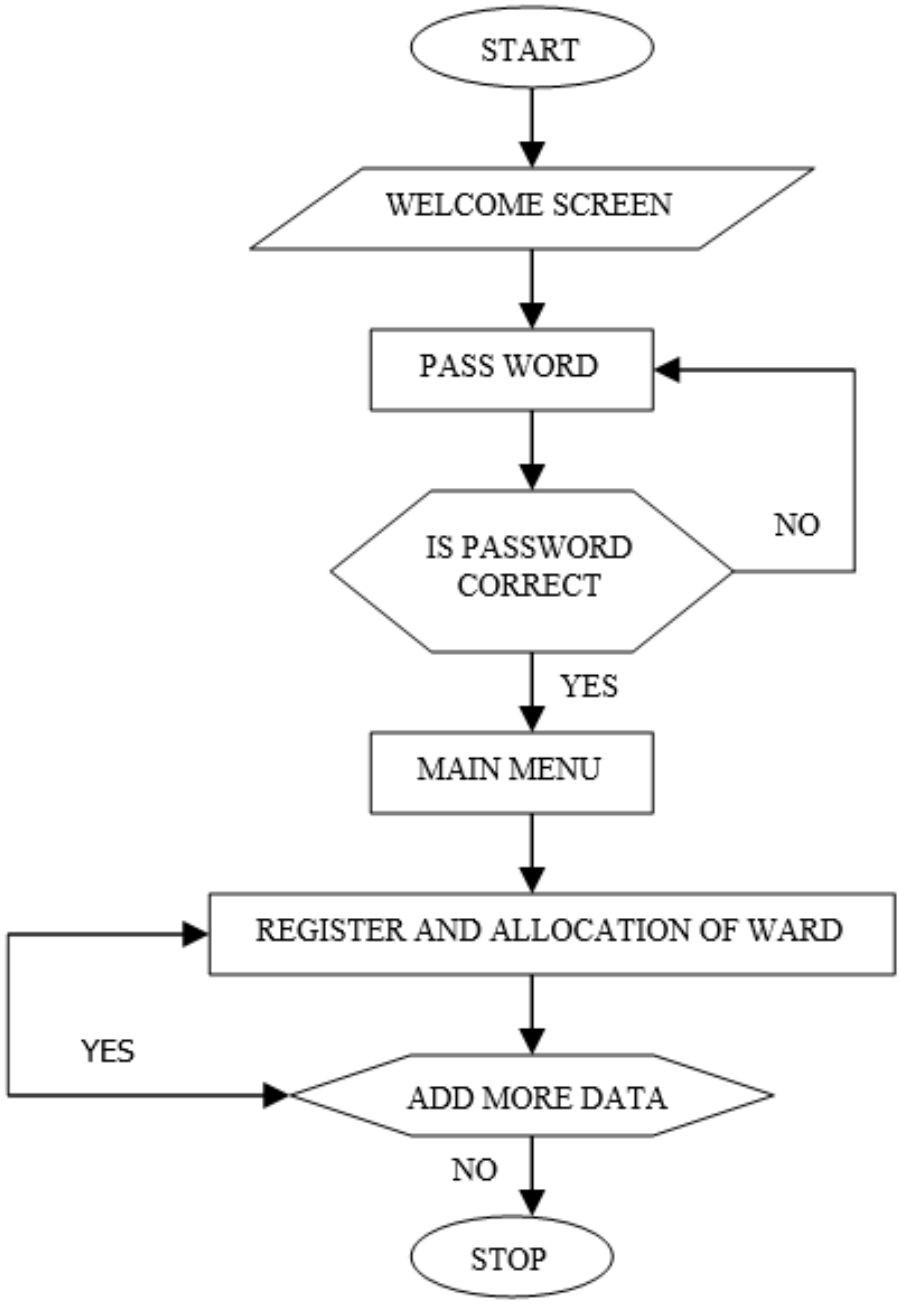

FIGURE 5:

header and footer to all pages on a site or store form-submitted data PHP has a stability function, this means that the software does not change radically and incompatible from release.

FILE CONVERSION

In conversion process, the newly designed system is put into use along with the old system. The conversion procedure alludes to the step and process involved in changing from one of the system to another. The conversion procedure method recommended is the pilot operation method. This method is chosen because it enables the old and the new system to run concurrently during the conversion period so that the strength and weakness of both system will have respect to each other.

LOADING THE SOFTWARE

Create a directory/folder say 'clinic software' on the c:/ and copy the executable file from the CD ROM

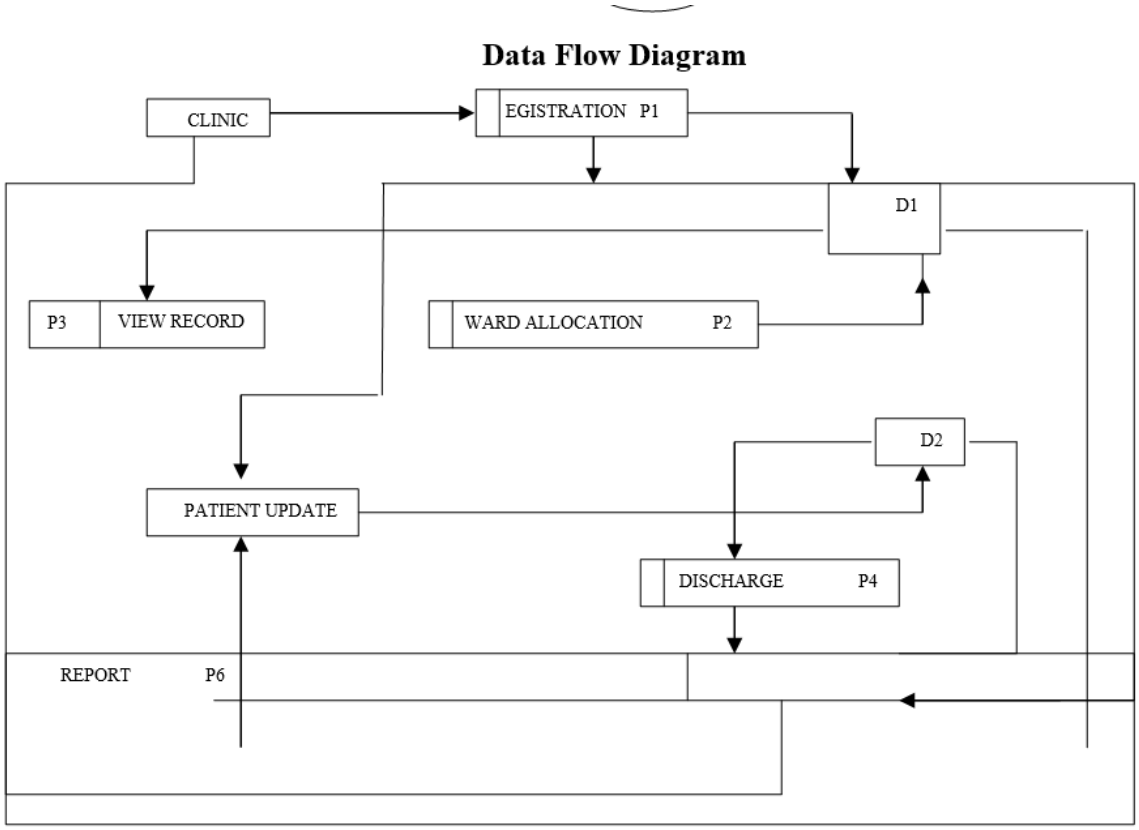

FIGURE 6:

into the folder.

RUNNING THE SOFTWARE

Once the analyst finished the installation, the user should click on the start button menu, position the mouse pointer to program then point again to folder of the new system and finally click on the executable icon.

2 | RESULTS

EXISTING THE SOFTWARE

To exist the software, the user have to pull down the menu, save all works then click exist which will bring the user back to desk top window environment.

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