CHAPTER III

FORMS AND DATA ANALYSIS

In this chapter, forms will be described on how it is being utilized in the organization as well as data analysis and data dictionary. In form description, all of the data gathered from the organization will be analyzed as a basis for the creation of the entity-relationship diagram. In data analysis, the group is expected to solve the problems that were stated in the Chapter II. Changes will also be discussed in this chapter as well as recommendations in order to solve the problems. Lastly, in the data dictionary, discussion will include the normalization of tables with its corresponding field name, description, field type and length as well as tables with links to each other illustrating their relationship.

3.1   Form Description

In this section, forms that has been gathered by the group will be thoroughly discussed. It includes the layout, description and purpose. These forms shown are used in the manual operation of the organization. The registration form is not used but it is still presented for the creation of the ER-D (Entity-relationship diagram). The forms included are as follows: prescription slip, registration form for children of 14 years old and below, registration form for adults, laboratory report forms for hematology, fecalysis, blood and urinalysis. All of the forms mentioned will be based in the creation of the entity-relationship diagram. These forms are given to the patient who is in need of a medical treatment in the health center. These forms show the condition of the patient and is to be

analyzed by the doctor. Forms are important in the organization because it is used to collect important details in regards with the patient.

3.1.1   Registration Form for Children Aged 14 years old.

Figure 7 show the first page of the registration form for children of 14 years old and below includes the participant number, address, date registered, first name of the patient, family name of the patient, sex, date of birth, age, blood pressure rate, temperature, height, weight, current disease or disorder, hospitalized last year, medication, and kind of treatment received by the patient.
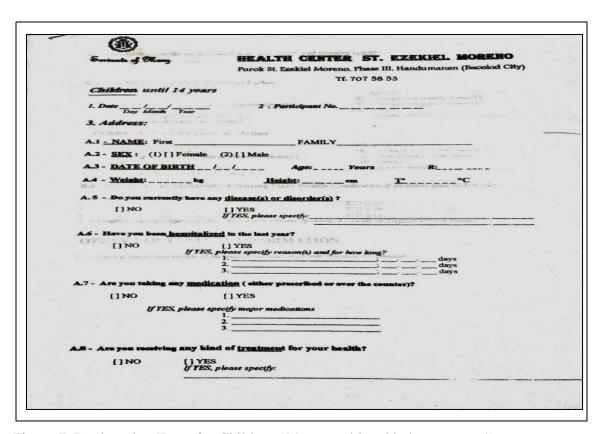

Figure 7. Registration Form for Children (14 years old and below – page 1).

Figure 8 show the second and third page of the registration form for children of 14 years old and below includes the current occupation of the father and mother, past and present health information of the patient, medical diagnosis of the main health condition, relevant information, diagnostic treatment date, and diagnostic treatment description.
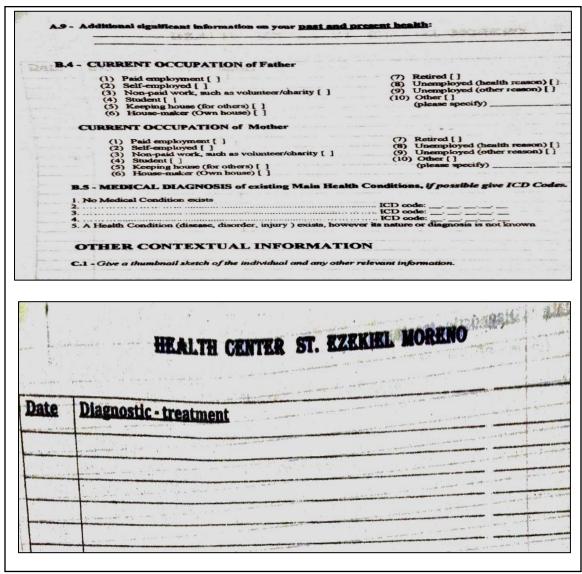

Figure 8. Registration Form for Children (14 years old and below).

3.1.2   Registration Form for Adults.

Figure 9 show the first page of the registration form for adults. It has a similar layout with the registration form for children aged under 14 years old. Except that it some questions regarding to the patient's dominant hand, physical health, mental and emotional health, and significant injuries. In addition, there is that fourth page that has a format same with figure 8 that shows the diagnostics and treatment of the patient.
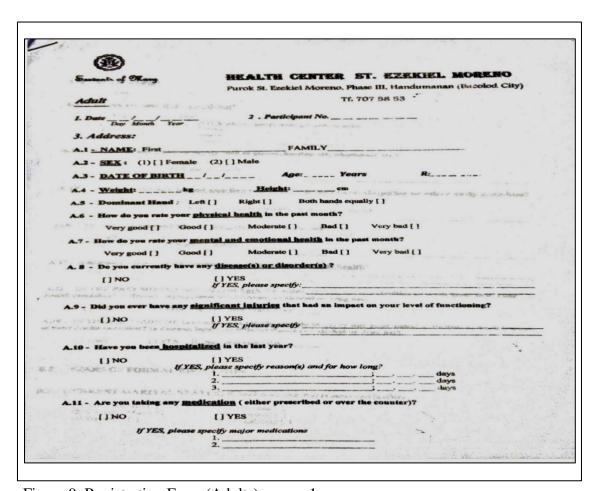

Figure 9. Registration Form (Adults) – page 1.

Figure 10 show the second and third page of the registration form for adults includes the current occupation to whom support the family and the current occupation of the patient, current marital status, years of formal education, cut back health condition and totally unable health condition of the past month, treatment receive, person assisting the patient, assistive device use, alcohol or drug question and smoke question, past and present health information of the patient, medical diagnosis of the main health condition, relevant information, diagnostic treatment date, and diagnostic treatment description.
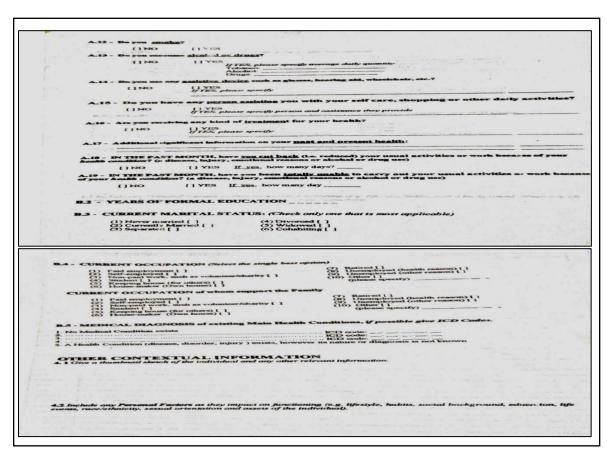

Figure 10. Registration Form (Adults) – pages 2 and 3.

3.1.3   Prescription Slip.

Figure 11 describes the prescription slip that the doctor presents to the patient after the consultation. The prescription slip is used by the doctor to prescribe medicine as well as a referral slip to a specialist if the patient is in need of further treatment.

Figure 11. Prescription Slip.

3.1.4   Hematology Report Form.

Figure 12 describes the hematology results form. The information is gathered from the patient during the lab study. It includes patient information as well as CBC hematocrit, hemoglobin and the differential count that includes segmenters, stabs, eosinophils, lymphocytes, monocytes, basophils, myelocytes, juveniles, platelet count and blood type. These results will be shown to the doctor if the patient is in need of a referral to a specialist.

Figure 12. Hematology Report Form.

3.1.5 Fecalysis Report Form.

Figure 13 describes the fecal reports. The information is gathered from the patient during the lab study It includes patient information as well as macroscopic section examination which includes color, consistency and heiminths Parasites section include ascaris, hookworm, trichuris and strongyloides. The chemical test section includes the occult blood while the microscopic examination includes pus cells and RBC. The amoeba section has information regarding to histolytica and coil with cyst and troph. Lastly, information regarding flagellates and its lambia and hominis.

Figure 13. Fecalysis Report Form.

3.1.6 Blood Chemistry.

Figure 14 describes the blood chemistry of the patient. It includes patient information and its examination that is shown in both international and conventional units. The information shown about the blood chemistry is as follows: bun, cholesterol, creatinine, fasting blood sugar(FBS), high-density lipoproiten(HDL)-cholesterol, low-density lipoprotien(LDL)-cholesterol, 2 hours post-prandial, ribosome-binding site(RBS), serume glutamic-oxaloacetic transaminase/aspartate aminotransferase(SGOT/AST),

serum glutamic transaminase/alanine aminotransferase(SGPT/ALT), triglyceride and uric acid.

Figure 14. Blood Chemistry Form.

3.1.7   Urinalysis Report Form.

Figure 15 describes the urinalysis report of the patient. It includes patient information and physical properties which includes the color, transparency, ph and specific gravity. The chemical test includes reducing sugar and protein. Th cell shows the PUS, RBC, yeast, squamous renal and bacteria. The casts include DESA, course granular, fine granular, PUS, RBC and waxy. The crystals include information about the amorphous urates, amorphous PO4, uric acid, calcium oxalate, and triple PO4. There are other information provided like the mucus threads and remarks if the doctor has any comments or suggestions to the patient.

Figure 15. Urinalysis Report Form.

3.2   Data Analysis

There are problems imminent in the current flow of work in the organization. Problems in the organization include manual transfer of files from one department to another. The current automated system requires the patient to register every consultation. This problem will affect the memory storage and will cause data redundancy.

The said organization has some problems that are need of probable solutions. One of the problems of the organization is that they have only one department that has an automated system but it is still not efficient because some features of the system doesn't work. Other than that, the organization needs to connect the laboratory and registration area and it is assumed that the system the organization is incomplete. Other departments still use the manual process which takes time in gathering of patient information.

The probable solution to the findings will be discussed in this section. The automation of the whole organization will allow the workers to communicate effectively and pass important files from one department to the other with just using the proposed system. The system storage is accessible to all departments, which means that every personel in every department has access to the files needed to be processed without any delays.

The team gathered some forms, analyzed each of it and concluded that each form is used to acquire the patient's personal information, fecal, hematology, urinalysis and blood reports. These forms are then used to be based in creating laboratory results for the patient if the patient is in need of further treatment. Information regarding the referral on a specialist is written on the prescription slip as well as the status of the patient if he has indeed paid in the pharmacy for the laboratory test. The team decided to create a system

that would help and improve the current system of the said organization. By implementing the St. Ezekiel Moreno Healthcare Management System, the organization can effectively acquire patient details, process and store it in a storage where it is accessible to all departments that will be automated without wasting valuable time.

The entity relationship diagram of St. Ezekiel Moreno Healthcare Management includes 19 tables, and each table contains primary key and a foreign key that connected to its related table/s which is shown in Figure 16. The tables are as follows: patient, patient medical issue, adult, consultation, laboratory test, medical record, physician, treatment, urinalysis, hematology, blood chemistry, blood examination, fecalysis, schedule, supplier, services, MedTech, pathologist, and medicine. The entity-relationship diagram of the proposed system is that the physician table is connected with the consultation transaction table. The physician has a user account that connected in the consultation transaction in order to get the personal information of the patient recorded in the system to be based on the recommendation whether if the patient is suggested with the different department services. The medicine list is depending on the consultation of the physician if the patient is required to ask medicine in the pharmacy. The process is when the patient enters the health center, the personal information and the findings in check-up is recorded in the system. After recording of information, the data of the patient is sent to schedule table then to the physician for the analysis. In the consultation table, the doctor recommends the patient if the patient is suggested to undergo laboratory test then the data of the patient is sent to the laboratory department, all of the information during the consultation is stored in the medical record table. The laboratory test table is connected to four tables which are the fecalysis, hematology, urinalysis, and blood chemistry table. The blood examination table

is used to store all the examination results for the blood chemistry report. Details about the data fields of the different tables of the ERD will be seen in section 3.3 or data dictionary.

Figure 16. Entity-Relationship Diagram of SEMHMS.

3.3   Data Dictionary

In this subchapter, the data dictionary will be discussed and each table will be described depending on the attributes and its relationship. There are sixteen tables and each table can have a relationship to another table.

Table 1 shows the patient table. It has thirteen attributes that include the patient identifier as the primary key, first name, last name, gender, age, birthday, weight, height, type of patient, address, civil status, date of registration, and temperature readings.

Entity Name	Patient		Source Document		Children Registration Form, Adult Registration Form		
Entity Description	The Patient entity provides the different attributes relating to Patients' data required by the activities or processes.						
Type of Use	☑ File / Internal		☑ Screen Layout / Form		☑ Report		
Process(s) Used	Data Entry, Scheduling, Laboratory Test, Consultation Process, Report Generation		Triggered by	Patient, Desk Officer		Data Store	Patient.dbf
Fieldname	Description				Type	Length	Format
P_ID	Patient Identifier				C	5	A9999
P_LNAME	Last name of the Patient				A	20	A(20)
P_FNAME	First name of the patient				A	20	A(20)
P_GNDR	Gender of the patient				A	6	A(6)
P_BDATE	Patient date of birth				D	8	mm/dd/yyyy
P_AGE	Age of the Patient				N	2	99
P_WGHT	Weight of the patient				N	3	999
P_HGHT	Height of the Patient				N	3	999
P_TEMP	Temperature of the Patient				N	2	99
P_TYPE	Type of Patient (Children or Adult)				A	8	A(8)
P_ADD	Address of the Patient				A	30	A(30)
P_CVL_STAT	Civil Status of the Patient				A	10	A(10)
DATE_REG	Date of Registration				D	8	mm/dd/yyyy

Table 1. Patient.

Table 2 shows the patient medical issue table. The attributes are as follows: patient medical issue identifier, patient identifier, medical diagnosis ICD Code of main health condition, past and present health information, treatment received by the patient, medication taken by the patient, current disease or disorder of the patient, hospitalized, and other relevant information of the patient. The form used to construct this table are the children registration form and adult registration form. The patient and desk officer are the one who triggers the patient medical issue table. The patient table and the adult have a

relationship to this table. Both foreign keys are needed to make up the patient medical issues table.

Entity Name	Patient Medical Issue		Source Document	Children Registration Form, Adult Registration Form		
Entity Description	The Patient Medical Issue entity provides the different attributes relating to Patients' previous medical issues data required by the activities or processes.					
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report					
Process(s) Used	Data Entry, Consultation Process, Report Generation	Triggered by	Patient, Desk Officer	Data Store	Patient_Medical_Issue.dbf	
Fieldname	Description			Type	Length	Format
PMI_ID	Patient Medical Issue Identifier			C	5	A9999
P_ID	Patient Identifier			C	5	A9999
MDC	Medical Diagnosis ICD Code of Main Health condition			C	5	A9999
PP_HEATH	Past and Present Health information			A	30	A(30)
TRMT	Treatment receive by the patient			A	30	A(30)
MEDCT	Medication taken by the patient			A	30	A(30)
DISE_DISO	Current Diseases or Disorder of the Patient			A	30	A(30)
HPTL	Patient Hospitalized last year question			A	30	A(30)
REL_INFO	Patient other relevant Information			A	50	A(50)
OCCU_ONE	First occupation of the patient			A	20	A(20)
OCCU_ONE	Second occupation of the patient			A	20	A(20)

Table 2. Patient Medical Issue.

Table 3 shows the adult table. It has fifteen attributes that includes: Adult Identifier as the primary key of the table, patient medical issue identifier, physical health of the patient, mental and emotional health of the patient, significant injuries, assistive device use by the patient, person assisting the patient, marital status, years of formal education, questions if the patient consume alcohol or drugs and smoke, personal factors, dominant hand of the patient, cut back and totally unable health condition of the patient in the past month. The process used by this table is for data entry, scheduling, consultation process, and report generation. All the information that will be gathered from this table will be stored in the adult data store. The form that is use to construct this table is the adult

registration form. It has one foreign key which is the patient identifier from the patient

table.

Entity Name	Adult		Source Document		Adult Registration Form		
Entity Description	This entity provides the different attributes that is only applicable for an adult patient						
Type of Use	☑ File / Internal	☑ Screen Layout / Form		☑ Report			
Process(s) Used	Data Entry, Scheduling, Consultation, Report Generation	Triggered by		Patient, Desk Officer		Data Store	Adult.dbf
Fieldname	Description			Type	Length	Format	
ADULT_ID	Adult Identifier			C	5	A9999	
PMI_ID	Patient Medical Issue Identifier			C	5	A9999	
PHY_HEALTH	Physical Health of the patient in the past month			A	10	A(10)	
MENT_EMO_HEAl	Mental and Emotional Health of the patient			A	10	A(10)	
SIG_INJ	Significant Injuries of the patient			A	30	A(30)	
SMOKE	Smoke question for the patient			A	3	A(3)	
ALCO_DRUGS	Alcohol or drugs question for the patient			A	3	A(3)	
ASSIST_DEV	Assistive Device use by the patient			A	20	A(20)	
PERS_ASSIST	Person Assisting the patient question			A	20	A(20)	
MARITAL_STAT	Marital Status of the patient			A	10	A(10)	
YEARS_FE	Years of Formal Education			N	2	99	
PERSONAL_FACT	Personal Factors			A	50	A(50)	
DOM_HAND	Dominant Hand of the patient			A	5	A(5)	
CB_HEALTH_COND	Cut back health Condition in the past month			A	3	A(3)	
TU_HEALTH_COND	Totally unable health Condition			A	3	A(3)	

Table 3. Adult.

Table 4 shows the laboratory test table. It has six attributes that include: Laboratory

test identifier, physician identifier, consultation identifier, time taken, test requested, and

date. Two are considered foreign keys mainly physician identifier and consultation

identifier from physician and consultation tables. The forms that are used to construct this

table are the fecalysis, hematology, urinalysis, and blood chemistry form. All the data that

will be gathered by this table will be stored in the laboratory test database of the proposed

system.

Entity Name	Laboratory Test		Source Document	Laboratory Forms	
Entity Description	The Laboratory Test entity provides the different attributes relating to laboratory test data required by the activities or processes.				
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report				
Process(s) Used	Data Entry, Report Generation	Triggered by	Physician	Data Store	Laboratory_t est.dbf
Fieldname	Description		Type	Length	Format
LAB_ID	Laboratory Test Identifier		C	5	A9999
MDTEC_ID	Medical Technologist Identifier		C	5	A9999
PTHGST_ID	Pathologist identifier		C	5	A9999
CO_ID	Consultation Identifier		C	5	A9999
TIME_TAKEN	Time Taken		D	8	hh:mm:ss
TEST_REQ	Test requested		A	10	A(10)
DATE	Date		D	8	mm/dd/yyyy

Table 4. Laboratory Test.

Table 5 shows the physician table. It has four attributes that include physician identifier as the primary key of the table, physician name, specialty, and license number of the physician. The form that is used to construct this table is the laboratory results form in the organization, all information of the physician will be stored in the physician database of the proposed system.

Entity Name	Physician		Source Document		Laboratory Results forms	
Entity Description	The Physician entity provides the different attributes relating to physician data required by the activities or processes.					
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report					
Process(s) Used	Data Entry	Triggered by	None	Data Store	Physician.dbf	
Fieldname	Description		Type	Length	Format	
PHYSICIAN_ID	Physician Identifier		C	5	A9999	
PHYSICIAN_NAME	Physician name		A	30	A(30)	
SPECIALTY	Specialty of the physician		A	20	A(20)	
LICENSE_NO	License number of the physician		C	10	A999999999	

Table 5. Physician.

Table 6 shows the consultation table. It has five attributes that include consultation identifier as the primary key, schedule identifier, physician identifier, consultation remarks,

and date. Two foreign keys which are the schedule identifier from the schedule table and physician identifier form the physician table. All the data that will be gathered by this table will be stored in the consultation database of the proposed system.

Entity Name	Consultation		Source Document	Children and Adult Registration form	
Entity Description	The consultation entity provides the different attributes relating to consultation data required by the activities or processes.				
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report				
Process(s) Used	Data Entry, Scheduling	Triggered by	Patient	Data Store	Consultation.dbf
Fieldname	Description		Type	Length	Format
CO_ID	Consultation Identifier		C	5	A9999
SCHEDULE_ID	Schedule Identifier		C	5	A9999
PHYSICIAN_ID	Physician Identifier		C	5	A9999
CO_REMARKS	Consultation Remarks		A	20	A(20)
DATE	Date		D	8	mm/dd/yyyy

Table 6. Consultation.

Table 7 shows the schedule table. It has four attributes that include the schedule identifier as the primary key, patient identifier, schedule date, and schedule purpose. It has one foreign key which is the patient identifier from the patient table. The person who triggers this table is the desk officer from the organization and all the data that will be gathered by this table will be stored in the schedule data store.

Entity Name	Schedule		Source Document	N/A	
Entity Description	The schedule entity allows the patient to be consulted base on their consultation schedule				
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report				
Process(s) Used	Data Entry	Triggered by	Desk Officer	Data Store	Schedule.dbf
Fieldname	Description		Type	Length	Format
SCHEDULE_ID	Schedule Identifier		C	5	A9999
PATIENT_ID	Patient Identifier		C	5	A9999
SCHEDULE_DATE	Schedule Date		D	8	mm/dd/yyyy
SCHEDULE_PURPOSE	Schedule Purpose		A	15	A(15)

Table 7. Schedule.

Table 8 shows the treatment table. It has four attributes that include treatment identifier, consultation identifier, medicine identifier, and diagnostic details. Two are considered foreign keys mainly consultation identifier from the consultation table and medicine identifier from the medicine table. The forms that are used to construct this table are the children and adult registration form.

Entity Name	Treatment		Source Document	Children and Adult Registration form		
Entity Description	The treatment entity will record all the treatment that had been done.					
Type of Use	☑ File / Internal		☑ Screen Layout / Form		☑ Report	
Process(s) Used	Data Entry		Triggered by	Doctor	Data Store	treatment.dbf
Fieldname	Description			Type	Length	Format
TRMT_ID	Treatment Identifier			C	5	A9999
CO_ID	Consultation Identifier			C	5	A9999
MEDICINE_ID	Medicine Identifier			C	5	A9999
DIAGNOSTIC_DETAILS	Diagnostic Details			A	30	A(30)

Table 8. Treatment.

Table 9 shows the medical record table. It has three attributes that include medical record as the primary key, consultation identifier, and date. It has one foreign key which is the consultation identifier from the consultation table. The forms that are used to construct this table are the children and adult registration form and prescription form.

Entity Name	Medical Record	Source Document	Children and Adult registration form, prescription form		
Entity Description	The Medical record allows the user to store all the information that has been gathered during the consultation.				
Type of Use	☑ File / Internal	☑ Screen Layout / Form	☑ Report		
Process(s) Used	Data Entry	Triggered by	Desk Officer	Data Store	Medical_record.dbf
Fieldname	Description		Type	Length	Format
MR_ID	Medical Record Identifier		C	5	A9999
CO_ID	Consultation Identifier		C	5	A9999
DATE	Date		D	8	mm/dd/yyyy

Table 9. Medical Record.

Table 10 shows the blood chemistry table. It has three attributes which include blood chemistry identifier as the primary key and laboratory test identifier. This table is connected to the laboratory transaction table. One foreign key which is the laboratory identifier from the laboratory test table and the form that is used to construct this table is the blood chemistry report form.

Entity Name	Blood Chemistry			Source Document		Blood chemistry report form
Entity Description	The blood chemistry entity stores all the blood chemistry laboratory results data.					
Type of Use	☑ File / Internal	☑ Screen Layout / Form		☑ Report		
Process(s) Used	Data Entry, Generation of reports	Triggered by	Doctor	Data Store	Blood_chemistry.dbf	
Fieldname	Description		Type	Length	Format	
BLD_CHEM_ID	Blood Chemistry Identifier		C	5	A9999	
LAB_ID	Laboratory Test Identifier		C	5	A9999	
DATE	Date		D	8	mm/dd/yyyy	

Table 10. Blood Chemistry.

Table 11 shows the blood examination table. It has 27 attributes which include blood examination identifier which serves as the primary key and blood chemistry identifier as the foreign key from the blood chemistry table. In this table, there are two types of blood examination unit, the international and conventional unit which holds different amount of result of the following results. The form used to construct this table is the blood chemistry report form from the laboratory in the organization, it also helps to create the screen layout of the system and all data that has been gathered by this table will be stored in the blood examination database of the proposed system and will be used for reports generation.

Entity Name	Blood Examination		Source Document		Blood chemistry report form.	
Entity Description	The blood examination entity provides all the result of the blood examination for the blood chemistry laboratory test.					
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report					
Process(s) Used	Data Entry, generation of reports.	Triggered by	Doctor	Data Store	Blood_examination.dbf	
Fieldname	Description			Type	Length	Format
BL_EXM_ID	Blood Examination Identifier			C	5	A9999
BLD_CHEM_ID	Blood Chemistry Identifier			C	5	A9999
BUN_ETYPE_INT	BUN Examination Type International Unit			N	4	9999
CRTN_ETYPE_INT	Creatinine Examination type International Unit			N	4	9999
FBS_ETYPE_INT	FBS Examination type International Unit			N	4	9999
HDL_M_ETYPE_INT	HDL-Cholesterol for Male Examination type International Unit			N	4	9999
HDL_F_ETYPE_INT	HDL-Cholesterol for Female Examination type International Unit			N	4	9999
LDL_ETYPE_INT	LDL-Cholesterol Examination type International Unit			N	4	9999
PO_PR_ETYPE_INT	2 Hrs Post-Prandial Examination type International Unit			N	4	9999
RBS_ETYPE_INT	RBS Examination type International Unit			N	4	9999
SGOT_M_ETYPE_INT	SGOT/AST for Male Examination type International Unit			N	4	9999
SGOT_F_ETYPE_INT	SGOT/AST for Female Examination type International Unit			N	4	9999
SGPT_M_ETYPE_INT	SGPT/ALT for Male Examination type International Unit			N	4	9999
SGPT_F_ETYPE_INT	SGPT/ALT for Female Examination type International Unit			N	4	9999
TRLYDE_ETYPE_INT	Triglyceride Examination type International Unit			N	4	9999
URIC_M_ETYPE_INT	Uric Acid for Male Examination type International Unit			N	4	9999
URIC_M_ETYPE_INT	Uric Acid for Female Examination type International Unit			N	4	9999
BUN_ETYPE_CON	BUN Examination Type Conventional Unit			N	4	9999
CRTN_ETYPE_CON	Creatinine Examination type Conventional Unit			N	4	9999
FBS_ETYPE_CON	FBS Examination type Conventional Unit			N	4	9999
HDL_M_ETYPE_CON	HDL-Cholesterol for Male Examination type Conventional Unit			N	4	9999
HDL_F_ETYPE_CON	HDL-Cholesterol for Female Examination type Conventional Unit			N	4	9999
LDL_ETYPE_CON	LDL-Cholesterol Examination type Conventional Unit			N	4	9999
PO_PR_ETYPE_CON	2 Hrs Post-Prandial Examination type Conventional Unit			N	4	9999
RBS_ETYPE_CON	RBS Examination type Conventional Unit			N	4	9999
TRLYDE_ETYPE_CON	Triglyceride Examination type Conventional Unit			N	4	9999
URIC_M_ETYPE_CON	Uric Acid for Male Examination type Conventional Unit			N	4	9999
URIC_M_ETYPE_CON	Uric Acid for Female Examination type Conventional Unit			N	4	9999

Table 11. Blood Examination.

Table 12 shows the medicine table. It has five attributes which include medicine identifier as the primary key, medicine category based on the patient type, medicine description, medicine type, and medicine quantity. It has a foreign key which is the supplier identifier which is from the supplier table. It is triggered by the pharmacist in the organization and all the data that has been gathered by this table will be stored in the medicine database of the proposed system.

Entity Name	Medicine		Source Document			N/A	
Entity Description	The medicine entity provides all the list of the medicine information						
Type of Use	☑ File / Internal		☑ Screen Layout / Form	☑ Report			
Process(s) Used	Data Entry, generation of report		Triggered by	pharmacist	Data Store	Medicine.dbf	
Fieldname	Description			Type	Length	Format	
MEDICINE_ID	Medicine Identifier			C	5	A9999	
SUP_ID	Supplier Identifier			C	5	A9999	
MEDICINE_CAT	Medicine Category based on the Patient type			A	8	A(8)	
MEDICINE_DESC	Medicine Description			A	20	A(20)	
MEDICINE_TYPE	Medicine Type			A	15	A(15)	
MEDICINE_QTY	Medicine Quantity			N	4	9999	

Table 12. Medicine.

Table 13 shows the fecalysis table. It has 21 attributes which include fecalysis identifier that serves as the primary key and the laboratory identifier as the foreign key which is from the laboratory test table and the form that is used to construct this table is the fecalysis report form from the laboratory department of the organization. All the data will be gathered by this table will be stored in the fecalysis database of the proposed system and will be used for reports generation.

Entity Name	Fecalysis		Source Document		Fecalysis report form.	
Entity Description	The fecalysis entity provides all the result for the fecalysis laboratory test.					
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report					
Process(s) Used	Data Entry, generation of reports.	Triggered by	Doctor	Data Store	Fecalysis.dbf	
Fieldname	Description			Type	Length	Format
FECAL_ID	Fecalysis Identifier			C	5	A9999
LAB_ID	Laboratory Test Identifier			C	5	A9999
CLR_MCRO_EXM	Macroscopic Examination for Color			A	15	A(15)
CONS_MCRO_EXM	Macroscopic Examination for Consistency			A	10	A(10)
HLMT_MCRO_EXM	Macroscopic Examination for Helminths			A	10	A(10)
PARA_ASCARIS	Ascaris Parasite			C	3	9A9
PARA_HKWORM	Hookworm Parasite			C	3	9A9
PARA_TRHRIS	Trichuris Parasite			C	3	9A9
PARA_STRGLOIDES	Strongyloides Parasite			C	3	9A9
CT_OB	Chemical Test Occult Blood			A	10	A(10)
PCELLS_MICRO_EXM	Microscopic Examination for Pus cells			A	10	A(10)
RBC_MCRO_EXM	Microscopic Examination for RBC			A	10	A(10)
E_AMOEBA_HISTOL	Entamoeba Histolytica			C	3	9A9
E_HISTOL_CYST	Entamoeba Histolytica CYST			C	3	9A9
E_HISTOL_TROPH	Entamoeba Histolytica TROPH			C	3	9A9
E_AMOEBA_COLI	Entamoeba Coli			C	3	9A9
COLI_CYST	Entamoeba Coli CYST			C	3	9A9
COLI_TROPH	Entamoeba Coli TROPH			C	3	9A9
FLAG_G_LAMBIA	Giardia Lambia Flagellates			A	5	A(5)
FLAG_T_HOMINIS	Trichomonas Hominis Flagellates			A	5	A(5)
REMARKS	Remarks			A	30	A(30)

Table 13. Fecalysis.

Table 14 shows the supplier table. It has three attributes that include supplier identifier as the primary key of the table, supplier name, and the supplier address. All information of the supplier will be stored in the supplier database of the proposed system that will be used for reports generations.

Entity Name	Supplier		Source Document		N/A	
Entity Description	The supplier entity provides the different attributes relating to supplier data required by the activities or processes.					
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report					
Process(s) Used	Data Entry	Triggered by	Pharmacist	Data Store	Supplier.dbf	
Fieldname	Description			Type	Length	Format
SUP_ID	Supplier Identifier			C	5	A9999
SUP_NAME	Supplier Name			A	30	A(30)
SUP_ADDRESS	Supplier Address			A	50	A(50)

Table 14. Supplier.

Table 15 shows the hematology table. It has 19 attributes that include the hematology identifier serves as the primary key and the laboratory identifier as the foreign key which is from the laboratory test table and the form used to construct this table is the hematology report form of the laboratory department in the organization. All the data that has been gathered will be stored in the hematology database of the proposed system.

Entity Name	Hematology		Source Document		Hematology report form
Entity Description	The hematology entity provides all the result of the hematology laboratory test.				
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report				
Process(s) Used	Data Entry, generation of reports.	Triggered by	Doctor	Data Store	Hematology.dbf
Fieldname	Description		Type	Length	Format
HEMA_ID	Hematology Identifier		C	5	A9999
LAB_ID	Laboratory Identifier		C	5	A9999
HEMA_M_ETYPE_CBC	Hematocrit for Male examination type CBC result		N	4	9999
HEMA_F_ETYPE_CBC	Hematocrit for Female examination type CBC result		N	4	9999
HEMO_M_ETYPE_CBC	Hemoglobin for Male Examination type CBC result		N	3	999
HEMO_F_ETYPE_CBC	Hemoglobin for Female Examination type CBC result		N	3	999
WBC_ETYPE_CBC	White Blood Cells Examination type CBC result		A	10	A(10)
RBC_ETYPE_CBC	Red Blood Cells Examination type CBC result		A	10	A(10)
SEG_DIFF_COUNT	Segmenters for Differential Count result		N	4	9999
STAB_DCOUNT	Stab for Differential Count result		N	4	9999
EOSI_DCOUNT	Eosinophils for Differential Count result		N	4	9999
LYMP_DCOUNT	Lymphocytes for Differential Count result		N	4	9999
MONO_DCOUNT	Monocytes for Differential Count result		N	4	9999
BASO_DCOUNT	Basophils for Differential Count result		N	4	9999
MYELO_DCOUNT	Myelocytes for Differential Count result		N	1	9999
PLA_CT_DCOUNT	Platelet Count for Differential Count result		A	10	A(10)
BLD_TYP_DCOUNT	Blood Type for Differential Count result		C	4	C(4)
JUVEN_DCOUNT	Juveniles for Differential Count result		N	2	99
REMARKS	Remarks		A	30	A(30)

Table 15. Hematology.

Table 16 shows the urinalysis table. It has 27 attributes that include the urinalysis identifier serves as the primary key and the laboratory identifier as the foreign key which is from the laboratory test table. The form used to construct this table is the urinalysis report form from the laboratory in the organization, and all the data that has been collected by this table will be stored in the urinalysis database of the proposed system and will be used for reports generation.

Entity Name	Urinalysis		Source Document		Urinalysis report form.	
Entity Description	The urinalysis entity provides all the result of the urinalysis laboratory test.					
Type of Use	☑ File / Internal ☑ Screen Layout / Form ☑ Report					
Process(s) Used	Data Entry, generation of reports.	Triggered by	Doctor	Data Store		Urinalysis.dbf
Fieldname	Description		Type	Length		Format
URINE_ID	Urinalysis Identifier		C	5		A9999
LAB_ID	Laboratory Test Identifier		C	5		A9999
COLOR_PHY_PRO	Color Physical Properties Result		A	15		A(10)
TRANS_PHY_PRO	Transparency Physical Properties Result		A	10		A(10)
PH_PHY_PRO	PH Physical Properties Result		A	10		A(10)
SPEC_GRAV_PHY_PRO	Specific Gravity Physical Properties Result		N	5		99999
RED_SUG_CT	Reducing Sugar Chemical Test Result		N	5		99999
PRO_CT	Protein Chemical Test Result		N	5		99999
PUS_CELL	PUS Cell Result		A	10		A(10)
RBC_CELL	RBC Cell Result		A	10		A(10)
YEAST_CELL	Yeast Cell Result		A	10		A(10)
SQUAMOUS_CELL	Squamous Cell Result		A	10		A(10)
RENAL_CELL	Renal Cell Result		A	10		A(10)
BACTERIA_CELL	Bacteria Cell Result		A	10		A(10)
DESA_CASTS	DESA Casts Result		A	10		A(10)
CO_GRAN_CASTS	Course Granular Casts Result		A	10		A(10)
FIN_GRAN_CASTS	Fine Granular Casts Result		A	10		A(10)
PUS_CASTS	PUS Casts Result		A	10		A(10)
RBC_CASTS	RBC Casts Result		A	10		A(10)
WAXY_CASTS	Waxy Casts Result		A	10		A(10)
AU_CRYSTALS	Amorphous Urates Crystals Result		A	10		A(10)
APO_CRYSTALS	Amorphous PO4 Crystals Result		A	10		A(10)
URIC_ACID_CRYSTALS	Uric Acid Crystals Result		A	10		A(10)
CAL_OX_CRYSTALS	Calcium Oxalate Crystals Result		A	10		A(10)
TRI_PO_CRYSTALS	Triple PO4 Crystals Result		A	10		A(10)
MUC_TH	Mucus Threads		A	10		A(10)
REMARKS	Remarks		A	30		A(30)

Table 16. Urinalysis.

Table 17 shows the services table. It has two attributes that include service identifier as the primary key of the table and the service description. All information of the services will be stored in the service database of the proposed system that will be used for reports generation.

Entity Name	Services		Source Document		N/A	
Entity Description	The services entity provides the different attributes relating to services data required by the activities or processes.					
Type of Use	☑ File / Internal	☑ Screen Layout / Form		☑ Report		
Process(s) Used	Data Entry	Triggered by	None	Data Store		service.dbf
Fieldname	Description			Type	Length	Format
SRV_ID	Service Identifier			C	5	A9999
SRV_Desc	Service Description			A	10	A(10)

Table 17. Services.

Table 18 shows the MedTech table. It has four attributes that include the medical technologist identifier as the primary key, medical technologist name, medical technologist license number, and medical technologist address. This table is connected to the laboratory transaction table and the form used to construct this table is the laboratory result form from the organization. All information of the medical technologist will be stored in the MedTech database of the proposed system.

Entity Name	Medtech		Source Document		Laboratory Results forms	
Entity Description	The MedTech entity stores all the information of the medical technologist in the organization					
Type of Use	☑ File / Internal	☑ Screen Layout / Form		☑ Report		
Process(s) Used	Data Entry.	Triggered by	none		Data Store	Medtech.dbf
Fieldname	Description		Type	Length		Format
MDTEC_ID	Medical Technologist Identifier		C	5		A9999
MDTEC_NAME	Medical Technologist Name		A	30		A9999
MDTEC_LCN	Medical Technologist License Number		A	10		A(10)
MDTEC_ADD	Medical Technologist Address		A	50		A(50)

Table 18. Medtech.

Table 19 shows the pathologist table. It has four attributes which include a pathologist Identifier as the primary key, pathologist name, pathologist license number, and pathologist address. This table is connected to the laboratory transaction table and all information of the pathologist will be stored in the pathologist database of the proposed system.

Entity Name	Pathologist		Source Document		Laboratory Results forms	
Entity Description	The pathologist entity stores all the information of the pathologist in the organization					
Type of Use	☑ File / Internal	☑ Screen Layout / Form		☑ Report		
Process(s) Used	Data Entry.	Triggered by	none		Data Store	Pathologist.dbf
Fieldname	Description		Type	Length	Format	
PTHGST_ID	Pathologist identifier		C	5	A9999	
PTHGST_NAME	Pathologist Name		A	30	A(30)	
PTHGST_LCN	Pathologist License Number		A	10	A(10)	
PTHGST_ADD	Pathologist Address		A	50	A(50)	

Table 19. Pathologist.

This chapter discusses the following forms used by the team for the proposed system. It helps the team construct the ERD in order to determine the logical database design for the system. The team constructed 19 tables for the ERD and all data that has been gathered from the following forms has been normalized in order to improve the system and avoid redundant data.