

ITM 302

Data and information Management

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In Collaboration with: IRSHAD Medical Center

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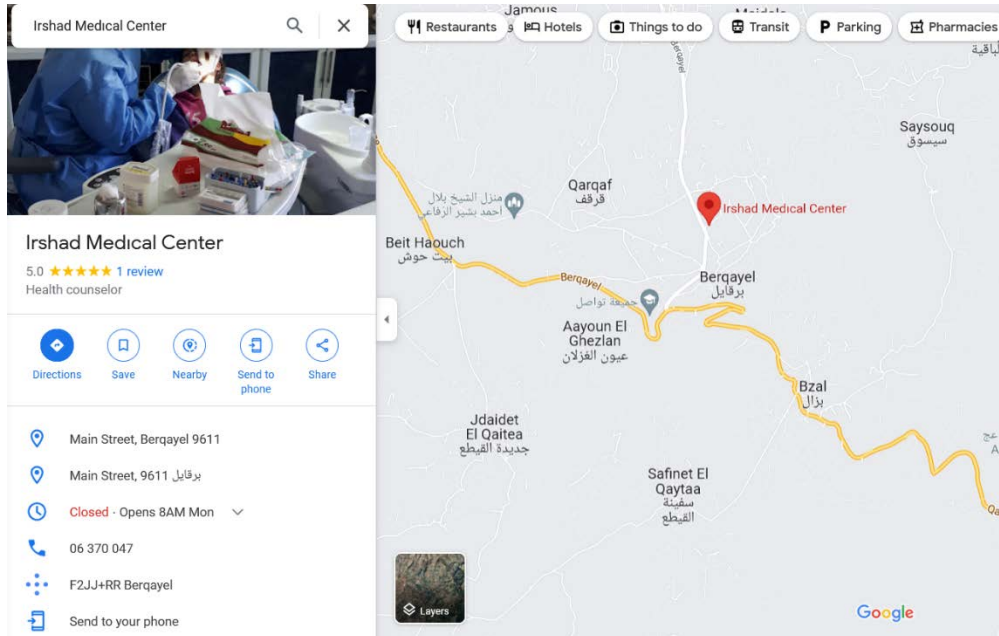
Semester: Fall 2022

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Company overview

IRSHAD Medical Center



Irshad Medical Center – Berkayel:

A Primary health care center serving the Sahel Al-Kaytaa region in Akkar. The center is accredited by Accreditation Canada in coordination with the Ministry of Public Health. It Provides essential medical services to all nationalities including Lebanese and Syrian refugees in Akkar.

The center provides the following medical services: General Medicine, General Surgery, Pediatrics, Obstetrics & Gynecology, Dermatology, Ophthalmology, Orthopedics, Neurologist, Gastroenterologist, Nutritionist. With the support of donors, the center started the one-day hospitalization project, which aims to provide hospital services (serum suspension – breathing therapy – intramuscular injection – tetanus shot) and surgical services (minor operations – simple dressing – emergency – wound suture – orthopedic splinting) at suitable prices.

IMC had taken place in many projects aiming to improve the medical services in the region, the most important ones were:

- Implementation of the comprehensive coverage of primary health care project in collaboration with the Ministry of Public Health. The project had covered 683 families (3,802 people) from the vulnerable families from the following areas: Berkayel - Safinat Al-Qaytaa - Al-Qarqaf - Jdeidet Al-Qaytaa - Ain Al-Dahab.
- Cooperation with première Urgence organization (PU) to provide some medical services to Syrian refugees and Lebanese families and had worked with Beyond Association regarding the diagnosis and treatment of malnutrition for children and pregnant women.
- Cooperation with the IOCC organization to educate pregnant women and take care of the mother and child.
- Providing chronic medicine through the Ministry of public health in collaboration with the YMCA.
- participating in comprehensive national vaccination campaigns against polio, in cooperation with the Ministry of Health.
- Providing covid-19 vaccination (Pfizer) in collaboration with AUB.

IMC Holds educational seminars and lectures for the residents of the region along with campaigns for early detection of gum and dental diseases in children. There is a continuous renewal and development in terms of medical equipment, the latest of which is the laboratory equipment, dental clinic and x-rays. IMC seeks to contract with doctors of all specialties and provides about 4,000 medical service per month.

Purpose

The purpose of this document is to provide us with the needed information to build a database system for the Irshad Medical center.

Index of acronyms

AUB: American University of Beirut

ECG: Electrocardiogram

ICD-10: International classification of diseases

IMC: Irshad Medical Center

IOCC: international Orthodox Christian charity

MOPH: Ministry of public health

PHCC: primary health care center

PU: première Urgence

YMCA: young men's Christian association

Interview

1st Interview report

Date	11/19/2022	5:00 pm
Participants	Ibrahim Itani, director	Iman Itani
Duration	40 min	

Time	Questions	Answers
7 min	What a patient needs to benefit from the services at IMC?	The patient has to open a file if it was his first coming to reserve a file number. The patient had to pay the consultation fees, upon any further diagnosis. The file includes the patient's medical history. Delivering any service won't be possible in case of lack of information about the patient's medical history.
5 min	As a medical center, how do you react against patient showing covid-19 symptoms?	If the patient is showing symptoms of a contagious diseases, it will be directed to the isolation room by the screening personnel welcoming coming patients.
6 min	Are there any steps before the triage stage?	The patient waits in the waiting room after getting a number and then passes to the

		triage to record his vital signs once his file being communicated with the triage.
7 min	What type of services you offer at IMC?	The patient got diagnosed by the doctor and can benefit from different services such as blood tests, X-rays, Images, ECG, Echo ultrasound. Doctors of all specialty work as contractors with IMC. Any updates to the schedule will be communicated with patients.
8 min	Do IMC offer medications for the patients?	When needed, the doctor writes a medical prescription for the patient who can get his medicines from the center's pharmacy. Medication are being delivered at cost free. In addition, in case of chronic diseases, patient can apply to get their medications on monthly basis with minor cost.
7 min	What's the emergency cases' plan?	In emergency cases, patients get directed to the emergency room. Depending on the case, the doctor specialized will be directed to the room along with other nurses. The available doctor will take care of the case when it's possible; otherwise, the patient will be referred to a hospital after getting first aid.

2nd interview report

Date	11/19/2022	7:00 pm
Participants	Ibrahim Itani, director	Iman Itani
Duration	58 min	

Time	Questions	Answers
6 min	Who welcomes the patients firstly?	Once the patient arrives, a screening personnel will be responsible for taking the temperature of patients. Depending on their temperature and other symptoms, they might be directed to the isolation room so they can get the needed tests to decide on how to continue their treatment process.
6 min	From where the patients can get their files?	The filing officer creates new files for first comers and delivers files to the triage department. The files are transported by authorized personnel so the patient privacy will be secured.
8 min	When are patients supposed to pay the consultation allowance?	Triage nurse fills the vital signs and delivers the file to the consultation room. Just after this, the cashier receives payments of the consultation allowance and delivers receipts. In case of further prescribed tests, the payment should be paid before the required

		test either by the patient himself or by being covered from one of the supporting association.
6 min	What are the responsibilities of a doctor?	The doctor examines the patient, fills in the diagnosis and treatment plan, and writes medical prescription. Nurses assist the doctor and prepare materials. The prescribed tests consist of different type of services requested by the doctor that might be performed either in the center or at external parties.
6 min	What happens in case of need for further tests?	The claim forms are sent for approvals by the medical health advisor of PU. Either they got approved and the patient can proceed with his tests with a certain discount on the invoice or they got rejected so the patient will have to pay and proceed with the tests.
6 min	What are the needed papers to get the prescribed tests done?	Radiology, Laboratory, physical therapy, mid-wife personnel perform the prescribed test after taking either receipts or approval of PU as well as filling the results in the medical file and extracting invoices.
8 min	Can the prescribed tests be performed in the IMC? If yes, what's the process?	Laboratory technician receive the specimens of the patient, perform the basic ones in the center and send the advanced ones to external laboratories. The sent tests are carried within a stable temperature and taking into consideration other factors so the accuracy of the results will be secured.
6 min	As you have a pharmacy in IMC, by whom it's managed and how?	Pharmacists deliver medication to the patient showing the prescription and he is responsible for negotiating with the doctor in case of any medication conflict. Pharmacist receive a copy of the prescription to fill the medical file. Pharmacist update the database of the medication available in the pharmacy.
6 min	What happens in case of referring a patient to another hospital?	In some cases, patients can be referred to a hospital by the doctor. IMC doesn't have a single hospital to which patients are sent. However, depending on the cases and the availability of doctors, patient got referred to hospitals in the region.

3rd interview report

Date	11/19/2022	9:00 pm
Participants	Ibrahim Itani, director	Iman Itani
Duration	22 min	

Time	Questions	Answers
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3 min	Who's the responsible of dealing with suppliers?	Stock manager order needed materials and send the form to the manager to get the approval.
6 min	Can you give more details about the procurement process?	For orders costing more than 50\$, at least 3 different quotations are needed. The manager takes the decision and chooses the best quotation. Once the order is approved, the stock manager gets in touch with the suppliers. The stock manager sends the invoices to the accountant to pay them.
3 min	Do you have other sources than suppliers?	In case of donations, the stock manager will record the received items.
3 min	How is your relation with your partners?	The specimens and tests are sent to another party by the personnel and get results in return, invoices are issued on monthly basis.
3 min	What are the requirements demanded by your suppliers?	Partners – MPH and PU- assure the quality of the services using an action plan based on quality indicators.
4 min	How the government affect your service delivering?	The manager receives policies and announcements from the government and partners, then sends them to the filing officer and update the employees with the new regulations

Scenario

1st part customers

The patient had to open a file if it was his first coming to reserve a file number. The patient had to pay the consultation fees, upon any further diagnosis. The file includes the patient's medical history. If the patient is showing symptoms of contagious diseases, it will be directed to the isolation room. If not, the patient waits in the waiting room then passes to the triage to record his vital signs and get educative instructions. The patient got diagnosed by the doctor and can benefit from different services such as blood tests, X-rays, Images, ECG, Echo ultrasound. When needed, the doctor writes a medical prescription for the patient who can get his medicines from the center's pharmacy. The patient can get guidance and help from the nurses. The chronic diseases patients who got medicines on monthly basis got directed to the pharmacy after paying the fees. In emergency cases, patients get directed to the emergency room.

A room can be an isolation room, emergency room.

2nd part Employees

A manager manages employees. An employee can be a manager, screening personnel, cashier, filing officer, nurse, doctor, pharmacists, medical health advisor, personnel. A personnel can be a laboratory technician, radiology personnel, mid-wife personnel, physical therapy personnel.

Screening personnel are responsible for taking the temperature of patients. The filing officer creates new files and delivers files to triage. Cashier receives payments and delivers receipts. Triage nurse fills the vital signs and delivers

the file to the consultation room. The doctor examines the patient, fills in the diagnosis and treatment plan, and writes medical prescription. Nurses assist the doctor and prepare materials. Radiology, Laboratory, physical therapy, mid-wife personnel perform the prescribed test after taking either receipts or approval of PU as well as filling the results in the medical file and extracting invoices. Laboratory technician receive the specimens of the patient, perform the basic ones in the center and send the advanced ones to external laboratories. Pharmacists deliver medication to the patient showing the prescription and he is responsible for negotiating with the doctor in case of any medication conflict. Pharmacist receive a copy of the prescription to fill the medical file. Pharmacist update the database of the medication available in the pharmacy. In some cases, patients can be referred to a hospital by the doctor.

3rd part Suppliers and partners

Stock manager order needed materials and send the form to the manager to get the approval. For orders costing more than 50\$, at least 3 different quotations are needed. The manager takes the decision and chooses the best quotation. Once the order is approved, the stock manager gets in touch with the suppliers. The stock manager sends the invoices to the accountant to pay them. In case of donations, the stock manager will record the received items. The specimens and tests are sent to another party by the personnel and get results in return, invoices are issued on monthly basis. Partners – MPH and PU- assure the quality of the services using an action plan based on quality indicators. The manager receives policies and announcements from the government and partners, then sends them to the filing officer and updates the employees with the new regulations. An external party can be a supplier, a donor, a partner.

Business rules

Customers/ patients:

- One patient must have one file
- One patient may pay many invoices.
- One isolation room can have one patient at once.
- Many patients may wait in one room.
- One patient must pass to triage.
- Many patients must get many educative instructions.
- Many patients' education must be filled by one nurse.
- One patient may have many vital signs.
- Many vital signs must be filled in one file.
- Many vital signs must be taken by one nurse.
- Many patient may be examined by many doctors
- Many patient may benefit from many services.
- One doctor can write many medical prescriptions.
- One patient can get many medical prescriptions.
- One doctor may do many consultations.
- One consultation must include one treatment plan.
- One patient can get many treatment plans.
- One nurse may comment on many treatment plans.
- One doctor must fill many treatment plans.
- One patient can get many medications.
- Many medications must exist in one pharmacy/ room.
- Many patients can get directed to one emergency room

Employees:

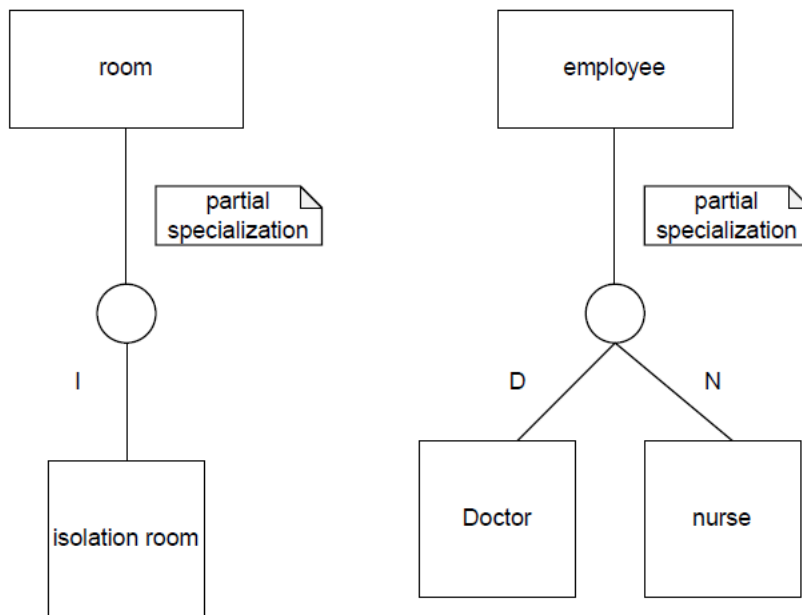
- Many managers may manage many employees.
- One employee must have many certificates.
- One employee must have one contract.
- one employee may create/update many files.
- One employee may deliver many receipts.
- One patient must receive many receipts.
- Many nurses must record many vital signs.
- Many nurses may assist many doctors.
- One employee may deliver many results.
- One employee may receive many specimens.
- One specimens must secure one result.
- One patient may give many specimens.
- One employee may deliver many medications.
- One employee may update the stock.
- Many doctor can refer many patients to a hospital.

Suppliers and partners:

- One employee may order many orders.
- One employee may send many approval forms.
- One order may need many quotations.
- One external party may send many quotation.
- One employee may choose one quotation.
- One employee may contact many external parties.
- One external party may send many invoices.
- One employee may pay invoices.
- External parties may send results in return.
- Many external parties may record many quality indicators.
- Many external parties may issue action plans.
- One action plan must have many indicators
- One employee may receive many announcements/letters.
- Many external parties may send many announcements/letters.
- one employee may set many rules.
- One external party must have many contracts.
- One order may need one approval form

Super types and subtypes:

Supertype	Subtype
Rooms	Isolation room
Employee	Nurse
	Doctor



Entities description

1. Entity patient:

A number is assigned to each patient (Identifier), the customer's name (composed of his/her first name and last name), his phone number, address, gender and date of birth are recorded.

2. Entity file:

This entity is used to record the medical past of the patient. It has file number as primary key.

3. Entity invoice

An invoice is identified using an invoice number. This entity is used to record the payments paid by the employee (accountant) to external parties(suppliers).

4. Entity isolation room

This entity is a subtype of the room entity. It is used to separate patients with special conditions from other patients.

5. Entity room

This entity has one subtype. There are many rooms such as waiting rooms, emergency rooms, pharmacy.

6. Entity triage

Triage is the process of sorting patients to be directed to the specialized doctor.

7. Entity patient education

Each patient must receive educative instructions about his sickness upon meeting the doctor.

8. Entity nurse

A nurse is a subtype of the employee entity.

9. Entity vital signs

Vital signs are taken for each patient upon their entrance.

10. Entity doctor

A doctor is a subtype of the employee entity who takes care of monitoring the treatment process.

11. Entity services

Many services are offered to the patient. Each service has its own number, and it should be performed in the medical center.

12. Entity medical prescription

A medical prescription is given by the doctor to a patient when needed.

13. Entity consultation

Consultation is the process of examination done by a doctor assisted by a nurse.

14. Entity Treatment plan

A treatment plan is an entity used to record the different aspect of the treatment including a management plan and follow-up plan.

15. Entity medication

The medication entity is used to record the available medications in the medical center's pharmacy.

16. Entity employee

An employee is a supertype that has 2 subtypes (doctor and nurse). This entity records the workers in the medical center.

17. Entity certificate

A certificate has an ID as an identifier. It is used to show the skills of a certain employee.

18. Entity contract

This entity shows up the legal relationship between the employees and the medical center.

19. Entity receipt

A receipt is identified by a receipt number, and it's used to record the payments made by the patient to the employee(cashier).

20. Entity specimens

A specimens refer to one patient. This specimen will be either sent to external laboratories to be analyzed or analyzed in the medical center.

21. Entity stock

The stock is the warehouse of the medical center.

22. Entity order

An order is identified by the order number. It's performed by an employee (stock manager) and sent to an external party(supplier).

23. Entity approval form

An order needs an approval form from the employee(manager) to be executed.

24. Entity Quotation

A quotation is sent by external party(supplier) to employee(manager).

25. Entity quality indicators

Quality indicators are benchmarks created by external parties (partners, government) to assess the success of performed processes.

26. Entity action plan

An action plan includes the future actions in need to be performed based on the percentage of achievement of quality indicators.

27.Entity announcement

An announcement is sent by external parties to communicate new rules or claims with the medical center.

28.Entity rule

A rule is set by an employee(manager) to improve the effectiveness of the work.

29.Entity external party

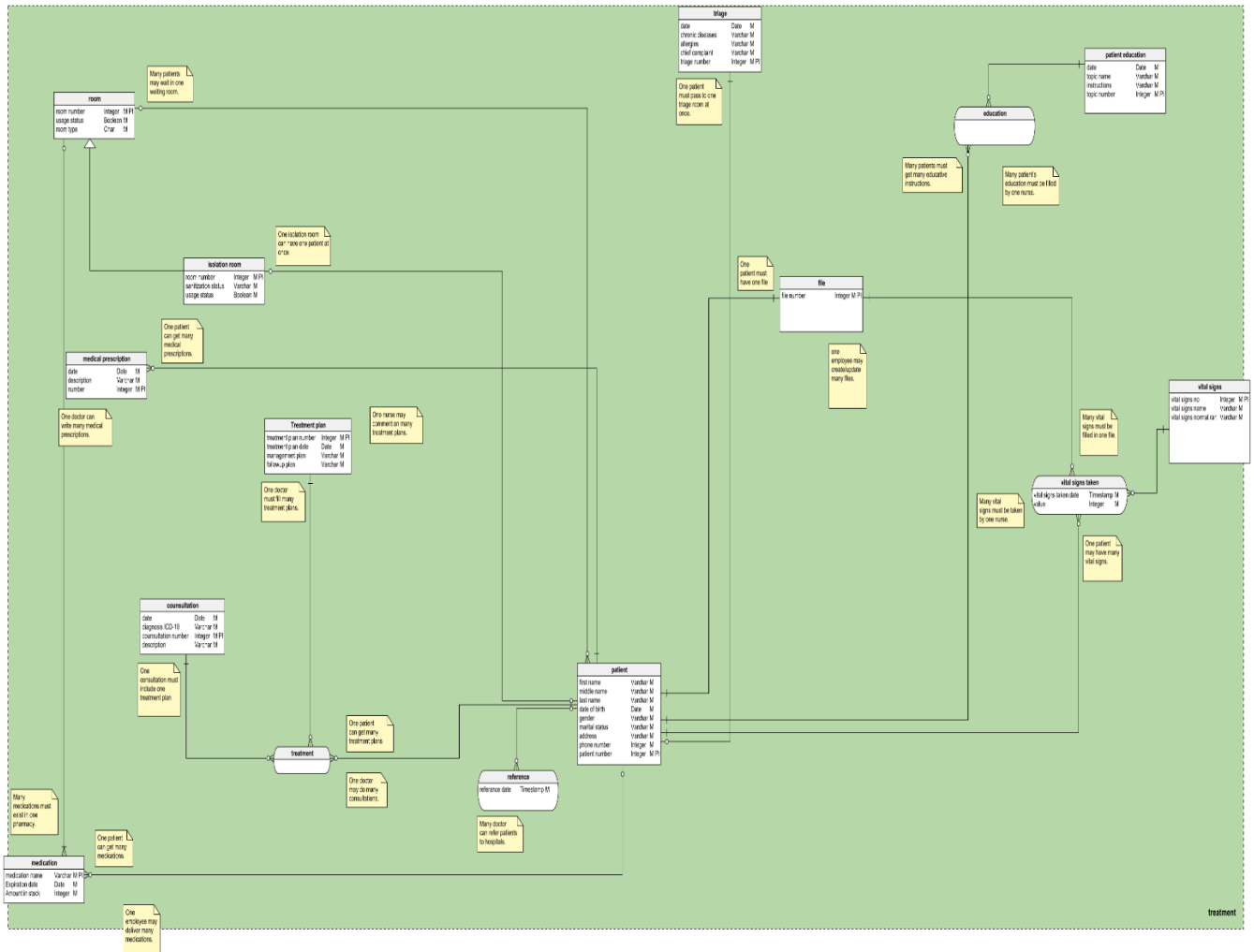
An external party could be a supplier, partner, government, external laboratory or hospital.

30.Entity results

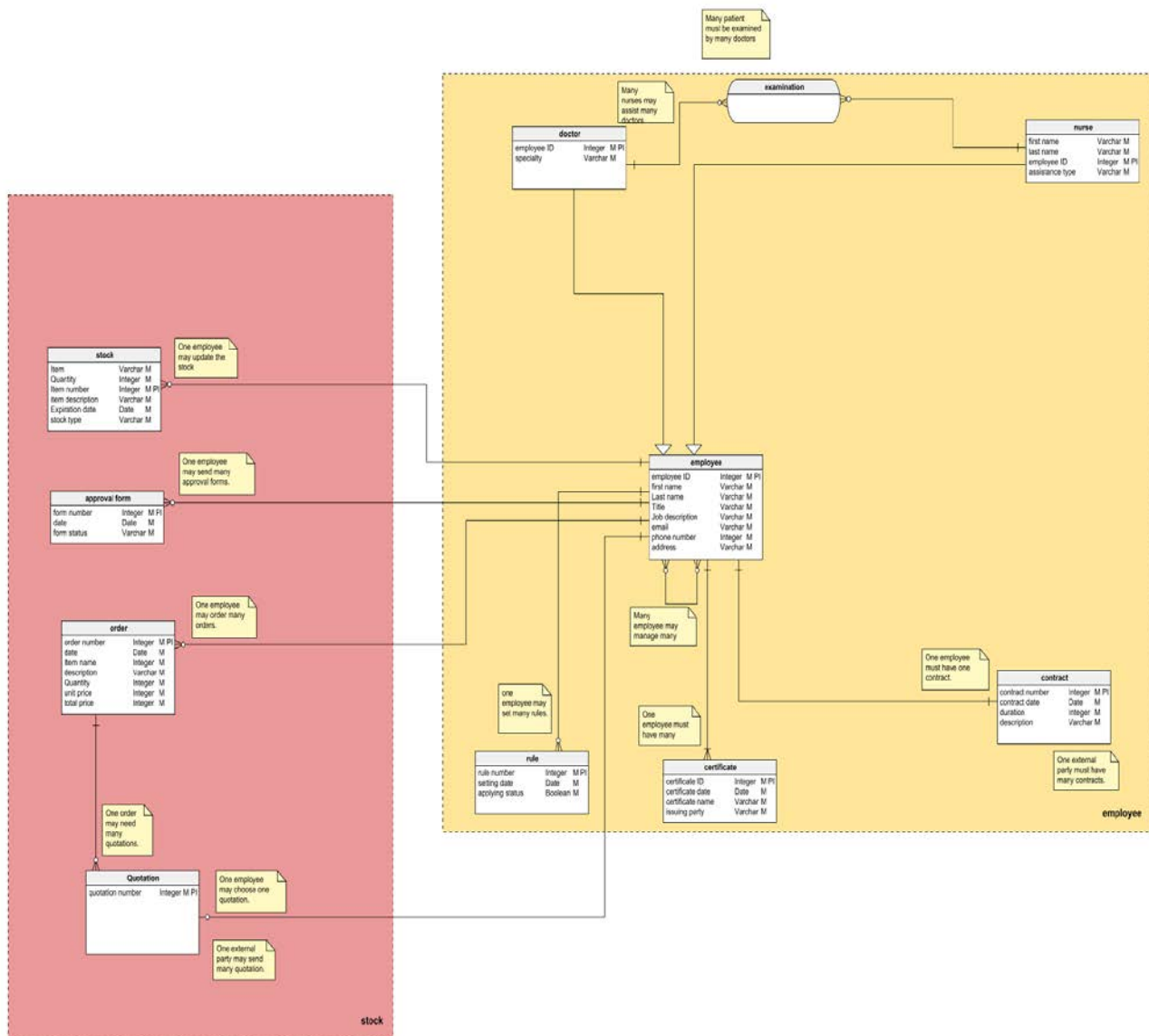
The result is the final status of a certain test. It could be received from external parties (laboratories) or received at the medical center.

ER diagram as clusters:

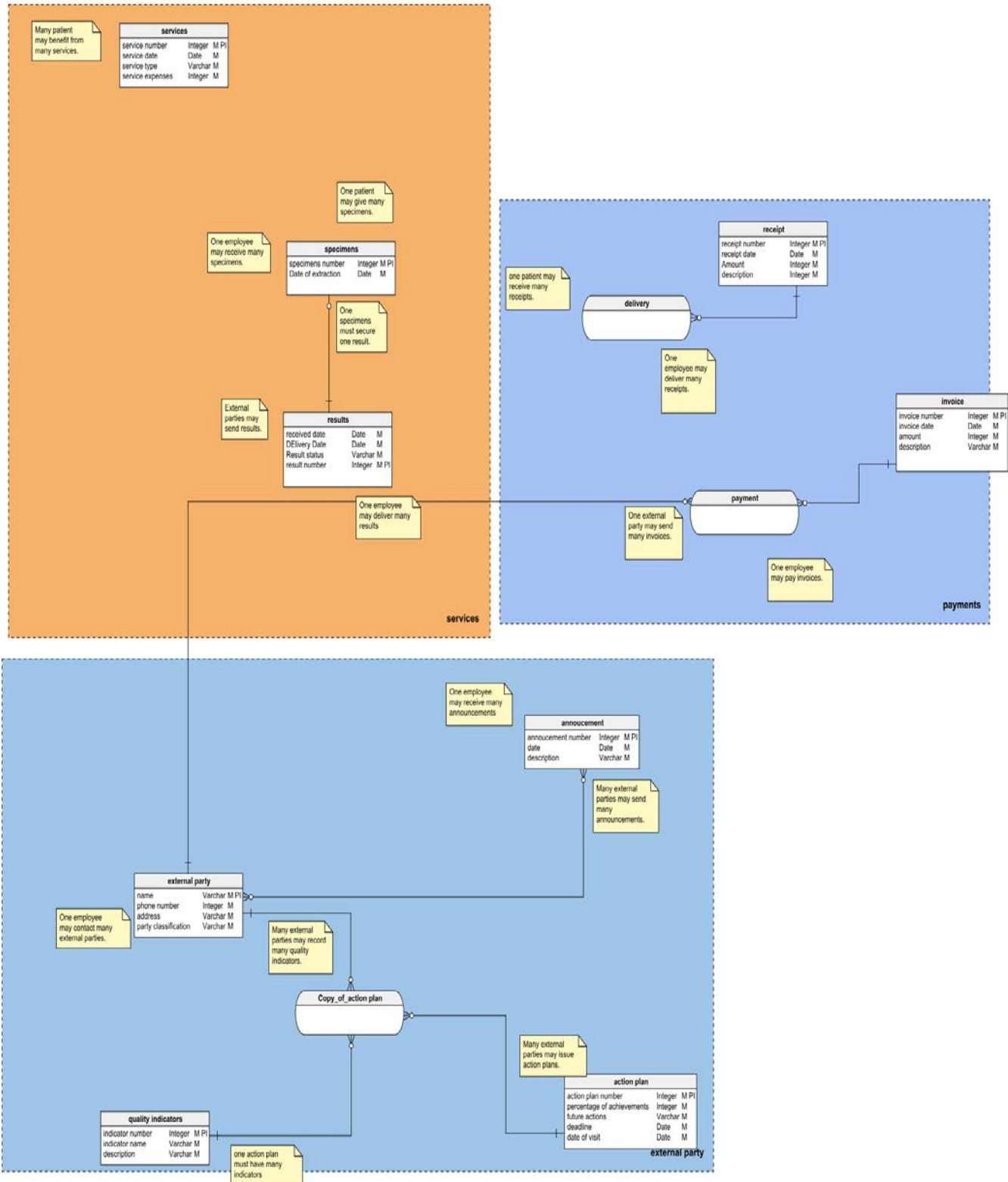
Treatment:



Employee/ stock:

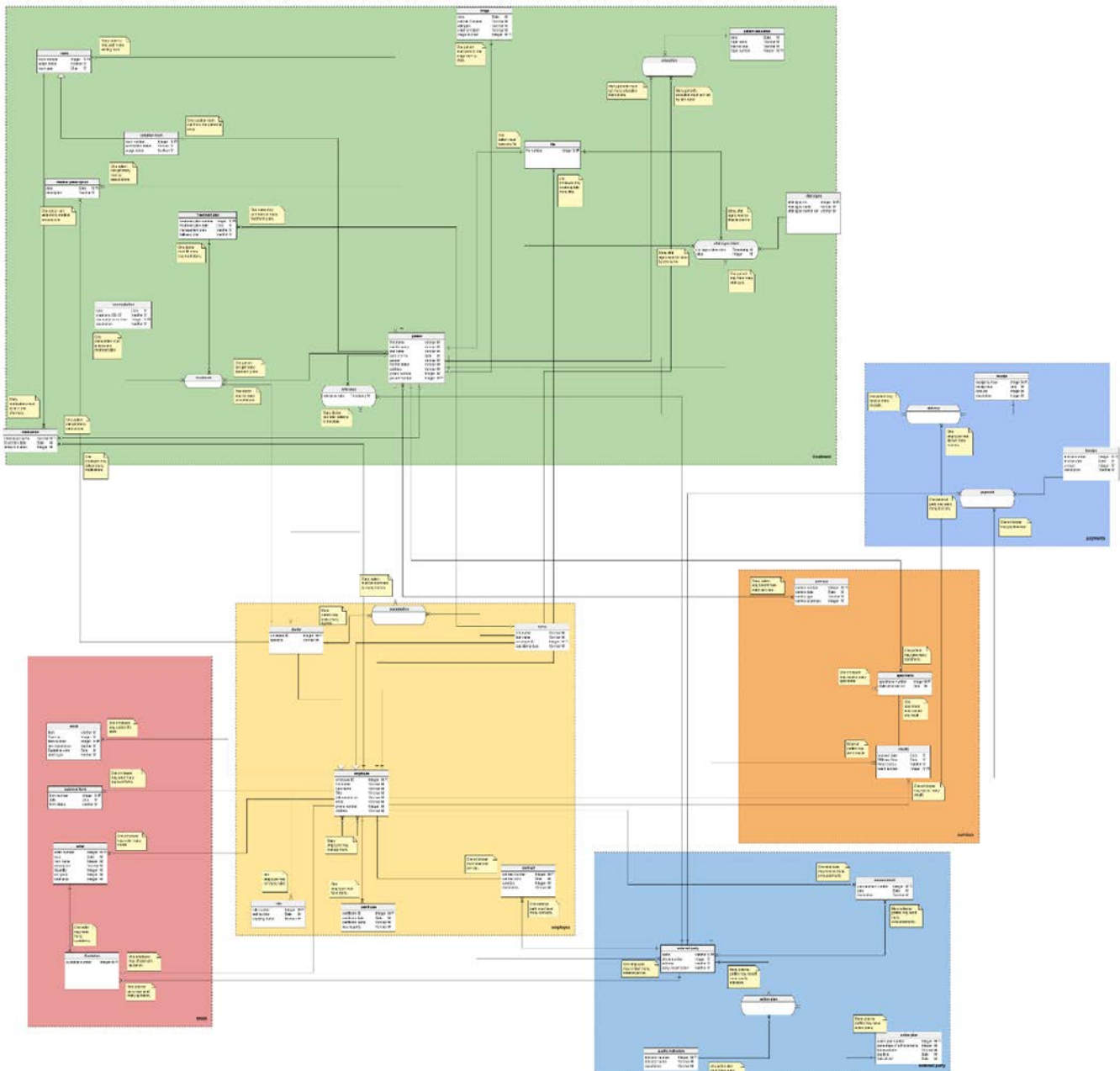


services/ payments/ external parties:



Overall ER diagram

For a clearer view follow this link:



Schema diagram

Room

<u>Room number</u>	Usage status	Room type
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Isolation room

<u>Iso room number</u>	Sanitization status
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Isolation room relation

<u>Iso room number</u>	<u>Patient no</u>
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Patient

<u>Patient no</u>	Fname	Mname	Lname	Date of birth	gender	Marital status	address	Phone no	<u>Room no</u>	<u>File no</u>	<u>Triage Number</u>
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File

<u>File no</u>	<u>Employee ID</u>
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Medical prescription

M. prescription date	description	<u>Patient no</u>	<u>Doctor ID</u>	<u>M. prescription number</u>
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Doctor

<u>Doctor ID</u>	Specialty
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Employee

<u>Employee ID</u>	Fname	Lname	Title	Job description	email	Phone no	address	<u>Contract no</u>
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Contract

<u>Contract no</u>	Contract date	Duration	Description	<u>Ext. party name</u>
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Medication

<u>Medication no</u>	Medication name	Expiration date	Amount in stock	<u>Patient no</u>	<u>Employee ID</u>	<u>Room no</u>
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Consultation

<u>Consultation no</u>	Date	Diagnosis ICD-10	description
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Treatment plan

<u>Treatment no</u>	Date	Management plan	Follow up plan	<u>Nurse ID</u>
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Treatment relation

<u>Consultation no</u>	<u>Treatment no</u>	<u>Patient no</u>	<u>Doctor ID</u>
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Nurse

<u>Nurse ID</u>	Assistance type
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Reference

<u>Reference date</u>	<u>Patient no</u>	<u>Doctor ID</u>	<u>Ext. party name</u>
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Triage

<u>Triage number</u>	Triage date	Chronic diseases	allergies	Chief complaint
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Education

<u>Topic no</u>	Topic name	Instructions
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Patient education relation

<u>Topic no</u>	<u>Nurse ID</u>	<u>Patient no</u>	<u>Education Date</u>
-----------------	-----------------	-------------------	-----------------------

Vital signs

<u>Vital signs number</u>	Vital signs name	Normal range
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Patient vital signs relation

<u>V.S. date</u>	<u>V.S. number</u>	<u>Patient no</u>	<u>Nurse ID</u>	value	<u>File no</u>
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Receipt

<u>Receipt no</u>	Date	Amount	Description
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Receipt delivery relation

<u>Receipt no</u>	<u>Patient no</u>	<u>Employee ID</u>
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Invoice

<u>Invoice no</u>	Date	Amount	Description
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Invoice payment relation

<u>Invoice no</u>	<u>Employee ID</u>	<u>Ext. party name</u>
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Service

<u>Service no</u>	type	expenses
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Patient service relation

<u>Service no</u>	<u>Patient no</u>	<u>date</u>
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Specimens

<u>Specimens no</u>	Date of extraction	<u>Patient no</u>	<u>Employee ID</u>	<u>Result no</u>
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Result

<u>Result no</u>	Receive date	Delivery date	status	<u>Employee ID</u>
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Result from external parties

<u>Result no</u>	<u>Ext. party name</u>
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External party

<u>Ext. party no</u>	Ext. party name	Phone no	Party classification	address	<u>Employee ID</u>
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Indicator

<u>Indicator no</u>	Indicator name	description
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Action plan

<u>Action plan no</u>	Percentage of achievement	Future actions	deadline	Date of visit
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Action plan external party relation

<u>Indicator no</u>	<u>Ext. party name</u>	<u>Action plan no</u>
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Announcement

<u>Announcement no</u>	Date	Description	<u>Employee ID</u>
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Announcement external party relation

<u>Announcement no</u>	<u>Ext. part name</u>
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Certificate

<u>Certificate ID</u>	Date	Name	Issuing party	<u>Employee ID</u>
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Rule

<u>Rule no</u>	Setting date	Applying status	<u>Employee ID</u>
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Examination

<u>Nurse ID</u>	<u>Patient no</u>	<u>Doctor ID</u>
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Stock

<u>Item no</u>	Quantity	Item name	Item description	Expiration date	Stock type	<u>Employee ID</u>
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Approval form

<u>Approval form no</u>	Date	Form status	<u>Employee ID</u>	<u>Order no</u>
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Order

<u>Order no</u>	Date	Item name	Description	Quantity	Unit price	Total price	<u>Employee ID</u>
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Quotation

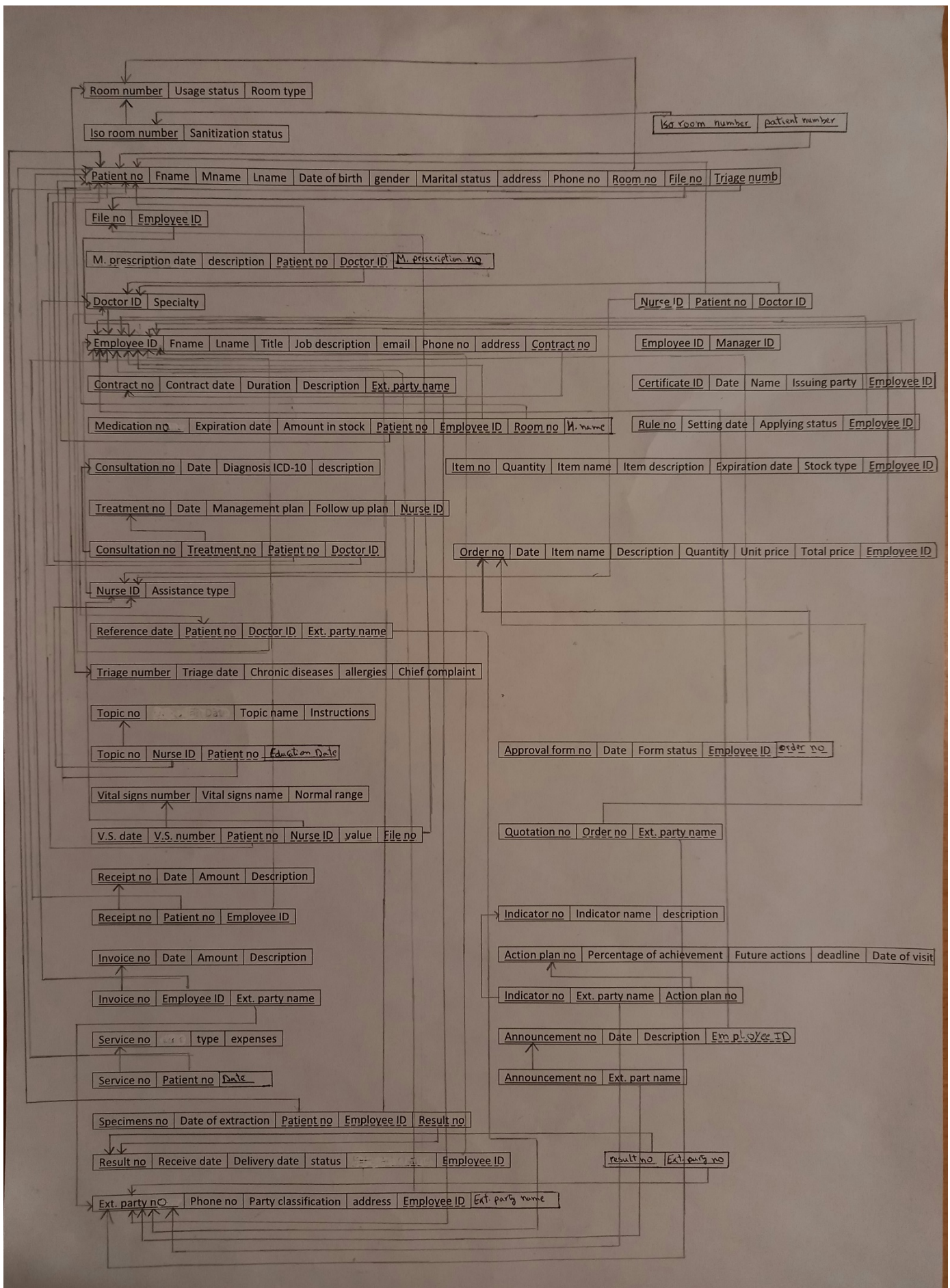
<u>Quotation no</u>	<u>Order no</u>	<u>Ext. party name</u>
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Manager

<u>Employee ID</u>	<u>Manager ID</u>
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Mapping



Metadata

Entities

1. Entity patient

1.1.1. Attributes

Attribute name	Type	Default value	Is primary identifier	constraints
first name	Varchar (15)	no	no	No
middle name	Varchar (15)	no	no	No
last name	Varchar (15)	no	no	No
date of birth	Date	no	no	No
gender	Varchar (6)	no	no	"male" "female"
marital status	Varchar (8)	no	no	"single" "married"
address	Varchar (25)	no	no	No
phone number	Integer	no	no	No
patient number	Char (5)	no	yes	No

2. Entity file

1.2.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
file number	Char (5)	no	yes	No

2.3. Entity invoice

2.3.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
invoice number	Char (10)	No	yes	No

invoice date	Date	No	no	No
amount	Integer	No	no	No
description	Varchar (25)	No	no	No

2.4. Entity isolation room

2.4.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
room number	Char (3)	No	yes	No
sanitization status	Boolean	No	No	No

2.5. Entity room

2.5.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
room number	Char (3)	No	yes	No
usage status	Boolean	No	no	No
room type	Char	No	no	No

2.6. Entity triage

2.6.1. Attributes

Attribute name	Type	Default	Is primary identifier	Constraints
date	Date	No	No	No
chronic diseases	Varchar (15)	None	No	No
allergies	Varchar (15)	None	No	No
chief complaint	Varchar (25)	No	No	No
triage number	Char (8)	No	Yes	No

2.7. Entity patient education

2.7.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
topic name	Varchar (15)	No	no	No
instructions	Varchar (25)	No	no	No
topic number	Char (8)	No	yes	No

2.8. Entity nurse

2.8.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
employee ID	Char (3)	No	yes	No
assistance type	Varchar (15)	No	No	No

2.9. Entity vital signs

2.9.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
vital signs no	Char (8)	No	yes	No
vital signs name	Varchar (15)	No	no	No
vital signs normal range	Varchar (15)	No	no	No

2.10. Entity doctor

2.10.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
----------------	------	---------------	-----------------------	-------------

employee ID	Char (3)	No	yes	No
specialty	Varchar (30)	No	No	No

2.11. Entity services

2.11.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
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service number	Char (8)	No	yes	No
service type	Varchar (25)	No	no	No
service expenses	Integer	No	no	No

2.12. Entity medical prescription

2.12.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
date	Date	No	no	No
description	Varchar (25)	No	no	No
number	Char (8)	No	yes	No

2.13. Entity consultation

2.13.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
date	Date	No	no	No
diagnosis ICD-10	Char (5)	No	no	No
consultation number	Char (8)	No	yes	No
description	Varchar (25)	No	no	No

2.14. Entity Treatment plan

2.14.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
treatment plan number	Char (8)	No	yes	No
treatment plan date	Date	No	no	No

management plan	Varchar (100)	No	no	No
follow up plan	Varchar (100)	No	no	No

2.15. Entity medication

2.15.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
Medication number	Varchar (8)	No	Yes	No
medication name	Varchar (30)	No	no	No
Expiration date	Date	No	no	No
Amount in stock	Integer	No	no	No

2.16. Entity employee

2.16.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
employee ID	Char (3)	No	yes	No
first name	Varchar (15)	No	no	No
Last name	Varchar (15)	No	no	No
Title	Varchar (15)	No	no	No
Job description	Varchar (15)	No	no	No
email	Varchar (30)	No	no	No
phone number	Integer	No	no	No
address	Varchar (30)	No	no	No

2.17. Entity certificate

2.17.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
certificate ID	Char (8)	No	yes	No
certificate date	Date	No	no	No
certificate name	Varchar (50)	No	no	No
issuing party	Varchar (30)	No	no	No

2.18. Entity contract

2.18.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
contract number	Char (8)	No	yes	No
contract date	Date	No	no	No
duration	Integer	No	no	No
description	Varchar (25)	No	no	No

2.19. Entity receipt

2.19.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
receipt number	Char (10)	No	yes	No
receipt date	Date	No	no	No
Amount	Integer	No	no	No
description	Varchar (25)	No	no	No

2.20. Entity specimens

2.20.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
specimens ' number	Char (8)	No	yes	No
Date of extraction	Date	No	no	No

2.21. Entity stock

2.21.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
Item	Varchar (15)	No	no	No
Quantity	Integer	No	no	No
Item number	char (8)	No	yes	No
item description	Varchar (25)	No	no	No
Expiration date	Date	No	no	No
stock type	Varchar (15)	No	no	No

2.22. Entityorder

2.22.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
order number	Char (10)	No	yes	No
date	Date	No	no	No
Item name	Varchar (15)	No	no	No
description	Varchar (25)	No	no	No
Quantity	Integer	No	no	No
unit price	Integer	No	no	No
total price	Integer	No	no	No

2.23. Entity approval form

2.23.1. Attributes

Attribute name	Type	Default value	Is primary identifier	constraints
form number	Char (8)	No	yes	No
date	Date	No	no	No
form status	Varchar (10)	No	no	"approved" "rejected" "pending"

2.24. Entity Quotation

2.24.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
quotation number	Char (10)	No	yes	No

2.25. Entity quality indicators

2.25.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
indicator number	Char (8)	No	yes	No
indicator name	Varchar (15)	No	no	No
description	Varchar (25)	No	no	No

2.26. Entity action plan

2.26.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
----------------	------	---------------	-----------------------	-------------

action plan number	Char (10)	No	yes	No
percentage of achievements	Integer	No	no	No
future actions	Varchar (25)	No	no	No
deadline	Date	No	no	No
date of visit	Date	No	no	No

2.27. Entity announcement

2.27.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraint
announcement number	Char (10)	No	yes	No
date	Date	No	no	No
description	Varchar (25)	No	no	No

2.28. Entity rule

2.28.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
rule number	Char (8)	No	yes	No
setting date	Date	No	no	No
applying status	Boolean	No	no	No

2.29. Entity external party

2.29.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
ID	Char (10)	No	yes	no

name	Varchar (15)	No	No	No
phone number	Integer	No	no	No
address	Varchar (25)	No	no	No
party classification	Varchar (20)	No	no	"hospital" "laboratory" "supplier" "partner" "government"

2.30. Entity results

2.30.1. Attributes

Attribute name	Type	Default value	Is primary identifier	Constraints
received date	Date	No	no	No
Delivery Date	Date	No	no	No
Result status	Varchar (20)	No	no	"received" "delivered" "pending"
result number	Char (8)	No	yes	No

Associations

1. Association reference

Attribute name	Type	Default value	Constraints
reference date	datetime	No	

2. Association vital signs taken

Attribute name	Type	Default value	Constraints
vital signs taken date	datetime	No	No
value	Integer	No	No

3.Association education

Attribute name	Type	Default value	Constraints
date	datetime	No	No

4.Association service patient

Attribute name	Type	Default value	Constraints
date	date	No	No

Tables creation – SQL

Note: kindly note that some names had been changed due to SQL Server restrictions.

```
use IMC_project;
Create Table Room (
roomNo char (3) not null Primary Key,
usageStatus Bit not null,
roomType char,
);

Create Table IsolationRoom (
roomNo char (3) not null Primary Key,
sanitizationStatus Bit not null,
foreign key (roomNo) references Room (roomNo)
on delete cascade on update cascade,
);
```

```
create table Patient(
patientNo char(5) not null primary key,
fName varchar(15) not null,
mName varchar(15),
lName varchar(15) not null,
dateOfBirth date not null,
gender varchar(6) not null,
Check (gender IN ('male', 'Female')),
maritalStatus varchar(8) not null,
Check (maritalStatus IN ('single', 'married')),
```

```
address varchar(25),  
phoneNumber Int,  
roomNo char (3),  
foreign key (roomNo) references Room (roomNo)  
on delete set null on update cascade,  
);
```

```
create table Patient_Isolation(  
patientNo char(5) not null ,  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update cascade,  
roomNo char (3) not null ,  
foreign key (roomNo) references IsolationRoom (roomNo)  
on delete No action on update no action,  
constraint PK_Patient_isolation primary key(patientNo, roomNo),  
);
```

```
create table Employee(  
employeeID char(3) not null primary key,  
fName varchar(15) not null,  
lName varchar(15) not null,  
title varchar(15) not null,  
jobDescription varchar(15) not null,  
email varchar(30) not null,  
phoneNumber Int,  
address varchar(30),  
);
```

```
create table FFile(  
fileNo char(5) not null primary key,  
employeeID char(3) ,  
foreign key (employeeID) references Employee(employeeID)  
on delete set null on update cascade,  
);
```

```
alter table patient add  
fileNo char(5)  
foreign key (fileNo) references FFile (fileNo)  
on delete no action on update cascade;
```

```
create table Doctor(  
doctorID char(3) not null primary key,  
foreign key (doctorID) references Employee(employeeID)  
on delete cascade on update cascade,
```

specialty varchar(30) not null,
);

```
create table MedicalPrescription(  
PresNo char(8) not null primary key,  
presDesc varchar(25),  
presDate date not null,  
patientNo char(5) not null ,  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update cascade,  
doctorID char(3) not null  
foreign key (doctorID) references Doctor(doctorID)  
on delete no action on update no action,  
);
```

```
create table Contract(  
contractNo char(8) not null primary key,  
contractDate date not null,  
contractDuration int not null,  
contractDesc varchar(25),  
);
```

```
alter table employee add  
contractNo char(8)  
foreign key (contractNo) references Contract(contractNo)  
on delete no action on update cascade;
```

```
create table Medication(  
medicationNo char(8) not null primary key,  
medicationName varchar(30) not null ,  
expirationDate date not null,  
amountInStock int,  
roomNo char(3),  
foreign key (roomNo) references Room (roomNo)  
on delete no action on update cascade,  
employeeID char(3),  
foreign key (employeeID) references Employee(employeeID)  
on delete set null on update cascade,  
patientNo char(5) ,  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update no action,  
);
```

```
create table consultation(  
consultationNo char(8) not null primary key,  
consultationDate date not null,  
diagnosisICD_10 char(5) not null,  
consultationDesc varchar (25) not null,  
);
```

```
create table Nurse(  
nurseID char(3) not null primary key,  
foreign key (nurseID) references Employee(employeeID)  
on delete cascade on update cascade,  
assistanceType varchar(15) not null,  
);
```

```
create table TreatmentPlan(  
TRNo char(8) not null primary key,  
TRDate date not null,  
managementPlan varchar(100) not null,  
followupPlan varchar(100),  
nurseID char(3),  
foreign key (nurseID) references nurse(nurseID)  
on delete no action on update cascade,  
);
```

```
create table Treatment(  
consultationNo char(8) not null primary key,  
TRNo char(8) not null  
foreign key (TRNo) references TreatmentPlan(TRNo)  
on delete no action on update cascade,  
patientNo char(5) not null,  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update no action,  
doctorID char(3) not null  
foreign key (doctorID) references Doctor(doctorID)  
on delete no action on update no action,  
);
```

```
create table Reference(  
referenceDate datetime not null primary key,  
patientNo char(5) not null,  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update no action,  
doctorID char(3) not null  
foreign key (doctorID) references Doctor(doctorID)
```

on delete no action on update no action,
);

```
create table Triage(  
    triageNo char(8) not null primary key,  
    triageDate date not null,  
    chronicDiseases varchar(15) default 'none' not null,  
    allergies varchar(15) default 'none' not null,  
    chiefComplaint varchar(25) not null,  
);
```

```
alter table patient add  
    triageNo char(8) not null  
foreign key (triageNo) references Triage(triageNo)  
on delete no action on update cascade;
```

```
create table Education(  
    TopicNo char(8) not null primary key,  
    topicName varchar(15) not null,  
    instructions varchar(25) not null,  
);
```

```
create table Patient_Education(  
    topicNo char(8) not null,  
    givenDate datetime not null,  
    foreign key (topicNo) references Education(topicNo)  
    on delete no action on update cascade,  
    patientNo char(5) not null,  
    foreign key (patientNo) references Patient (patientNo)  
    on delete No action on update no action,  
    nurseID char(3) not null,  
    foreign key (nurseID) references nurse(nurseID)  
    on delete no action on update cascade,  
    constraint pk_patient_Eduaction primary key (topicNo,nurseID,givenDate),  
);
```

```
create table vitalSigns(  
    VitalSignNo char(8) not null primary key,  
    VitalSignName varchar(15) not null,  
    normalRange varchar(15) not null,  
);
```

```
create table Patient_VitalSign(  
VitalSignDate datetime not null primary key,  
value int not null,  
VitalSignNo char(8) not null  
foreign key (vitalSignNo) references vitalSigns(vitalSignNo)  
on delete no action on update cascade,  
patientNo char(5) not null,  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update no action,  
fileNo char(5) not null  
foreign key (fileNo) references FFile (fileNo)  
on delete no action on update no action,  
nurseID char(3) not null,  
foreign key (nurseID) references nurse(nurseID)  
on delete no action on update cascade,  
);
```

```
create table Receipt(  
receiptNo char(10) not null primary key,  
receiptDate date not null,  
amount int not null,  
receiptDesc varchar(25) not null,  
);
```

```
create table Receipt_Delivery(  
receiptNo char(10) not null  
foreign key (receiptNo) references Receipt(receiptNo)  
on delete no action on update cascade,  
patientNo char(5) not null  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update no action,  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);  
alter table Receipt_Delivery add  
constraint pk_delivery primary key (receiptNo, patientNo, employeeID);
```

```
create table Invoice(  
invoiceNo char(10) not null primary key,  
invoiceDate date not null,  
amount int not null,  
invoiceDesc varchar(25) not null,  
);
```

```
create table Invoice_payment(  
invoiceNo char(10) not null  
foreign key (invoiceNo) references Invoice(invoiceNo)  
on delete no action on update cascade,  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);  
  
create table Services(  
serviceNo char(8) not null primary key,  
serviceType varchar(25) not null,  
serviceExpenses int not null,  
);  
  
create table patient_service(  
serviceNo char(8) not null,  
serviceDate date not null,  
patientNo char(5) not null  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update cascade,  
constraint pk_service primary key (serviceNo,patientNo,serviceDate)  
);  
  
create table ExternalParty(  
partyID char(10) not null primary key,  
PartyName varchar(15) not null,  
phoneNumber int not null,  
address varchar(25) not null,  
classification varchar(20) not null,  
Check (classification IN  
( 'hospital', 'laboratory','supplier','partner','government' )),  
employeeID char(3) null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);  
  
alter table contract add  
partyID char(10) null  
foreign key (partyID) references ExternalParty(partyID)  
on delete no action on update no action;  
  
alter table reference add
```

partyID char(10) not null
foreign key (partyID) references ExternalParty(partyID)
on delete no action on update cascade;

alter table invoice_payment add
partyID char(10) not null
foreign key (partyID) references ExternalParty(partyID)
on delete no action on update no action,
constraint pk_payment primary key(invoiceNo,employeeID, partyID) ;

create table Result(
resultNo char (8) not null primary key,
resultStatus varchar(20) not null
Check (resultStatus IN
('pending', 'received','delivered')),
receivedDate date,
deliveryDate date,
employeeID char(3) not null
foreign key (employeeID) references Employee(employeeID)
on delete no action on update cascade,
);

create table Result_externalParty(
resultNo char (8) not null
foreign key(resultNo) references Result(resultNo)
on delete no action on update cascade,
partyID char(10) not null
foreign key (partyID) references ExternalParty(partyID)
on delete no action on update no action,
constraint pk_result_party primary key(resultNo, partyID)
);

create table Specimens(
specimensNo char(8) not null primary key,
dateOfExtraction date not null,
resultNo char (8) not null
foreign key(resultNo) references Result(resultNo)
on delete no action on update cascade,
employeeID char(3) not null
foreign key (employeeID) references Employee(employeeID)
on delete no action on update no action,
patientNo char(5) not null
foreign key (patientNo) references Patient (patientNo)
on delete No action on update no action,
);


```
create table Examination(  
patientNo char(5) not null  
foreign key (patientNo) references Patient (patientNo)  
on delete No action on update cascade,  
doctorID char(3) not null  
foreign key (doctorID) references Doctor(doctorID)  
on delete no action on update no action,  
nurseID char(3) null  
foreign key (nurseID) references nurse(nurseID)  
on delete no action on update no action,  
constraint pk_Examination primary key(patientNo,doctorID),  
);
```

```
create table Manager(  
managerID char(3) not null  
foreign key (managerID) references Employee(employeeID)  
on delete no action on update no action,  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
constraint pk_manager primary key(EmployeeID, managerID)  
);
```

```
create table Certificate(  
certificateID char(8) not null primary key,  
certificateDate date not null,  
certificateName varchar(50) not null,  
issuingParty varchar(30) not null,  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);
```

```
create table RRule(  
ruleNo char(8) not null primary key,  
settingDate date not null,  
applyingStatus bit not null,  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);
```

```
create table stock(  
itemNo char(8) not null primary key,
```

```
itemName varchar(15) not null,  
itemDesc varchar(25) not null,  
stockType varchar(15) not null,  
expirationDate date not null,  
quantity int not null,  
employeeID char(3) null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);
```

```
create table oorder(  
orderNo char(10) not null primary key,  
orderDesc varchar(25) not null,  
orderDate date not null,  
ItemName varchar(15) not null,  
quantity int not null,  
unitPrice int not null,  
totalPrice int not null,  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);
```

```
create table ApprovalForm(  
formNo char(8) not null primary key,  
formDate date not null,  
formStatus varchar(10) not null  
check(formStatus In('pending','approved','rejected')),  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
orderNo char(10) not null  
foreign key (orderNo) references oorder(orderNo)  
on delete no action on update no action,  
);
```

```
create table Quotation(  
quotationNo char(10) not null primary key,  
orderNo char(10) not null  
foreign key (orderNo) references oorder(orderNo),  
partyID char(10) not null  
foreign key (partyID) references ExternalParty(partyID)  
on delete no action on update no action,
```

);

```
create table QualityIndicator(  
IndicatorNo char(8) not null primary key,  
indicatorName varchar(15) not null,  
indicatorDesc varchar(25) not null,  
);
```

```
create table ActionPlan(  
actionPlanNo char(10) not null primary key,  
futureAction varchar(25) not null,  
percentageOfAchievement int not null,  
deadline date not null,  
dateOfVisit date not null,  
);
```

```
create table ActionPlan_party(  
indicatorNo char(8) not null  
foreign key (indicatorNo) references QualityIndicator(indicatorNo)  
on delete no action on update cascade,  
partyID char(10) not null  
foreign key (partyID) references ExternalParty(partyID)  
on delete no action on update cascade,  
actionPlanNo char(10) not null  
foreign key (actionPlanNo) references ActionPlan(actionPlanNo)  
on delete no action on update cascade,  
constraint pk_actionPlan_party primary key(indicatorNo, partyID, actionPlanNo),  
);
```

```
create table Announcement(  
announcementNo char(10) not null primary key,  
announcementDate date not null,  
announcementDesc varchar(25) not null,  
employeeID char(3) not null  
foreign key (employeeID) references Employee(employeeID)  
on delete no action on update cascade,  
);
```

```
create table Announcement_Party(  
announcementNo char (10) not null  
foreign key (announcementNo) references Announcement(announcementNo)  
on delete no action on update cascade,  
partyID char(10) not null  
foreign key (partyID) references ExternalParty(partyID)  
on delete no action on update no action,
```

constraint pk_announcement_party primary key (announcementNo, partyID),
);

Tables description

HES-47\SQLEXPRESS...- dbo.ActionPlan			
	Column Name	Data Type	Allow Nulls
🔑	actionPlanNo	char(10)	<input type="checkbox"/>
	futureAction	varchar(25)	<input type="checkbox"/>
	percentageOfAchievement	int	<input type="checkbox"/>
	deadline	date	<input type="checkbox"/>
	dateOfVisit	date	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS....ActionPlan_party			
	Column Name	Data Type	Allow Nulls
🔑	indicatorNo	char(8)	<input type="checkbox"/>
🔑	partyID	char(10)	<input type="checkbox"/>
🔑	actionPlanNo	char(10)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...dbo.Announcement			
	Column Name	Data Type	Allow Nulls
🔑	announcementNo	char(10)	<input type="checkbox"/>
	announcementDate	date	<input type="checkbox"/>
	announcementDesc	varchar(25)	<input type="checkbox"/>
	employeeID	char(3)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...nouncement_Party			
	Column Name	Data Type	Allow Nulls
🔑	announcementNo	char(10)	<input type="checkbox"/>
🔑	partyID	char(10)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...dbo.ApprovalForm			
	Column Name	Data Type	Allow Nulls
🔑	formNo	char(8)	<input type="checkbox"/>
	formDate	date	<input type="checkbox"/>
	formStatus	varchar(10)	<input type="checkbox"/>
	employeeID	char(3)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS.... - dbo.Certificate ➡ ✕

	Column Name	Data Type	Allow Nulls
▶	certificateID	char(8)	<input type="checkbox"/>
	certificateDate	date	<input type="checkbox"/>
	certificateName	varchar(50)	<input type="checkbox"/>
	issuingParty	varchar(30)	<input type="checkbox"/>
	employeeID	char(3)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...dbo.consultation ➡ ✕

	Column Name	Data Type	Allow Nulls
▶	consultationNo	char(8)	<input type="checkbox"/>
	consultationDate	date	<input type="checkbox"/>
	diagnosisICD_10	char(5)	<input type="checkbox"/>
	consultationDesc	varchar(25)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...ct - dbo.Contract ➡ ✕

	Column Name	Data Type	Allow Nulls
▶	contractNo	char(8)	<input type="checkbox"/>
	contractDate	date	<input type="checkbox"/>
	contractDuration	int	<input type="checkbox"/>
	contractDesc	varchar(25)	<input checked="" type="checkbox"/>
	partyID	char(10)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...ject - dbo.Doctor ➡ ✕

	Column Name	Data Type	Allow Nulls
▶	doctorID	char(3)	<input type="checkbox"/>
	specialty	varchar(30)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...t - dbo.Education ➡ ✕

	Column Name	Data Type	Allow Nulls
▶	TopicNo	char(8)	<input type="checkbox"/>
	givenDate	date	<input type="checkbox"/>
	topicName	varchar(15)	<input type="checkbox"/>
	instructions	varchar(25)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLXPRES...ct - dbo.Employee

Column Name	Data Type	Allow Nulls
employeeID	char(3)	<input type="checkbox"/>
fName	varchar(15)	<input type="checkbox"/>
lName	varchar(15)	<input type="checkbox"/>
title	varchar(15)	<input type="checkbox"/>
jobDescription	varchar(15)	<input type="checkbox"/>
email	varchar(30)	<input type="checkbox"/>
phoneNumber	int	<input checked="" type="checkbox"/>
address	varchar(30)	<input checked="" type="checkbox"/>
contractNo	char(8)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLXPRES...- dbo.Examination

Column Name	Data Type	Allow Nulls
patientNo	char(5)	<input type="checkbox"/>
doctorID	char(3)	<input type="checkbox"/>
nurselD	char(3)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLXPRESS....dbo.ExternalParty

Column Name	Data Type	Allow Nulls
partyID	char(10)	<input type="checkbox"/>
PartyName	varchar(15)	<input type="checkbox"/>
phoneNumber	int	<input type="checkbox"/>
address	varchar(25)	<input type="checkbox"/>
classification	varchar(20)	<input type="checkbox"/>
employeeID	char(3)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLXPRESS....roject - dbo.FFile

Column Name	Data Type	Allow Nulls
fileNo	char(5)	<input type="checkbox"/>
employeeID	char(3)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLXPRESS...o.QualityIndicator

Column Name	Data Type	Allow Nulls
IndicatorNo	char(8)	<input type="checkbox"/>
indicatorName	varchar(15)	<input type="checkbox"/>
indicatorDesc	varchar(25)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...o.Invoice_payment ➡ ✕

Column Name	Data Type	Allow Nulls
▶ invoiceNo	char(10)	<input type="checkbox"/>
▶ employeeID	char(3)	<input type="checkbox"/>
▶ partyID	char(10)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...ject - dbo.Invoice ➡ ✕

Column Name	Data Type	Allow Nulls
▶ invoiceNo	char(10)	<input type="checkbox"/>
invoiceDate	date	<input type="checkbox"/>
amount	int	<input type="checkbox"/>
invoiceDesc	varchar(25)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...bo.IsolationRoom ➡ ✕

Column Name	Data Type	Allow Nulls
▶ roomNo	char(3)	<input type="checkbox"/>
sanitizationStatus	bit	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...ect - dbo.Manager ➡ ✕

Column Name	Data Type	Allow Nulls
▶ managerID	char(3)	<input type="checkbox"/>
▶ employeeID	char(3)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...edicalPrescription ➡ ✕

Column Name	Data Type	Allow Nulls
▶ PresNo	char(8)	<input type="checkbox"/>
presDesc	varchar(25)	<input checked="" type="checkbox"/>
presDate	date	<input type="checkbox"/>
patientNo	char(5)	<input type="checkbox"/>
doctorID	char(3)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...- dbo.Medication

Column Name	Data Type	Allow Nulls
medicationNo	char(8)	<input type="checkbox"/>
medicationName	varchar(30)	<input type="checkbox"/>
expirationDate	date	<input type="checkbox"/>
amountInStock	int	<input checked="" type="checkbox"/>
roomNo	char(3)	<input checked="" type="checkbox"/>
employeeID	char(3)	<input checked="" type="checkbox"/>
patientNo	char(5)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...oject - dbo.Nurse

Column Name	Data Type	Allow Nulls
nurseID	char(3)	<input type="checkbox"/>
assistanceType	varchar(15)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...ject - dbo.oorder

Column Name	Data Type	Allow Nulls
orderNo	char(10)	<input type="checkbox"/>
orderDesc	varchar(25)	<input type="checkbox"/>
orderDate	date	<input type="checkbox"/>
ItemName	varchar(15)	<input type="checkbox"/>
quantity	int	<input type="checkbox"/>
unitPrice	int	<input type="checkbox"/>
totalPrice	int	<input type="checkbox"/>
employeeID	char(3)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS.....Patient_Isolation

Column Name	Data Type	Allow Nulls
patientNo	char(5)	<input type="checkbox"/>
roomNo	char(3)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...bo.patient_service

Column Name	Data Type	Allow Nulls
serviceNo	char(8)	<input type="checkbox"/>
patientNo	char(5)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS....Patient_VitalSign

Column Name	Data Type	Allow Nulls
VitalSignDate	timestamp	<input type="checkbox"/>
value	int	<input type="checkbox"/>
VitalSignNo	char(8)	<input type="checkbox"/>
patientNo	char(5)	<input type="checkbox"/>
fileNo	char(5)	<input type="checkbox"/>
nurselD	char(3)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS....ject - dbo.Patient

Column Name	Data Type	Allow Nulls
patientNo	char(5)	<input type="checkbox"/>
fName	varchar(15)	<input type="checkbox"/>
mName	varchar(15)	<input checked="" type="checkbox"/>
lName	varchar(15)	<input type="checkbox"/>
dateOfBirth	date	<input type="checkbox"/>
gender	varchar(6)	<input type="checkbox"/>
maritalStatus	varchar(8)	<input type="checkbox"/>
address	varchar(25)	<input checked="" type="checkbox"/>
phoneNumber	int	<input checked="" type="checkbox"/>
roomNo	char(3)	<input checked="" type="checkbox"/>
fileNo	char(5)	<input checked="" type="checkbox"/>
triageNo	char(8)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...Patient_Education

Column Name	Data Type	Allow Nulls
topicNo	char(8)	<input type="checkbox"/>
patientNo	char(5)	<input type="checkbox"/>
nurselD	char(3)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...t - dbo.Quotation

Column Name	Data Type	Allow Nulls
quotationNo	char(10)	<input type="checkbox"/>
orderNo	char(10)	<input type="checkbox"/>
partyID	char(10)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS....Receipt_Delivery ➡ ✕

	Column Name	Data Type	Allow Nulls
🔍	receiptNo	char(10)	<input type="checkbox"/>
🔍	patientNo	char(5)	<input type="checkbox"/>
🔍	employeeID	char(3)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...ject - dbo.Receipt ➡ ✕

	Column Name	Data Type	Allow Nulls
🔍	receiptNo	char(10)	<input type="checkbox"/>
	receiptDate	date	<input type="checkbox"/>
	amount	int	<input type="checkbox"/>
	receiptDesc	varchar(25)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...t - dbo.Reference ➡ ✕

	Column Name	Data Type	Allow Nulls
🔍	referenceDate	timestamp	<input type="checkbox"/>
	patientNo	char(5)	<input type="checkbox"/>
	doctorID	char(3)	<input type="checkbox"/>
	partyID	char(10)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS....sult_externalParty ➡ ✕

	Column Name	Data Type	Allow Nulls
🔍	resultNo	char(8)	<input type="checkbox"/>
🔍	partyID	char(10)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...oject - dbo.Result ➡ ✕

	Column Name	Data Type	Allow Nulls
🔍	resultNo	char(8)	<input type="checkbox"/>
	resultStatus	varchar(20)	<input type="checkbox"/>
	receivedDate	date	<input checked="" type="checkbox"/>
	deliveryDate	date	<input checked="" type="checkbox"/>
	employeeID	char(3)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRES...roject - dbo.Room ➡ ✕

	Column Name	Data Type	Allow Nulls
🔍	roomNo	char(3)	<input type="checkbox"/>
	usageStatus	bit	<input type="checkbox"/>
	roomType	char(1)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...oject - dbo.RRule

Column Name	Data Type	Allow Nulls
ruleNo	char(8)	<input type="checkbox"/>
settingDate	date	<input type="checkbox"/>
applyingStatus	bit	<input type="checkbox"/>
employeeID	char(3)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...ect - dbo.Services

Column Name	Data Type	Allow Nulls
serviceNo	char(8)	<input type="checkbox"/>
serviceDate	date	<input type="checkbox"/>
serviceType	varchar(25)	<input type="checkbox"/>
serviceExpenses	int	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRES...t - dbo.Specimens

Column Name	Data Type	Allow Nulls
specimensNo	char(8)	<input type="checkbox"/>
dateOfExtraction	date	<input type="checkbox"/>
resultNo	char(8)	<input type="checkbox"/>
employeeID	char(3)	<input type="checkbox"/>
patientNo	char(5)	<input type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRESS...roject - dbo.stock

Column Name	Data Type	Allow Nulls
itemNo	char(8)	<input type="checkbox"/>
itemName	varchar(15)	<input type="checkbox"/>
itemDesc	varchar(25)	<input type="checkbox"/>
stockType	varchar(15)	<input type="checkbox"/>
expirationDate	date	<input type="checkbox"/>
quantity	int	<input type="checkbox"/>
employeeID	char(3)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

HES-47\SQLEXPRES...dbo.TreatmentPlan ✕

	Column Name	Data Type	Allow Nulls
TRNo		char(8)	<input type="checkbox"/>
TRDate		date	<input type="checkbox"/>
managementPlan		varchar(100)	<input type="checkbox"/>
followupPlan		varchar(100)	<input checked="" type="checkbox"/>
nurseID		char(3)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...t - dbo.Treatment ✕

	Column Name	Data Type	Allow Nulls
consultationNo		char(8)	<input type="checkbox"/>
TRNo		char(8)	<input type="checkbox"/>
patientNo		char(5)	<input type="checkbox"/>
doctorID		char(3)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS...oject - dbo.Triage ✕

	Column Name	Data Type	Allow Nulls
triageNo		char(8)	<input type="checkbox"/>
triageDate		date	<input type="checkbox"/>
chronicDiseases		varchar(15)	<input type="checkbox"/>
allergies		varchar(15)	<input type="checkbox"/>
chiefComplaint		varchar(25)	<input type="checkbox"/>
			<input type="checkbox"/>

HES-47\SQLEXPRESS....t - dbo.vitalSigns ✕

	Column Name	Data Type	Allow Nulls
VitalSignNo		char(8)	<input type="checkbox"/>
VitalSignName		varchar(15)	<input type="checkbox"/>
normalRange		varchar(15)	<input type="checkbox"/>
			<input type="checkbox"/>

Populating database

```
use IMC_project;
```

```
insert into ActionPlan
```

```
values(2020004131,'sanitization',80,'20211204','20211104');
```

```
insert into ActionPlan
```

```
values(2020004132,'radiology maintainance',60,'20200320','20200301');
```

```
insert into ActionPlan
```

```
values(2020004133,'new echo scanner',75,'20200803','20200704'),  
      (2020004134,'hire new doctor',40,'20200806','20200702'),  
      (2020004142,'record vital signs',89,'20200612','20200601'),  
      (2020004135,'report efficiently',90,'20200917','20200903'),  
      (2020004136,'recycle trash',70,'20201028','20200929'),  
      (2020004137,'record patients temp',65,'20200214','20200212'),  
      (2020004138,'decrease waiting line',87,'20200515','20200501'),  
      (2020004139,'implement new file system',90,'20200901','20200813'),  
      (2020004140,'fix printer',90,'20200702','20200623'),  
      (2020004141,'preperation of iso_room',90,'20200504','20200416');
```

```
select * from ActionPlan;
```

```
insert into employee (employeeID,fName,lName,title,jobDescription,email,phoneNumber,address)
```

```
values(001,'mohamad','Itani','nurse', 'laboratory tech',  
      'mohamad.itani@irshad.com',01123456,'beirut'),  
(002,'walid','karam','technician', 'radiology tech',  
      'walid.karam@irshad.com',01012323,'beirut, hamra'),  
(003,'Ali','malas','nurse', ' assistant',  
      'ali.malas@irshad.com',02345754,'beirut'),  
(004,'Karim','abbas','doctor', 'nutritionist',  
      'karim.abbas@irshad.com',09876543,'beirut'),  
(005,'salim','makram','manager', 'project manager',  
      'salim.makram@irshad.com',01234876,'beirut'),  
(006,'mustafa','kawas','pharmacist', 'pharmacist',  
      'mustafa.kawas@irshad.com',03245676,'beirut'),  
(007,'jad','khalil','accountant', 'accountant',  
      'jad.khalil@irshad.com',03245768,'beirut'),  
(008,'rim','zakaria','nurse', 'laboratory tech',  
      'rim.zakaria@irshad.com',01235674,'beirut'),  
(009,'ranine','al hakim','cashier', 'deliver receipt',  
      'ranine.alhakim@irshad.com',01236543,'beirut'),  
(010,'ghina','barakat', ' manager', 'stock manager',  
      'ghina.barakat@irshad.com',09871267,'beirut');
```

```
insert into employee
```

```
values(011,'anas','elhaj','nurse', 'filing officer',
```

'anas.elhaj@irshad.com',76565656,'beirut',11110998),
 (012,'adeel','ibrahim','doctor', 'dentist',
 'adeel.ibrahim@irshad.com',03121212,'beirut, hamra',11110999),
 (013,'adnan','younes','nurse', ' assistant',
 'adnan.younes@irshad.com',03242424,'beirut',11110100),
 (014,'tarek','harb','doctor', 'dermatology',
 'tarek.harb@irshad.com',03252525,'beirut',11110101),
 (015,'elham','deeb','manager', 'project manager',
 'elham.deeb@irshad.com',03161616,'beirut',11110102),
 (016,'farah','ismail','doctor', 'pediatrics',
 'farah.ismail@irshad.com',76434343,'beirut',11110103),
 (017,'fatima','hashem','doctor', 'cardiology',
 'fatima.hashem@irshad.com',76898989,'beirut',11110104),
 (018,'layla','zaiter','nurse', 'laboratory tech',
 'layla.zaiter@irshad.com',71323232,'beirut',11110105),
 (019,'esraa','al khatib','doctor', 'oncology',
 'esraa.alkhatib@irshad.com',71292929,'beirut',11110106),
 (020,'omar','al rifai',' manager', 'stock manager',
 'omar.alrifai@irshad.com',71252525,'beirut',11110107);

insert into ExternalParty

values (1111001230,'premier urgence',01111343,'beirut','partner',005),
 (1111001231,'MPH',01121214,'beirut', 'government',005),
 (1111001232,'amedic',09878787,'tripoli','laboratory',001),
 (1111001233,'mask for all',07898989,'jbeil','supplier',010),
 (1111001234,'pharmaline', 05678321,'tyre','supplier',010),
 (1111001235,'Haykal Hosp',06453123,'batroun','hospital', 004),
 (1111001236,'AUBMC',06543123,'beirut', 'hospital',004),
 (1111001237,'medico',01234812,'beirut','supplier',010),
 (1111001238,'franco labs',81127543,'tripoli','laboratory',008),
 (1111001239,'M lab',05348147,'jbeil','partner',005);

insert into consultation

values(20200670,'20200314','A00.0','cholera'),
 (20200671,'20211206','A19.0','Miliary tuberculosis'),
 (20200672,'20220926','A80.0','Acute poliomyelitis'),
 (20200673,'20200312','B51.0','Plasmodium vivax malaria'),
 (20200674,'20200925','B59.0','Pneumocystosis'),
 (20200675,'20200807','A15.0','Respiratory tuberculosis'),
 (20200676,'20200404','A32.0','Listeriosis'),
 (20200677,'20201111','C00.0','Malignant neoplasm of lip'),
 (20200678,'20200708','C4A.0','Merkel cell carcinoma'),
 (20200679,'20200516','D45.0','Polycythemia vera');

select * from consultation;

insert into Announcement

```
values(2000001230,'20200405','compliance letter',005),
      (2000001231,'20210607','new rules',010),
      (2000001232,'20201210','contract updates',005),
      (2000001233,'20201101','compliance letter',005),
      (2000001234,'20200128','compliance letter',010),
      (2000001235,'20220324','new rules',010),
      (2000001236,'20210226','documents needed',004),
      (2000001237,'20210319','changes',004),
      (2000001238,'20220913','agreement',010),
      (2000001239,'20200405','last updates',005)
;
```

insert into announcement_party

```
values(2000001230,1111001230),
      (2000001231,1111001231),
      (2000001232,1111001232),
      (2000001233,1111001233),
      (2000001234,1111001234),
      (2000001235,1111001235),
      (2000001236,1111001236),
      (2000001237,1111001237),
      (2000001238,1111001238),
      (2000001239,1111001239);
```

insert into approvalForm

```
values(30001234,'20200405','pending',005,3000012350),
      (30001235,'20210306','approved',020,3000012351),
      (30001236,'20220312','approved',005,3000012352),
      (30001237,'20200627','rejected',015,3000012353),
      (30001238,'20200809','pending',015,3000012354),
      (30001239,'20200825','rejected',005,3000012355),
      (30001240,'20221201','pending',020,3000012356),
      (30001241,'20200612','approved',005,3000012357),
      (30001242,'20200711','rejected',005,3000012358),
      (30001243,'20210427','pending',015,3000012359);
```

insert into certificate

```
values(50007821,'20180304','managerial finance','LAU',007),
      (50007822,'20171203','registered nurse','AUB',003),
      (50007823,'20150608','laboratory technician','LIU',001),
```

```
(50007824,'20190306','quality control specialization','LU',007),
(50007825,'20201201','project management','saint joseph',005),
(50007826,'20150803','registered nurse','matn university',008),
(50007827,'20180701','coloquim','SUC',006),
(50007828,'20200908','warehouse management','Coursera',010),
(50007829,'20141201','data entry specialization','EDX',009),
(50007830,'20180512','health care certificate','MITReact',008);
```

insert into contract

```
values(11110980,'20200708',3,'mask supply',1111001233),
(11110981,'20210908',2,'machines supply',1111001234),
(11110982,'20210612',1,'health care support',1111001237),
(11110983,'20201204',4,'partnership',1111001231),
(11110984,'20200527',2,'part time',null),
(11110985,'20200928',2,'full time',null),
(11110986,'20221224',4,'partnership',1111001236),
(11110987,'20220403',3,'agreement',1111001235),
(11110988,'20200201',1,'partnership',1111001239),
(11110989,'20220901',1,'partnership',1111001238),
(11110990,'20211201',3,'internship ',null);
```

insert into contract

```
values(11110991,'20211203',3,'full time',null),
(11110992,'20220304',2,'part time',null),
(11110993,'20200807',1,'full time',null),
(11110994,'20201204',4,'internship',null),
(11110995,'20211205',2,'full time',null),
(11110996,'20200928',2,'full time',null),
(11110997,'20221224',4,'full time',null);
```

insert into contract

```
values(11110998,'20200907',3,'full time',null),
(11110999,'20220403',2,'part time',null),
(11110100,'20201201',1,'full time',null),
(11110101,'20201204',4,'internship',null),
(11110102,'20210201',2,'full time',null),
(11110103,'20200302',2,'full time',null),
(11110104,'20221224',4,'full time',null),
(11110105,'20201103',4,'full time',null),
(11110106,'20200907',4,'full time',null),
(11110107,'20200803',4,'full time',null);
```

```
update Employee set contractNo=11110984 where employeeID=001;
update Employee set contractNo=11110985 where employeeID=002;
update Employee set contractNo=11110990 where employeeID=003;
```



```
update Employee set contractNo=11110991 where employeeID=004;
update Employee set contractNo=11110992 where employeeID=005;
update Employee set contractNo=11110993 where employeeID=006;
update Employee set contractNo=11110994 where employeeID=007;
update Employee set contractNo=11110995 where employeeID=008;
update Employee set contractNo=11110996 where employeeID=009;
update Employee set contractNo=11110997 where employeeID=010;
```

```
select * from employee;
```

```
insert into doctor
values(004,'nutritionist');
```

```
insert into doctor
values(012,'dentist'),
      (014,'dermatology'),
      (016,'pediatrics'),
      (017,'cardiology'),
      (019,'oncology');
```

```
select * from doctor;
```

```
insert into Education
values(10002310,'cigarette','decrease consumption'),
      (10002311,'pregnant','do needed tests'),
      (10002312,'obesity','limit sugar consumption'),
      (10002313,'alcohol','decrease consumption'),
      (10002314,'nutrition','eat regularly');
```

```
select * from Education;
```

```
insert into Nurse
values (003,'assistant'),
      (008,'screening');
```

```
insert into Nurse
values (011,'data entry'),
      (013,'assistant'),
      (018,'laboratory'),
      (002,'laboratory');
```

```
insert into FFile
values(00001,003),
      (00002,008);
```

insert into FFile

```
values(00003,003),  
      (00004,008),  
      (00005,003),  
      (00006,008),  
      (00007,003),  
      (00008,008),  
      (00009,003),  
      (00010,008);
```

insert into FFile

```
values(00011,011),  
      (00012,011),  
      (00013,011),  
      (00014,011),  
      (00015,011),  
      (00016,011),  
      (00017,011),  
      (00018,011),  
      (00019,011),  
      (00020,011);
```

insert into invoice

```
values (1000001230,'20200805',700,'mask order'),  
      (1000001231,'20210608',800,'medications'),  
      (1000001232,'20220305',350,'machine purchase'),  
      (1000001233,'20201201',425,'printing fees'),  
      (1000001234,'20201103',600,'fuel order'),  
      (1000001235,'20201227',100,'locker fixing'),  
      (1000001236,'20211203',300,'needles order'),  
      (1000001237,'20220515',900,'gloves order'),  
      (1000001238,'20220913',250,'paper order'),  
      (1000001239,'20210709',130,'mask order');
```

insert into invoice_payment

```
values(1000001230,007,1111001233),  
      (1000001231,007,1111001234),  
      (1000001232,007,1111001237),  
      (1000001233,007,1111001233),  
      (1000001234,007,1111001234),  
      (1000001235,007,1111001237),  
      (1000001236,007,1111001233),  
      (1000001237,007,1111001234),  
      (1000001238,007,1111001237),  
      (1000001239,007,1111001233);
```

insert into room

```
values(101,1,'w'),  
      (102,0,'I'),  
      (103,0,'E'),  
      (104,1,'p');
```

insert into room

```
values(105,1,'D'),  
      (106,0,'S'),  
      (107,0,'D'),  
      (108,1,'D');
```

select * from room;

insert into IsolationRoom

```
values(102,1);
```

insert into manager

```
values (010,001),  
      (010,002),  
      (010,003),  
      (010,004),  
      (010,005),  
      (010,006),  
      (010,007);
```

insert into manager

```
values (020,012),  
      (015,013),  
      (020,014),  
      (020,016),  
      (015,011),  
      (015,012),  
      (020,017);
```

insert into oorder

```
values(3000012350,'mask order','20200102','mask',100,1,100,007),  
      (3000012351,'needles order','20200607','needle',50,2,100,007),  
      (3000012352,'gloves order','20211103','glove',150,2,300,007),  
      (3000012353,'paper order','20220209','paper',500,1,500,007);
```

insert into oorder

```
values(3000012354,'mask order','20201203','mask',100,1,100,007),  
      (3000012355,'needles order','20210607','needle',50,2,100,007),  
      (3000012356,'gloves order','20220903','glove',150,2,300,007),  
      (3000012357,'paper order','20211103','paper',150,2,300,007),
```

(3000012358,'gloves order','20211103','glove',150,2,300,007),
 (3000012359,'paper order','20220309','paper',500,1,500,007);

insert into triage

values (20009870,'20200806','diabeties','pollen','flu'),
 (20009871,'20210906','cancer','none','fever'),
 (20009872,'20200124','none','peanuts','stomach ache'),
 (20009873,'20211203','none','none','head ache'),
 (20009874,'20200908','none','pollen','diarrhea'),
 (20009875,'20200724','asthma','animal dander','flu');

insert into triage

values (20009876,'20200806','diabeties','pollen','flu'),
 (20009877,'20210906','cancer','none','fever'),
 (20009878,'20200124','none','peanuts','stomach ache'),
 (20009879,'20211203','none','none','head ache'),
 (20009880,'20200908','none','pollen','diarrhea'),
 (20009881,'20200724','asthma','animal dander','flu'),
 (20009882,'20200908','heart','pollen','flu'),
 (20009883,'20210908','cancer','pollen','head ache'),
 (20009884,'20200308','none','pollen','flu'),
 (20009885,'20201108','none','animal dander','fever'),
 (20009886,'20200927','asthma','pollen','fever'),
 (20009887,'20220908','asthma','animal dander','fever'),
 (20009888,'20211008','diabeties','peanuts','stomach ache'),
 (20009889,'20201108','diabeties','peanuts','diarrhea'),
 (20009890,'20200508','none','pollen','flu');

insert into patient

values(10001,'samir','jihad','ghanem','19971201','male','married',
 'beirut',70654321,101,00001,20009870),
 (10002,'walid','kamel','ashraf','20000211','male','single',
 'beirut',71344566,103,00002,20009871),
 (10003,'khodor','murad','zakaria','20020501','male','single',
 'beirut',76322422,101,00003,20009872),
 (10004,'hanin','walid','dirawi','19951201','female','married',
 'beirut',03211877,104,00004,20009873),
 (10005,'hala','walid','hakim','19940111','female','married',
 'beirut',03447665,103,00005,20009874),
 (10006,'sara','raed','zahraman','19990403','female','single',
 'beirut',76233455,101,00006,20009875);

insert into patient

values(10007,'samir','walid','khair','19971201','male','married',
 'beirut',70654321,105,00007,20009876),
 (10008,'walid','samir','khair','20000211','male','single',

```
'beirut',null,107,00008,20009877),
(10009,'khodor','samir','khair','20020501','male','single',
'beirut',null,108,00009,20009878),
(10010,'hanin','khodor','khair','19951201','female','married',
'beirut',03211877,105,00010,20009879),
(10011,'hala','walid','hakim','19940111','female','married',
'beirut',03447665,105,00011,20009880),
(10012,'sara',null,'idris','19990403','female','single',
'beirut',76233455,107,00012,20009881),
(10013,'ayman','kamel','ibrahim','20000211','male','single',
'beirut',71344566,108,00013,20009882),
(10014,'bilal','murad','imam','20020501','male','single',
'beirut',76322422,105,00014,20009883),
(10015,'hanin','walid','dirawi','19951201','female','married',
'beirut',03211877,107,00015,20009884),
(10016,'hala','walid','dirawi','19940111','female','married',
'beirut',03447665,108,00016,20009885),
(10017,'rayan','mohamad','zahraman','19990403','female','single',
'beirut',76233455,105,00017,20009886),
(10018,'ahmad','mustafa','ashraf','20000211','male','single',
'beirut',71344566,105,00018,20009887),
(10019,'khodor','murad','zakaria','20020501','male','single',
'beirut',76322422,105,00019,20009888),
(10020,'khadija','murad','zakaria','19951201','female','married',
'beirut',03211877,107,00020,20009889),
(10021,'hamza','murad','zakaria','20020501','male','single',
'beirut',76322422,108,00003,20009890);
```

insert into medicalPrescription

```
values(40001270,'pain killer','20200507',10004,004),
(40001271,'fever','20200507',10002,004),
(40001272,'stomach ache','20200507',10003,004);
```

insert into medication

```
values(60002340,'medication1','20240101',80,104,006,null),
(60002341,'medication2','20231201',100,null,006,10004),
(60002342,'medication3','20221228',60,null,006,10002),
(60002343,'medication4','20230501',90,104,006,null),
(60002344,'medication5','20230401',50,104,006,null);
```

insert into patient_education

```
values(10002310,'20200507 09:34:44 AM',10001,003),
(10002311,'20210409 10:40:43 AM',10002,008),
(10002312,'20221201 01:19:57 PM',10003,003),
(10002313,'20201225 03:14:13 PM',10004,008);
```

insert into patient_education

```
values(10002310,'20200506 08:34:44 AM',10001,011),
      (10002310,'20210410 09:44:45 AM',10002,013),
      (10002310,'20221211 10:24:34 AM',10003,018),
      (10002312,'20200115 11:14:24 AM',10004,011),
      (10002312,'20220201 11:15:14 AM',10005,018),
      (10002314,'20221101 10:35:43 AM',10006,018),
      (10002311,'20221021 01:06:45 PM',10007,018),
      (10002313,'20201201 02:09:57 PM',10011,018),
      (10002310,'20210213 03:10:21 PM',10012,018),
      (10002312,'20200514 03:56:13 PM',10013,018),
      (10002310,'20210423 01:37:17 PM',10019,018);
```

select * from Education;

select *from Patient_Education;

insert into patient_isolation

```
values(10006,102);
```

insert into patient_isolation

```
values(10002,102),
      (10016,102),
      (10018,102),
      (10020,102);
```

insert into services

```
values(70008710,'laboratory test',20),
      (70008711,'radiology test',30),
      (70008712,'physical therapy',50),
      (70008713,'counsultation',20);
```

insert into patient_service

```
values(70008710,'20200709',10001),
      (70008711,'20200112',10002),
      (70008712,'20210806',10003),
      (70008713,'20220424',10004);
```

insert into patient_service

```
values(70008712,'20200709',10011),
      (70008711,'20210809',10012),
      (70008711,'20220305',10013),
      (70008710,'20221205',10013),
      (70008710,'20201223',10015),
      (70008710,'20200306',10016),
      (70008713,'20200506',10017),
      (70008713,'20201026',10016),
```

(70008713,'20211003',10018);

insert into vitalSigns

```
values(80000960,'temperature','37'),
      (80000961,'heart rate','60-80/min'),
      (80000962,'breathing rate','12-18/s'),
      (80000963,'blood pressure','90/60-120/180');
```

insert into patient_vitalSign

```
values('20200506 10:34:36 AM',37,80000960,10001,00001,003),
      ('20220807 11:54:36 AM',66,80000961,10002,00002,008),
      ('20210223 08:33:25 AM',13,80000962,10003,00003,003),
      ('20200908 01:53:15 PM',90/60,80000963,10001,00001,008);
```

insert into patient_vitalSign

```
values('20200416 10:34:36 AM',37,80000960,10001,00011,003),
      ('20220817 11:54:36 AM',40,80000960,10002,00002,008),
      ('20210413 08:33:25 AM',38,80000960,10003,00016,003),
      ('20210918 01:53:15 PM',39,80000960,10001,00018,008);
```

insert into qualityIndicator

```
values(90004360,'sanitization','hand sanitization'),
      (90004361,'sustainability','sorting garbage'),
      (90004362,'eradication','eliminate infection'),
      (90004363,'records','save records');
```

insert into ActionPlan_party

```
values (90004360,1111001230,2020004131),
      (90004361,1111001231,2020004132),
      (90004362,1111001232,2020004133),
      (90004363,1111001233,2020004134);
```

insert into quotation

```
values(5000056320,3000012350,1111001230),
      (5000056321,3000012351,1111001231),
      (5000056322,3000012352,1111001232),
      (5000056323,3000012353,1111001233);
```

insert into receipt

```
values(400006790,'20210304',50,'blood test'),
      (400006791,'20200907',30,'radiology'),
      (400006792,'20200304',20,'counsultation'),
      (400006793,'20200304',30,'echography'),
      (400006794,'20211204',40,'teeth taken');
```

insert into receipt_delivery

```
values(400006790,10001,001),  
      (400006791,10002,002),  
      (400006792,10003,004),  
      (400006793,10004,003);
```

insert into reference

```
values('20210506 10:32:46 AM',10006,004,1111001235),  
      ('20201201 01:44:32 PM',10005,004,1111001236);
```

insert into result

```
values(33334560,'pending',null,null,001),  
      (33334561,'received','20200806',null,002),  
      (33334562,'delivered','20210304','20210309',008);
```

insert into result_externalparty

```
values(33334560,1111001232),  
      (33334561,1111001238),  
      (33334562,1111001238);
```

insert into rrule

```
values(44445680,'20200125','true',005),  
      (44445681,'20200304','true',005),  
      (44445682,'20211105','true',005),  
      (44445683,'20221201','false',005),  
      (44445684,'20221205','false',005);
```

insert into specimens

```
values(55559820,'20201207',33334560,001,10001),  
      (55559821,'20200801',33334561,008,10004),  
      (55559822,'20210228',33334562,008,10006);
```

insert into stock

```
values(66664510,'mask','face mask','medical','20230501',100,010),  
      (66664511,'needle','medical needle','medical','20230101',200,010),  
      (66664512,'glove','medical gloves','medical','20230201',300,010),  
      (66664513,'paper','white paper','normal','20240101',500,010);
```

insert into treatmentplan

```
values(77776530,'20200806','take medication',null,003),  
      (77776531,'20210704','serum','book an appointment',008),  
      (77776532,'20210704','serum','book an appointment',null);
```

insert into treatmentplan

```
values(77776533,'20210704','ecograohy','book an appointment',null),  
      (77776534,'20210704','physical therapy','book an appointment',018),  
      (77776535,'20210704','serum',null,008),
```



```
(77776536,'20210704','take medication','book an appointment',011),  
(77776537,'20210704','take medication','book an appointment',null),  
(77776538,'20210704','blood test','book an appointment',013),  
(77776539,'20210704','blood test','book an appointment',008),  
(77776540,'20211209','serum',null,null);
```

insert into treatment

```
values(20200670,77776530,10001,004),  
      (20200671,77776531,10002,004),  
      (20200672,77776532,10003,004);
```

insert into treatment

```
values(20200673,77776533,10011,012),  
      (20200674,77776534,10012,014),  
      (20200675,77776535,10020,016),  
      (20200676,77776536,10018,017),  
      (20200677,77776537,10019,019),  
      (20200678,77776538,10006,017),  
      (20200679,77776539,10015,017),  
      (20200680,77776540,10014,017);
```

insert into examination

```
values(10001,004,003),  
      (10002,004,008),  
      (10003,004,003),  
      (10004,004,008),  
      (10005,004,null)
```

;

insert into examination

```
values(10011,019,013),  
      (10013,017,018),  
      (10020,004,011),  
      (10016,016,011),  
      (10018,016,013),  
      (10019,017,018),  
      (10017,012, null)
```

;

Some tables

queries.sql - HES-4...t (HES-47\HES (53))*

100 %

Results Messages

	employeeID	fName	lName	title	jobDescription	email	phoneNumber	address	contractNo
1	1	mohamad	Itani	nurse	laboratory tech	mohamad.itani@irshad.com	1123456	beirut	11110984
2	10	ghina	barakat	manager	stock manager	ghina.barakat@irshad.com	9871267	beirut	11110997
3	11	anas	elhaj	nurse	filing officer	anas.elhaj@irshad.com	76565656	beirut	11110998
4	12	adeel	ibrahim	doctor	dentist	adeel.ibrahim@irshad.com	3121212	beirut, hamra	11110999
5	13	adnan	younes	nurse	assistant	adnan.younes@irshad.com	3242424	beirut	11110100
6	14	tarek	harb	doctor	dermatology	tarek.harb@irshad.com	3252525	beirut	11110101
7	15	elham	deeb	manager	project mana...	elham.deeb@irshad.com	3161616	beirut	11110102
8	16	farah	ismail	doctor	pediatrics	farah.ismail@irshad.com	76434343	beirut	11110103
9	17	fatima	hash...	doctor	cardiology	fatima.hashem@irshad.com	76898989	beirut	11110104
10	18	layla	zaiter	nurse	laboratory tech	layla.zaiter@irshad.com	71323232	beirut	11110105
11	19	esraa	al kha...	doctor	oncology	esraa.alkhatib@irshad.com	71292929	beirut	11110106
12	2	walid	karam	technici...	radiology tech	walid.karam@irshad.com	1012323	beirut, hamra	11110985
13	20	omar	al rifai	manager	stock manager	omar.alrifai@irshad.com	71252525	beirut	11110107
14	3	Ali	malas	nurse	assistant	ali.malas@irshad.com	2345754	beirut	11110990
15	4	Karim	abbas	doctor	nutritionist	karim.abbas@irshad.com	9876543	beirut	11110991
16	5	salim	makr...	manager	project mana...	salim.makram@irshad.com	1234876	beirut	11110992
17	6	mustafa	kawas	pharma...	pharmacist	mustafa.kawas@irshad.c...	3245676	beirut	11110993
18	7	jad	khalil	accoun...	accountant	jad.khalil@irshad.com	3245768	beirut	11110994
19	8	rim	zakaria	nurse	laboratory tech	rim.zakaria@irshad.com	1235674	beirut	11110995
20	9	ranine	al hak...	cashier	deliver receipt	ranine.alhakim@irshad.com	1236543	beirut	11110996

queries.sql - HES-4...t (HES-47\HES (53))*

100 %

Results Messages

	partyID	PartyName	phoneNumber	address	classification	employeeID
1	1111001230	premier urgence	1111343	beirut	partner	5
2	1111001231	MPH	1121214	beirut	government	5
3	1111001232	amedic	9878787	tripoli	laboratory	1
4	1111001233	mask for all	7898989	jbeil	supplier	10
5	1111001234	pharmaline	5678321	tyre	supplier	10
6	1111001235	Haykal Hosp	6453123	batroun	hospital	4
7	1111001236	AUBMC	6543123	beirut	hospital	4
8	1111001237	medico	1234812	beirut	supplier	10
9	1111001238	franco labs	81127543	tripoli	laboratory	8
10	1111001239	M lab	5348147	jbeil	partner	5

queries.sql - HES-4...t (HES-47\HES (53))* ✖

100 %

Results Messages

	invoiceNo	invoiceDate	amount	invoiceDesc
1	1000001230	2020-08-05	700	mask order
2	1000001231	2021-06-08	800	medications
3	1000001232	2022-03-05	350	machine purchase
4	1000001233	2020-12-01	425	printing fees
5	1000001234	2020-11-03	600	fuel order
6	1000001235	2020-12-27	100	locker fixing
7	1000001236	2021-12-03	300	needles order
8	1000001237	2022-05-15	900	gloves order
9	1000001238	2022-09-13	250	paper order
10	1000001239	2021-07-09	130	mask order

queries.sql - HES-4...t (HES-47\HES (53))* ✖

100 %

Results Messages

	orderNo	orderDesc	orderDate	ItemName	quantity	unitPrice	totalPrice	employeeID
1	3000012350	mask order	2020-01-02	mask	100	1	100	7
2	3000012351	needles order	2020-06-07	needle	50	2	100	7
3	3000012352	gloves order	2021-11-03	glove	150	2	300	7
4	3000012353	paper order	2022-02-09	paper	500	1	500	7
5	3000012354	mask order	2020-12-03	mask	100	1	100	7
6	3000012355	needles order	2021-06-07	needle	50	2	100	7
7	3000012356	gloves order	2022-09-03	glove	150	2	300	7
8	3000012357	paper order	2021-11-03	paper	150	2	300	7
9	3000012358	gloves order	2021-11-03	glove	150	2	300	7
10	3000012359	paper order	2022-03-09	paper	500	1	500	7

queries.sql - HES-4...t (HES-47\HES (53))*

100 %

Results Messages

	patientNo	fName	mName	lName	dateOfBirth	gender	maritalStatus	address	phoneNumber	roomNo	fileNo	triageNo
1	10001	samir	ji	ghanem	1997-12-01	male	married	beirut	70654321	101	1	20009870
2	10002	walid	kamel	ashraf	2000-02-11	male	single	beirut	71344566	103	2	20009871
3	10003	khodor	murad	zakaria	2002-05-01	male	single	beirut	76322422	101	3	20009872
4	10004	hanin	walid	dirawi	1995-12-01	female	married	beirut	3211877	104	4	20009873
5	10005	hala	walid	hakim	1994-01-11	female	married	beirut	3447665	103	5	20009874
6	10006	sara	raed	zahra...	1999-04-03	female	single	beirut	76233455	101	6	20009875
7	10007	samir	walid	khair	1997-12-01	male	married	beirut	70654321	105	7	20009876
8	10008	walid	samir	khair	2000-02-11	male	single	beirut	NULL	107	8	20009877
9	10009	khodor	samir	khair	2002-05-01	male	single	beirut	NULL	108	9	20009878
10	10010	hanin	khodor	khair	1995-12-01	female	married	beirut	3211877	105	10	20009879
11	10011	hala	walid	hakim	1994-01-11	female	married	beirut	3447665	105	11	20009880
12	10012	sara	NULL	idris	1999-04-03	female	single	beirut	76233455	107	12	20009881
13	10013	ayman	kamel	ibrahim	2000-02-11	male	single	beirut	71344566	108	13	20009882
14	10014	bilal	murad	imam	2002-05-01	male	single	beirut	76322422	105	14	20009883
15	10015	hanin	walid	dirawi	1995-12-01	female	married	beirut	3211877	107	15	20009884
16	10016	hala	walid	dirawi	1994-01-11	female	married	beirut	3447665	108	16	20009885
17	10017	rayan	moha...	zahra...	1999-04-03	female	single	beirut	76233455	105	17	20009886
18	10018	ahmad	musta...	ashraf	2000-02-11	male	single	beirut	71344566	105	18	20009887
19	10019	khodor	murad	zakaria	2002-05-01	male	single	beirut	76322422	105	19	20009888
20	10020	khadija	murad	zakaria	1995-12-01	female	married	beirut	3211877	107	20	20009889
21	10021	hamza	murad	zakaria	2002-05-01	male	single	beirut	76322422	108	3	20009890

Queries

Q1: retrieve employee ID, first name and last name of employees who never paid an invoice to a supplier.

```
select E.employeeID, Fname, Lname
from Employee E
where not exists(select *
                  from Invoice_payment I
                  where E.employeeID= I.employeeID);
```

queries.sql - HES-4...t (HES-47\HES (57))

100 %

Results Messages

	employeeID	Fname	Lname
1	1	mohamad	Itani
2	10	ghina	barakat
3	11	anas	elhaj
4	12	adeel	ibrahim
5	13	adnan	younes
6	14	tarek	harb
7	15	elham	deeb
8	16	farah	ismail
9	17	fatima	hashem
10	18	layla	zaiter
11	19	esraa	al khatib
12	2	walid	karam
13	20	omar	al rifai
14	3	Ali	malas
15	4	Karim	abbas
16	5	salim	makram
17	6	mustafa	kawas
18	8	rim	zakaria
19	9	ranine	al hakim

Q2: retrieve Doctor ID and first name of doctors who filled the treatment plans in a descending order.

```
select d.doctorID, Fname, lname, count(t.trNo) as countOfTreatment
from Employee, doctor d, Treatment t
where employeeID=d.doctorID and d.doctorID=t.doctorID
group by d.doctorID, fname, lname
```

order by countOfTreatment desc;

100 %

	doctorID	Fname	Iname	countOfTreatment
1	17	fatima	hashem	4
2	4	Karim	abbas	3
3	19	esraa	al khatib	1
4	12	adeel	ibrahim	1
5	14	tarek	harb	1
6	16	farah	ismail	1

Q3: retrieve patient ID, first name who have the most common allergy type “pollen”.

```
select p.patientNo, Fname, IName
from patient p, Triage t
where p.triageNo= t.triageNo
      and t.allergies like 'pollen';
```

100 %

	patientNo	Fname	IName
1	10001	samir	ghanem
2	10005	hala	hakim
3	10007	samir	khair
4	10011	hala	hakim
5	10013	ayman	ibrahim
6	10014	bilal	imam
7	10015	hanin	dirawi
8	10017	rayan	zahrman
9	10021	hamza	zakaria

Q4: retrieve the specimens no, corresponding patient ID and first name with result status= delivered.

```
select p.patientNo, fName, specimensNo
from Specimens s, Result r, patient p
where s.patientNo=p.patientNo
      and s.resultNo=r.resultNo
      and r.resultStatus='delivered';
```

100 %

	patientNo	fName	specimensNo
1	10006	sara	55559822

Q5: retrieve patient Id and first name of patients with vital sign temperature greater than 37 and got isolated.

```
select p.patientNo, p.fName
from Patient p, Patient_Isolation pi, Patient_VitalSign pv, vitalSigns v
where p.patientNo= pi.patientNo
and p.patientNo=pv.patientNo
and pv.VitalSignNo=v.VitalSignNo
and v.VitalSignName='temperature'
and pv.value>37;
```

100 %

Results Messages

	patientNo	fName
1	10002	walid

Q6: retrieve topic no, topic name for the education topic with the number of patient who got educated about this topic in ascending order.

```
select e.TopicNo, topicName, count(p.patientNo) as numberOfPatient
from Education E, Patient_Education pe, Patient p
where e.TopicNo=pe.topicNo
and pe.patientNo= p.patientNo
group by e.TopicNo, e.topicName
order by numberOfPatient asc;
```

100 %

Results Messages

	TopicNo	topicName	numberOfPatient
1	10002314	nutrition	1
2	10002311	pregnant	2
3	10002313	alcohol	2
4	10002312	obesity	4
5	10002310	cigarette	6

Q7: retrieve employees ID, first name and last name for employees who created more than 3 files.

```
select e.employeeID, e.fName, e.lName, count(f.fileNo) as numberOfFile
from employee e, FFile f
where e.employeeID= f.employeeID
group by e.employeeID, e.fName, e.lName
```

```
having count(f.fileNo) > 3;
```

100 %				
Results Messages				
	employeeID	fName	lName	numberOfFile
1	11	anas	elhaj	10
2	3	Ali	malas	5
3	8	rim	zakaria	5

Q8: retrieve order ID, item name, employee name for orders with an approval form status = approved.

```
select o.orderNo, o.ItemName, e.fName
from oorder o, approvalForm a, employee e
where o.employeeID=e.employeeID
and o.orderNo= a.orderNo
and a.formStatus='approved';
```

100 %			
Results Messages			
	orderNo	ItemName	fName
1	3000012351	needle	jad
2	3000012352	glove	jad
3	3000012357	paper	jad

Q9: retrieve the service ID and type for the least used service with patient ID and first name.

```
select s.serviceNo, s.serviceType, count(ps.patientNo) as numberOfPatient
from services s, patient_service ps
where s.serviceNo=ps.serviceNo
group by s.serviceNo, s.serviceType
order by numberOfPatient asc;
```

100 %			
Results Messages			
	serviceNo	serviceType	numberOfPatient
1	70008712	physical therapy	2
2	70008711	radiology test	3
3	70008710	laboratory test	4
4	70008713	counsultation	4

Q10: retrieve the average receipt payment made by each patient as well as the patient ID and first name.


```
select p.patientNo, p.fName, AVG(r.amount) as avgPayment
from Receipt r, Receipt_Delivery rd, Patient p
where r.receiptNo= rd.receiptNo
      and rd.patientNo=p.patientNo
group by p.patientNo, p.fName;
```

100 %			
Results Messages			
	patientNo	fName	avgPayment
1	10001	samir	50
2	10002	walid	30
3	10003	khodor	20
4	10004	hanin	30

Q11: retrieve the employee ID, first name and address for employees whose address is different than Beirut.

```
select employeeID, fName, lname, address
from employee
where address != 'beirut';
```

100 %				
Results Messages				
	employeeID	fName	lname	address
1	12	adeel	ibrahim	beirut, hamra
2	2	walid	karam	beirut, hamra

Q12: retrieve the announcement No and description that are sent from an external party classified as hospital.

```
select a.announcementNo, a.announcementDesc, ep.PartyName
from Announcement a, Announcement_Party ap, ExternalParty ep
where a.announcementNo= ap.announcementNo
      and ap.partyID= ep.partyID
      and ep.classification='hospital';
```

100 %			
Results Messages			
	announcementNo	announcementDesc	PartyName
1	2000001235	new rules	Haykal Hosp
2	2000001236	documents needed	AUBMC

Q13: retrieve manager ID, first name and last name for managers who don't have a certificate.

```
select distinct m.managerID, e.fName, e.lName
from Manager m, Employee e
where m.managerID=e.employeeID
and not exists (select *
from Certificate c
where e.employeeID=c.employeeID);
```

100 %			
Results Messages			
	managerID	fName	lName
1	15	elham	deeb
2	20	omar	al rifai

Q14: retrieve the sum of invoices paid during 2020.

```
select sum(i.amount) as sumOfInvoices
from Invoice I, Invoice_payment ip
where i.invoiceDate<'20210101';
```

100 %	
Results Messages	
	sumOfInvoices
1	18250

Q15: retrieve the manager ID, first name and last name of managers who managed the highest number of employees.

```
select managerID, fName, lName, count(e.employeeID) as numberOfEmployee
from Manager m, employee e
where m.managerID=e.employeeID
group by managerID, fName, lName
order by numberOfEmployee desc;
```

100 %				
Results Messages				
	managerID	fName	lName	numberOfEmployee
1	10	ghina	barakat	7
2	20	omar	al rifai	4
3	15	elham	deeb	3