#### דו"ח בסיסי נתונים עבור בית חולים "חדר ניתוח"

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#### Project description:

Our hospital has several operating rooms equipped for a variety of complex surgical procedures, managed by a dedicated team of doctors and nurses ensuring their smooth operation and patient safety. Each room can accommodate multiple operations, planned to minimize patient waiting times. A doctor may perform multiple operations, while a patient may undergo multiple operations during their hospital stay. Nurses, playing a key role, can assist in several operations and are also responsible for maintaining equipment. Additionally, each piece of equipment can be used for multiple operations, thereby optimizing hospital resources.

# Description of entities:

# 1. Patient (חולה):

- Patient\_ID (PK) Patient's identification number
- Patient\_Name The patient name
- Sexe The sexe of the patient
- Illness Brief description of the subject of the operation.

# 2. Operation (ניתוח):

- Operation\_ID (PK) Operation's identification number
- Operation\_Date The date of the operation
- Duration\_Operation The time that takes the operation

# 3. Operating Room (חדר ניתוח):

- Room\_ID (PK) Room's identification number
- Availability Indicates if the room is available.
- Max\_number\_people indicates the maximum number of people that the room can accommodate

#### 4. Equipement (צִיוּד):

- Equipment\_ID (PK) Equipment's identification number
- Equipment\_Name The equipment name
- Equipment\_Status Indicates whether the equipment is available.
- Equipment\_Purchase\_Date Date of purchase of the equipment

# 5. Nurse (:(תֹחוֹת)

- Nurse\_ID (PK) Nurse's identification number
- Nurse\_Name The nurse name
- Telephone\_number The telephone number of the nurse

## 6. Doctor (רופא):

- Doctor\_ID (PK) - Doctor's identification number

- Doctor\_Name The doctor name
- Specialty The doctor's specialty

## 7. Operate\_by:

- Doctor\_ID (FK) Doctor's identification number
- Operation\_ID (FK) Operation's identification number

## 8. Assist\_by:

- Nurse\_ID (FK) Nurse's identification number
- Operation\_ID (FK) Operation's identification number

# Description of the relationships between the entities:

A doctor can perform several operations. (M: N) An operation is carried out by one or more doctors.

An operation takes place in a single room. (M: 1) A room can accommodate several operations.

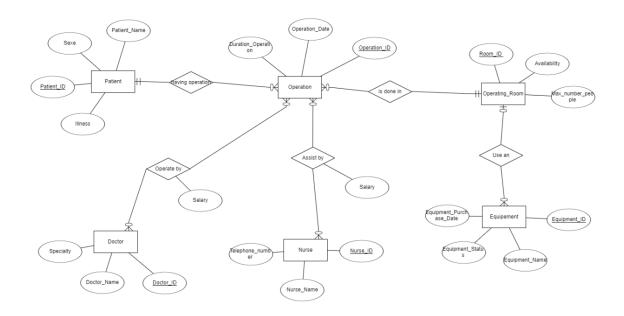
A patient may undergo several operations. (1: N) An operation concerns a single patient.

One piece of equipment can be used by a maximum of one operations room. (1: N)

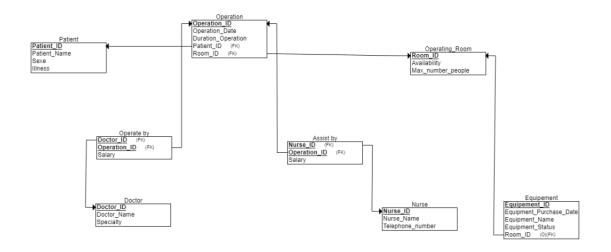
An operating room may require several pieces of equipment.

A nurse can attend several operations. (M: N) An operation can be assisted by several nurses.

# ERD diagram:



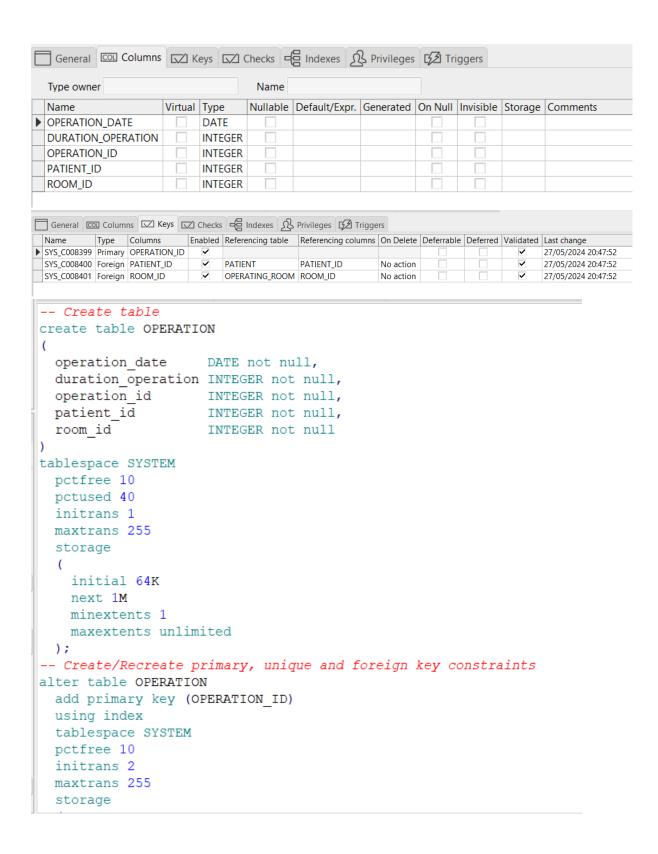
# DSD diagram:



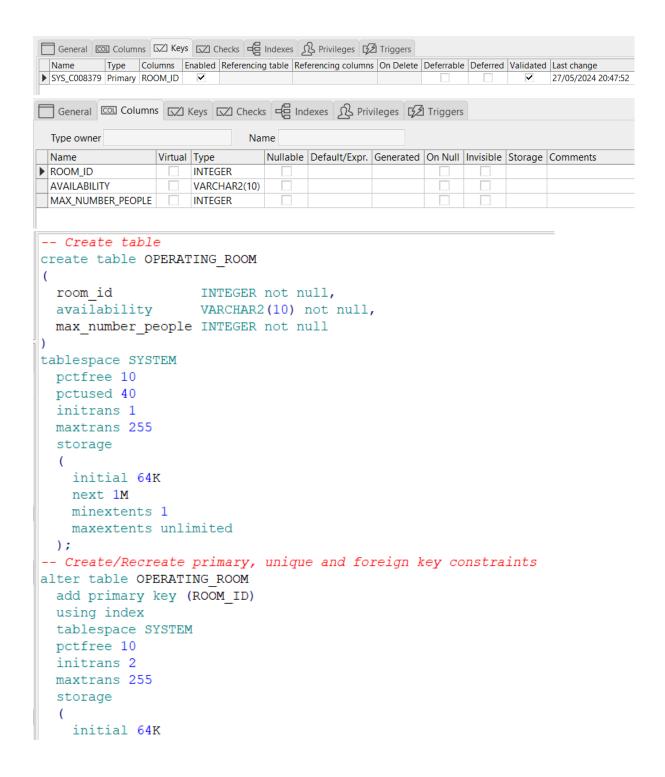
All tables are at 3NF level and there is no need for further normalization. We will prove it:
All tables are in 1NF because all fields are atomic.
All tables respect 2NF, because each table has a unique key. Therefore, no column depends on part of the key, but on the entire key.
All tables respect 3NF: there is no dependency between the different fields, the only dependency being that of the primary key.
Creating the tables:
Creating the <b>Patient</b> table:

```
-- Create table
create table PATIENT
  patient id INTEGER not null,
                 VARCHAR2 (30) not null,
  patient name VARCHAR2(30) not null,
             VARCHAR2(100) not null
  illness
tablespace SYSTEM
  pctfree 10
  pctused 40
  initrans 1
  maxtrans 255
  storage
    initial 64K
    next 1M
    minextents 1
    maxextents unlimited
-- Create/Recreate primary, unique and foreign key constraints
alter table PATIENT
  add primary key (PATIENT ID)
  using index
  tablespace SYSTEM
  pctfree 10
  initrans 2
  maxtrans 255
  storage
General Columns Keys Checks 🔁 Indexes 🐧 Privileges 💋 Triggers
 Name Type Columns Enabled Referencing table Referencing columns On Delete Deferrable Deferred Validated Last change
▶ SYS_C008318 Primary PATIENT_ID ✓
General COI Columns 🖂 Keys 🖾 Checks 🖷 Indexes 🚨 Privileges 💋 Triggers
  Type owner
                                 Name
 Name
              Virtual Type
                                Nullable Default/Expr. Generated On Null Invisible Storage Comments
▶ PATIENT_ID
               INTEGER
  SEXE
                   VARCHAR2(30)
  PATIENT_NAME
                   VARCHAR2(30)
  ILLNESS
                   VARCHAR2(100)
```

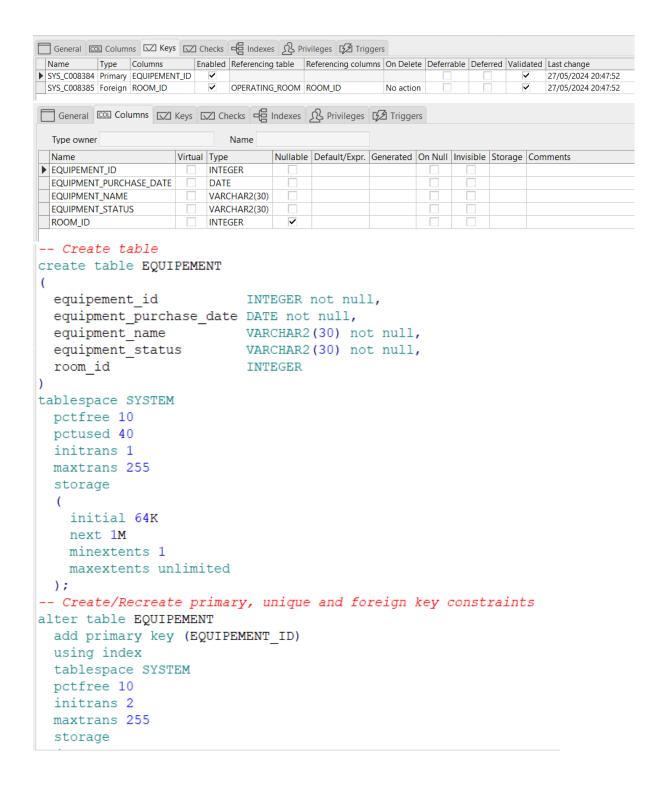
# Creating the **Operation** table:



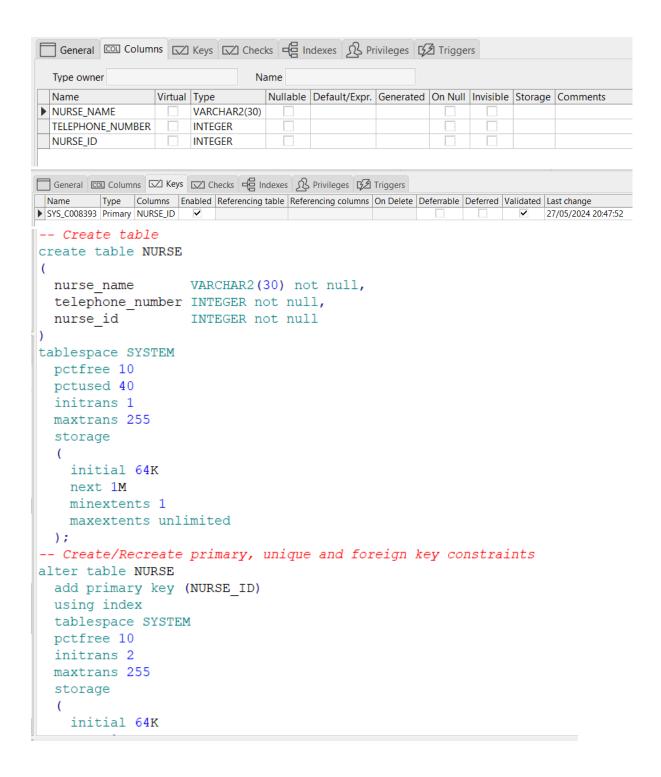
# Creating the **Operating Room** table:



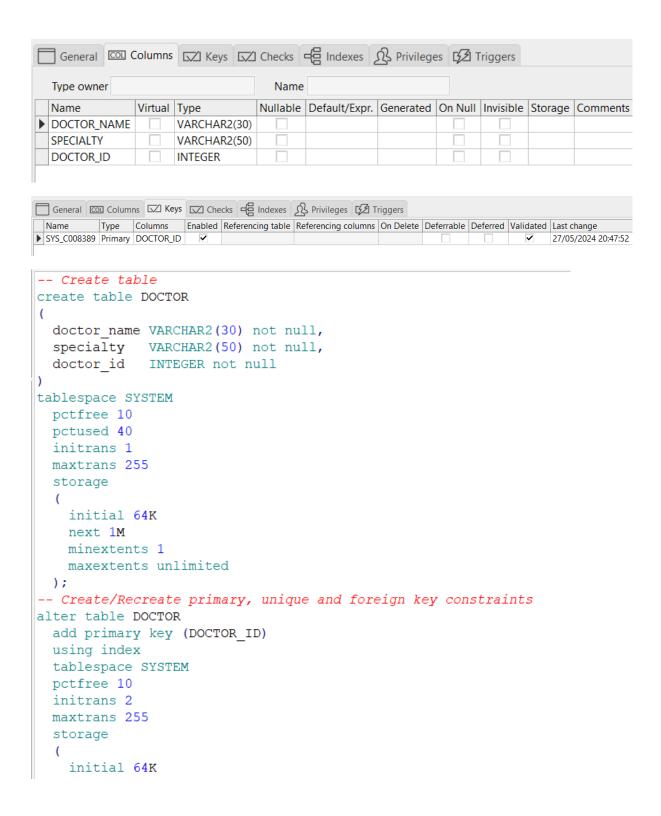
# Creating the **Equipement** table:



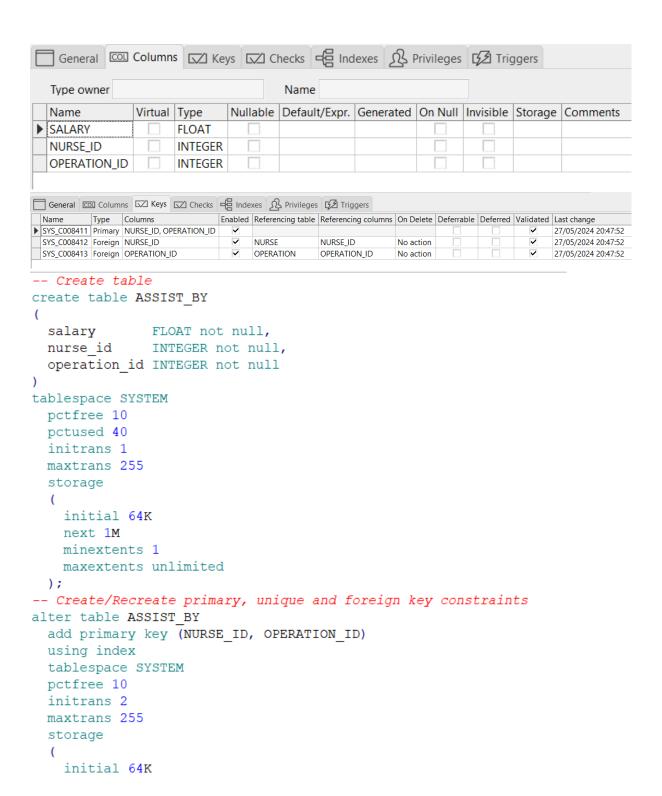
## Creating the Nurse table:



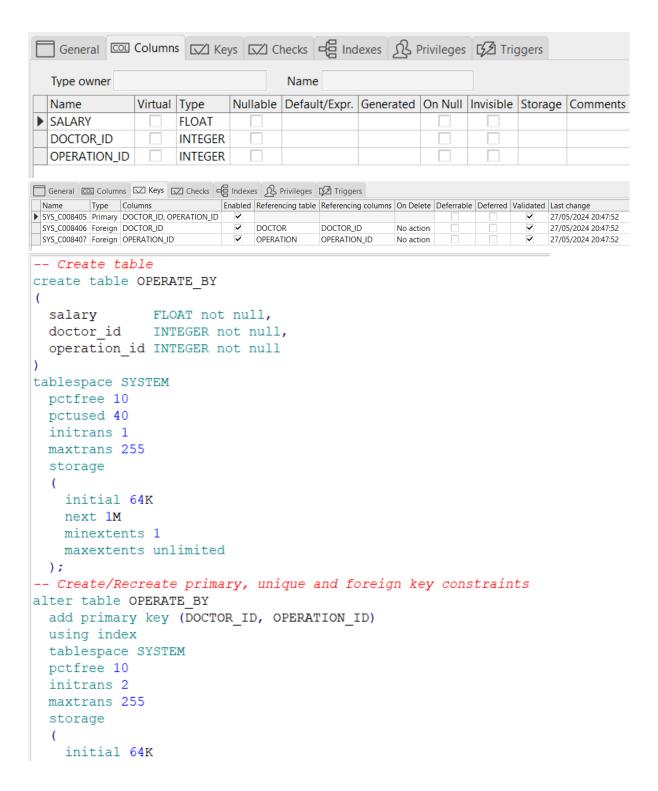
# Creating the **Doctor** table:



## Creating the **Assist by** table:

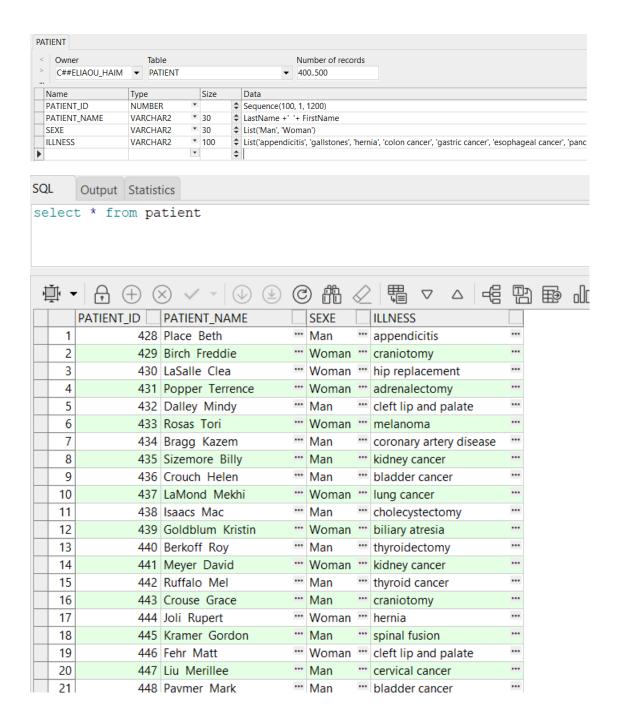


#### Creating the **Operate by** table:

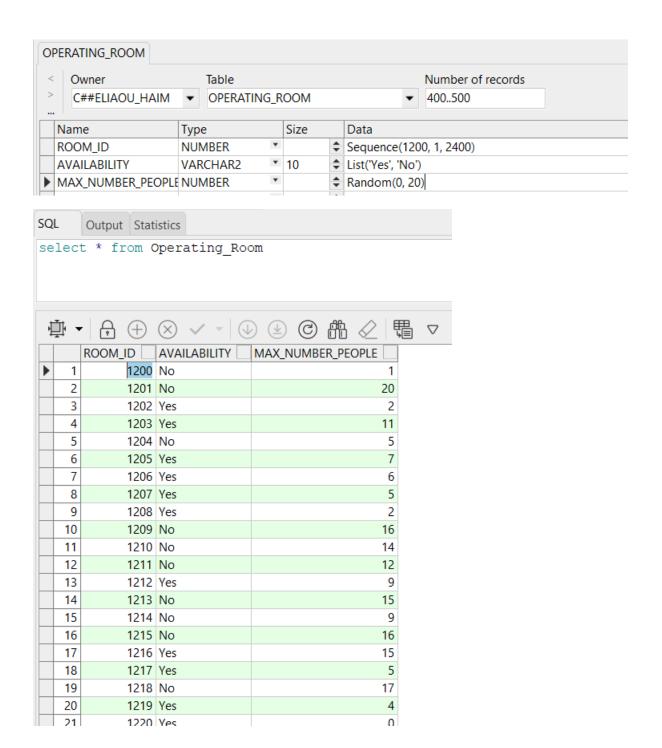


#### **Entering data by GENERATOR DATA.**

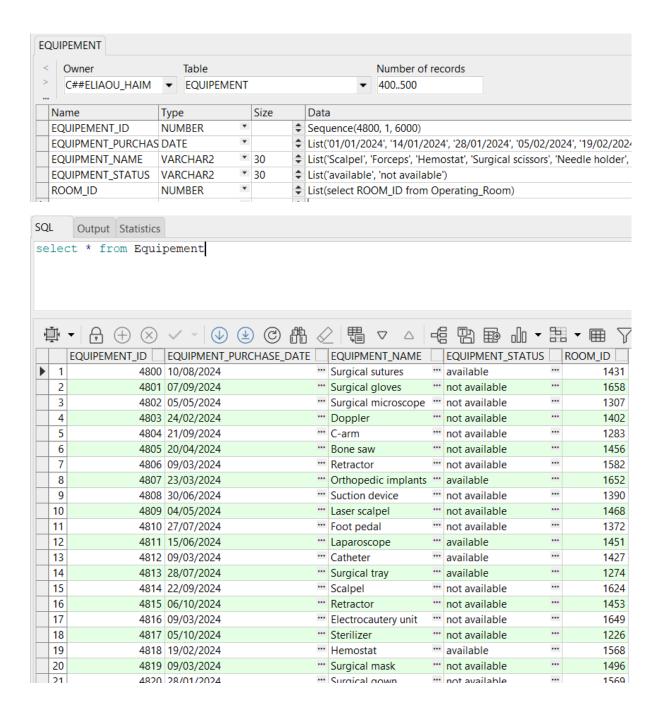
### Entering data into the Patient table:



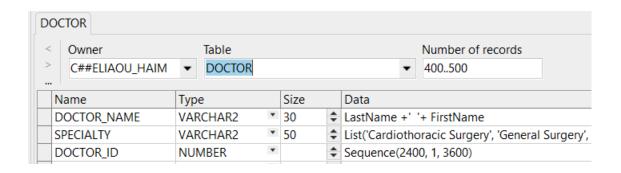
## Entering data into the Operating\_Room table:

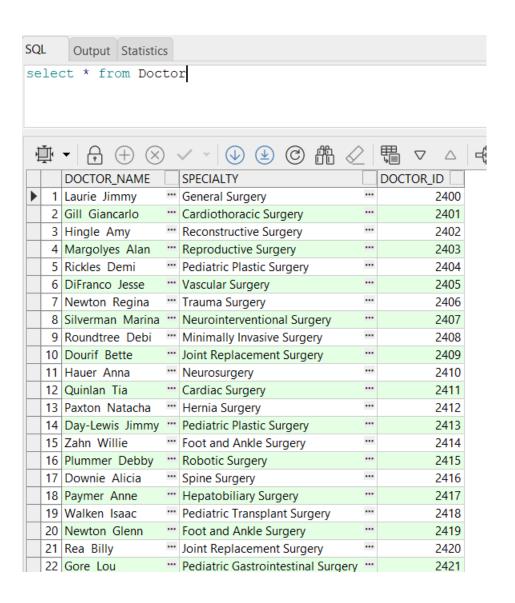


### Entering data into the Equipement table:



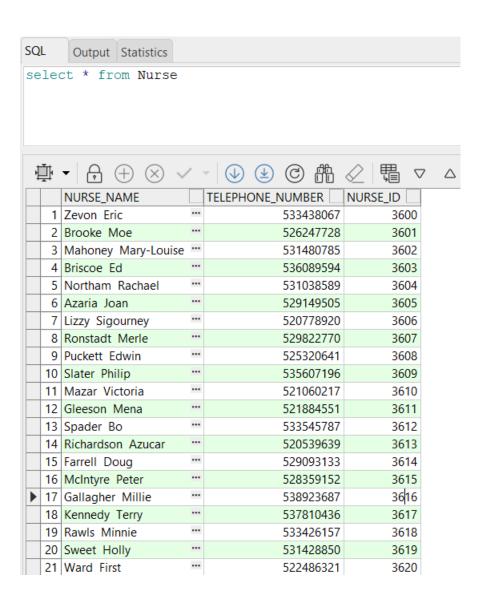
#### Entering data into the Doctor table:





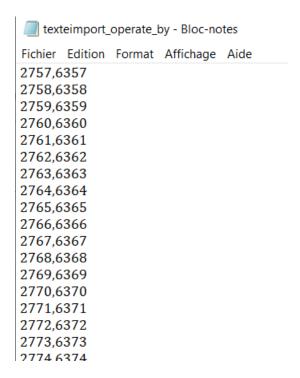
#### Entering data into the Nurse table:

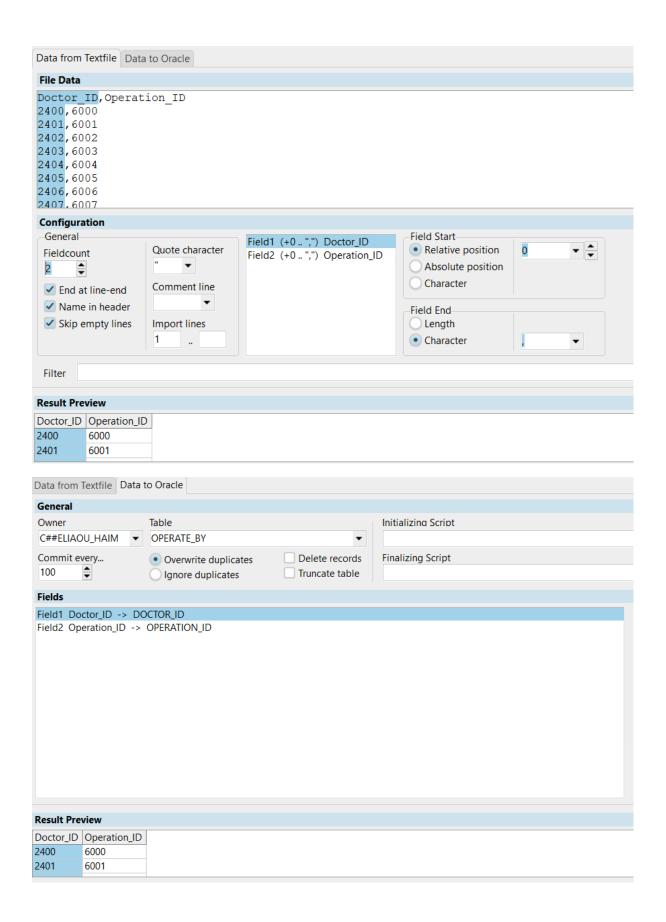
<	Owner		Table				Number of records		
>	C##ELIAOU_HAIM	NURSE				<b>▼</b> 400500			
	.								
	Name Typ		/pe		Size Data		Data		
	NURSE_NAME	VAR	RCHAR2 *		30 💠		LastName +' '+ FirstName		
	TELEPHONE_NUMBER		NUMBER *			<b>‡</b>	List('0526247728', '0533766598', '0525075779', '05314		
	NURSE_ID	NUN	ИBER	•		<b>‡</b>	Sequence(3600, 1, 4800)		
Þ				•		<b>‡</b>			

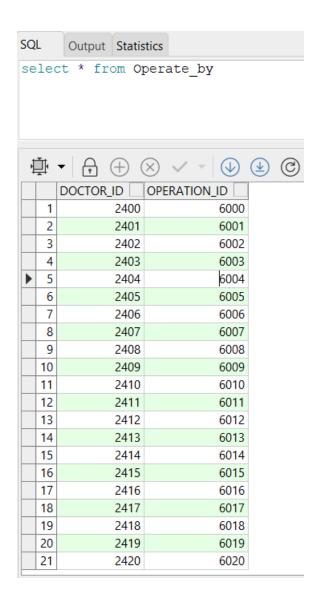


# **Entering data by TEXT file:**

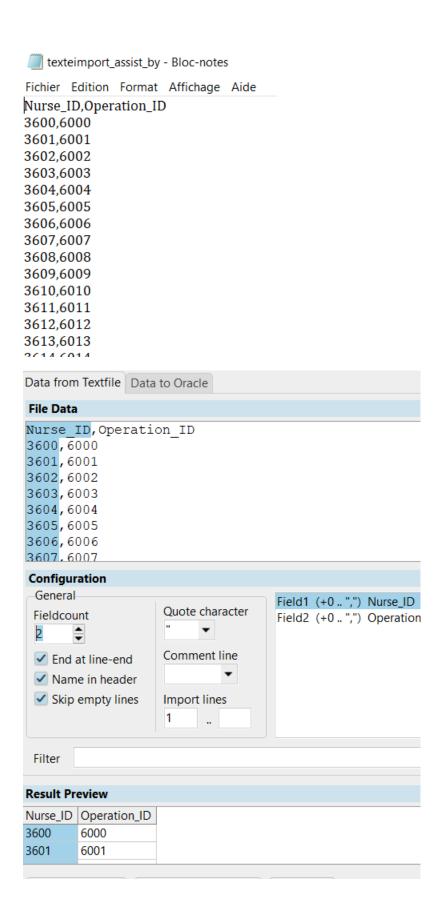
Inserting data into the Operate\_by table:

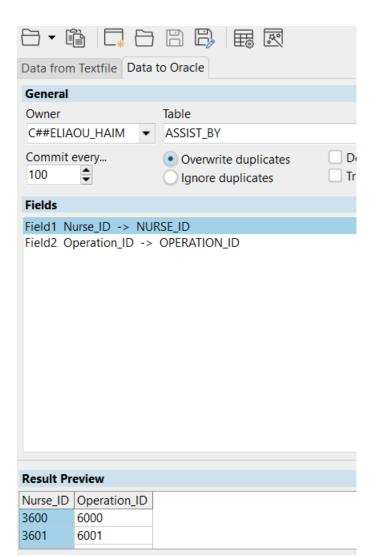






Inserting data into the Assit\_by table:





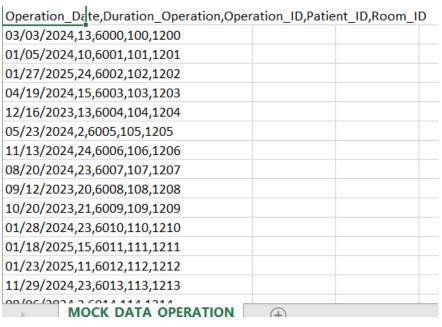


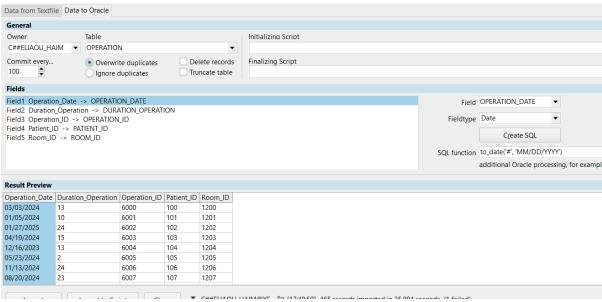
select \* from Assist\_by

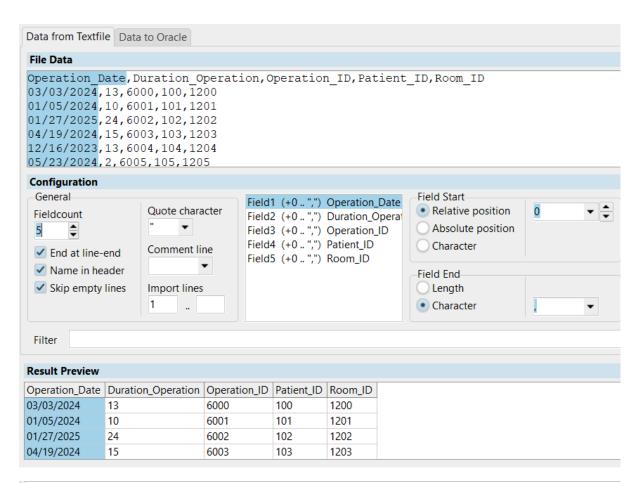
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		NURSE_ID	OPERATION_ID		
$\blacktriangleright$	1	3600	6000		
	2	3601	6001		
	3	3602	6002		
	4	3603	6003		
	5	3604	6004		
	6	3605	6005		
	7	3606	6006		
	8	3607	6007		
	9	3608	6008		
	10	3609	6009		
	11	3610	6010		
	12	3611	6011		
	13	3612	6012		
	14	3613	6013		
	15	3614	6014		
	16	3615	6015		
	17	3616	6016		
	10	2617	6017		

### **Entering data by EXCEL (mockaroo):**

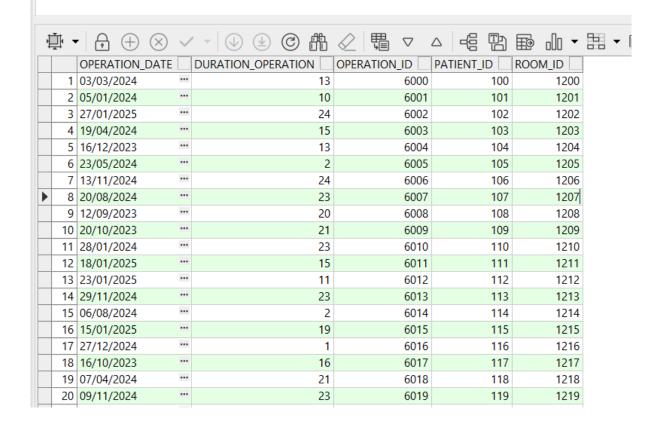
#### Entering data into the Operation table:







select \* from Operation



# Inserting data by INSERT commands:

