# Hospital The Housekeeping Department

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## **Project Report**

The Housekeeping Department in a hospital plays a crucial role in maintaining a clean, safe, and hygienic environment, which is essential for patient care and recovery. This department is responsible for the thorough cleaning and disinfection of patient rooms, operating theaters, and common areas to prevent the spread of infections and ensure compliance with health and safety standards. The Housekeeping staff work supports the overall mission of the hospital by creating a pleasant and sanitary environment that promotes healing and well-being for patients, while also providing a safe workplace for healthcare professionals and visitors.

#### **Entities managed by the Housekeeping Department include:**

- **Rooms**: This entity stores information about the different rooms in the hospital, including their type, occupancy status (occupied or vacant), and cleaning status (cleaned, in progress, or dirty).
- Staff Member: The staff member entity contains the housekeeping personnel's full name.
- Cleaning Tasks: This entity tracks the cleaning tasks assigned to staff members for specific rooms, indicating the task's status (e.g., pending, in progress, completed) to ensure timely and thorough cleaning.
- Cleaning Supplies: The cleaning supplies entity manages the inventory of cleaning materials, including their names, quantities available, and storage locations within the hospital.
- Maintenance Requests: This entity records maintenance requests submitted for rooms requiring repairs or attention, documenting the issue description and date reported for prompt resolution.
- **Inspection Logs**: Inspection logs capture information about room inspections conducted to assess cleanliness and compliance with hygiene standards, recording the inspection date and result (e.g., pass, fail) for quality assurance purposes.

```
3NF:
Room: RID -> Type, Occupancy Status, Cleaning Status.
Need for: SUID, TID, RID, SID -> Quantity.
Cleaning Supply: SUID -> Name, Total Quantity, Location.
Inspection Logs: LID -> Inspection Date, Inspection Result, RID.
Maintenance Request: MID, RID, SID -> Issue Description, Date Reported.
Cleaning Task: TID, RID, SID -> Status.
Staff Member: SID -> First Name, Last Name.
Staff Member Info: SID -> Phone Number.
CREATE TABLE Room
 RID INT NOT NULL,
Type VARCHAR(30) NOT NULL,
 Occupancy_Status VARCHAR(30) NOT NULL,
Cleaning_Status VARCHAR(30) NOT NULL,
PRIMARY KEY (RID)
);
CREATE TABLE Staff_Member
SID INT NOT NULL,
 First_Name VARCHAR(30) NOT NULL,
 Last_Name_ VARCHAR(30) NOT NULL,
PRIMARY KEY (SID)
);
```

```
CREATE TABLE Cleaning_Supply
(
SUID INT NOT NULL,
Name VARCHAR(30) NOT NULL,
Total_Quantity INT NOT NULL,
Location VARCHAR(30) NOT NULL,
PRIMARY KEY (SUID)
);
CREATE TABLE Cleaning_Task
TID INT NOT NULL,
Status VARCHAR(30) NOT NULL,
RID INT NOT NULL,
SID INT NOT NULL,
PRIMARY KEY (TID, RID, SID),
FOREIGN KEY (RID) REFERENCES Room(RID),
FOREIGN KEY (SID) REFERENCES Staff_Member(SID)
);
```

```
CREATE TABLE Maintenance_Request
MID INT NOT NULL,
Issue_Description VARCHAR(30) NOT NULL,
 Date_Reported DATE NOT NULL,
 RID INT NOT NULL,
SID INT NOT NULL,
PRIMARY KEY (MID, RID, SID),
FOREIGN KEY (RID) REFERENCES Room(RID),
 FOREIGN KEY (SID) REFERENCES Staff_Member(SID)
);
CREATE TABLE Inspection_Logs
LID INT NOT NULL,
Inspection_Date DATE NOT NULL,
Inspection_Result VARCHAR(30) NOT NULL,
 RID INT NOT NULL,
PRIMARY KEY (LID),
FOREIGN KEY (RID) REFERENCES Room(RID)
);
```

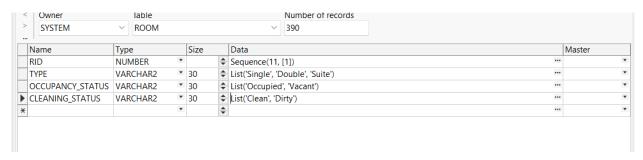
```
CREATE TABLE Need_for
SUID INT NOT NULL,
Quantity INT NOT NULL,
TID INT NOT NULL,
RID INT NOT NULL,
SID INT NOT NULL,
PRIMARY KEY (SUID, TID, RID, SID),
FOREIGN KEY (SUID) REFERENCES Cleaning_Supply(SUID),
FOREIGN KEY (TID, RID, SID) REFERENCES Cleaning_Task(TID, RID, SID)
);
CREATE TABLE Staff_Member_Info
SID INT NOT NULL,
Phone_Number VARCHAR(30) NOT NULL,
PRIMARY KEY (SID),
FOREIGN KEY (SID) REFERENCES Staff_Member(SID)
);
```

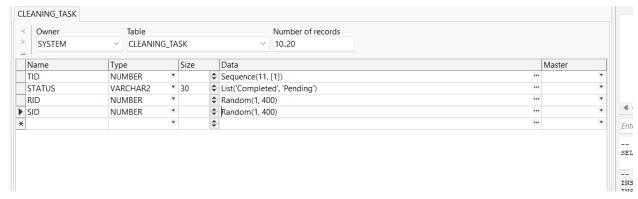
### **Desc instruction**

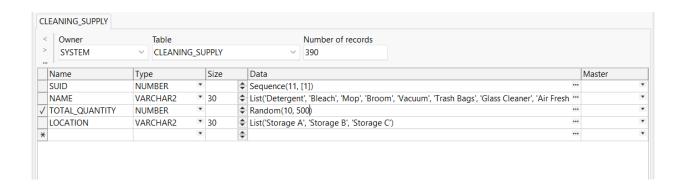
SQL> desc Staff_Member Nom	NULL ? Type
SID FIRST_NAME LAST_NAME_	NOT NULL NUMBER(38) NOT NULL VARCHAR2(30) NOT NULL VARCHAR2(30)
SQL> desc Cleaning_Task Nom TID STATUS RID SID	NULL ? Type  NOT NULL NUMBER(38)  NOT NULL VARCHAR2(30)  NOT NULL NUMBER(38)  NOT NULL NUMBER(38)
SQL> desc Maintenance_request Nom MID ISSUE_DESCRIPTION DATE_REPORTED RID SID	NULL ? Type  NOT NULL NUMBER(38)  NOT NULL VARCHAR2(30)  NOT NULL DATE  NOT NULL NUMBER(38)  NOT NULL NUMBER(38)
SQL> desc ROOM Nom RID TYPE OCCUPANCY_STATUS CLEANING_STATUS	NULL ? Type  NOT NULL NUMBER(38)  NOT NULL VARCHAR2(30)  NOT NULL VARCHAR2(30)  NOT NULL VARCHAR2(30)
SQL> desc Inspection_Logs Nom	NULL ? Type NOT NULL NUMBER(38) NOT NULL DATE NOT NULL VARCHAR2(30) NOT NULL NUMBER(38)
SQL> desc need_for NomSUID QUANTITY TID RID SID	NULL ? Type  NOT NULL NUMBER(38)  NOT NULL NUMBER(38)
SQL> desc Cleaning_Supply NomSUID NAME TOTAL_QUANTITY LOCATION	NULL ? Type

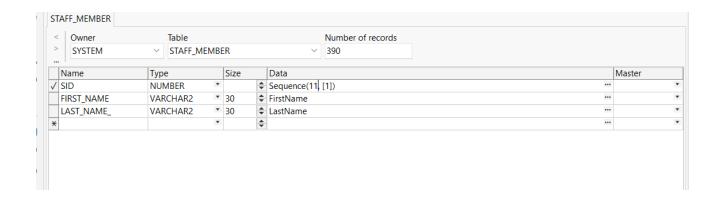
SQL> desc Staff_member_info Nom	NULL ?	Type
SID PHONE_NUMBER		NUMBER(38) VARCHAR2(30)

#### **Data generator**









#### **Python script**

We created a CSV file with the following generated data for the staff\_member\_info table.

Then, we imported it in PL/SQL.

```
import csv
import random
# Function to generate a random Israeli phone number
def generate_israeli_phone_number():
    return "972-5" + '' join(random.choices("0123456789", k=8))
# Function to generate unique phone numbers
def generate_unique_phone_numbers(count):
    phone_numbers = set()
    while len(phone_numbers) < count:</pre>
        phone_number = generate_israeli_phone_number()
        phone_numbers.add(phone_number)
    return list(phone_numbers)
# Function to generate SIDs (assuming SIDs are unique and sequential for simplicity)
def generate_sids(count):
    return list(range(1, count + 1))
# Generate 400 unique phone numbers
phone_numbers = generate_unique_phone_numbers(400)
# Generate 400 SIDs
sids = generate_sids(400)
# Write the data to a CSV file
with open('staff_member_info.csv', mode='w', newline='') as file:
    writer = csv.writer(file)
    writer.writerow(["SID", "Phone Number"]) # Writing header
for sid, phone_number in zip(sids, phone_numbers):
        writer.writerow([sid, phone_number])
print("CSV file 'staff_member_info.csv' created successfully.")
```

#### Mockaroo

In Mockaroo, we generated the data as a CSV file and imported it in PL/SQL.

## Need\_For

SUID	Quantity	TID	RID	SID
34	3	311	282	298
273	12	291	173	202
289	15	165	294	175
25	12	370	14	298
9	3	305	29	324
72	1	219	84	35

[General] ID=Import Definition Version=1 Header=True SkipEmptyLines=True SingleLineRecord=True QuoteChar=" CommentLine= ImportLinesStart=1 ImportLinesEnd=-1 TableOwner=SYSTEM OracleTable=NEED FOR InitializingScript= FinalizingScript= OverwriteDuplicates=True CommitCount=100 Filter= EmptyTable=False TruncateTable=False

[ODBC]
DSN=
UserName=
Command=
Kind=0

[Fields]
Field=0
FieldStart=0
FieldStartValue=0
FieldEnd=2

FieldEndValue=,
OracleSQL=
OracleField=SUID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

Field=1
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=QUANTITY
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

Field=2
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=TID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

Field=3
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=RID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0

#### OracleParamNo=0

Field=4
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=SID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

## Maintenance\_Request

MID	Issue_Description	Date_Reported	RID	SID
11	Leaking pipe	2023-09-08	70	35
12	Freezing refrigerator	2023-05-16	149	174
13	Flickering lights	2024-04-06	229	399
14	Dripping shower	2023-02-22	155	39
15	Broken door	2023-10-24	358	16
16	Water damage	2023-07-15	356	215
17	Soggy drywall	2023-05-08	88	52
18	Plumbing issue	2023-07-26	284	271
19	Cabinet door broken	2023-02-14	241	158

[General]
ID=Import Definition
Version=1
Header=True
SkipEmptyLines=True
SingleLineRecord=True
QuoteChar="
CommentLine=
ImportLinesStart=1
ImportLinesEnd=-1
TableOwner=SYSTEM

OracleTable=MAINTENANCE REQUEST InitializingScript= FinalizingScript= OverwriteDuplicates=True CommitCount=100 Filter= EmptyTable=False TruncateTable=False [ODBC] DSN= UserName= Command= Kind=0 [Fields] Field=0 FieldStart=0 FieldStartValue=0 FieldEnd=2 FieldEndValue=, OracleSQL= OracleField=MID OracleType=1 ODBCField= ODBCFieldNo=0 ODBCType=0 ODBCCType=0 ODBCLength=0 OracleParamNo=0 Field=1 FieldStart=0 FieldStartValue=0 FieldEnd=2 FieldEndValue=, OracleSQL= OracleField=ISSUE DESCRIPTION OracleType=0 ODBCField= ODBCFieldNo=0 ODBCType=0 ODBCCType=0 ODBCLength=0 OracleParamNo=0 Field=2 FieldStart=0 FieldStartValue=0 FieldEnd=2 FieldEndValue=, OracleSQL=to date('#', 'YYYY-MM-DD') OracleField=DATE REPORTED OracleType=2

ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

Field=3
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=RID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

Field=4
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=SID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

## staff\_member\_info

SID	Phone Number
11	972-532458468
12	972-516926496
13	972-560437641
14	972-560143765
15	972-536673145
16	972-599342084
17	972-523256549
18	972-521919180

[General] ID=Import Definition Version=1 Header=True SkipEmptyLines=True SingleLineRecord=True QuoteChar=" CommentLine= ImportLinesStart=1 ImportLinesEnd=-1 TableOwner=SYSTEM OracleTable=STAFF MEMBER INFO InitializingScript= FinalizingScript= OverwriteDuplicates=True CommitCount=100 Filter= EmptyTable=False TruncateTable=False

[ODBC]
DSN=
UserName=
Command=
Kind=0

[Fields]
Field=0
FieldStart=0
FieldStartValue=0
FieldEnd=2

FieldEndValue=,
OracleSQL=
OracleField=SID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

Field=1
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=PHONE\_NUMBER
OracleType=0
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

## Inspection\_Logs

LID	Inspection_Date	Inspection_Result	RID
11	2023-12-02	Fail	345
12	2023-05-13	Pass	358
13	2023-03-15	Fail	334
14	2024-03-22	Pass	315
15	2024-04-20	Pass	215
16	2023-11-16	Pass	241
17	2023-04-21	Pass	105
18	2024-04-10	Pass	66
40	0004 00 00	D	101

[General]
ID=Import Definition
Version=1
Header=True

SkipEmptyLines=True SingleLineRecord=True QuoteChar=" CommentLine= ImportLinesStart=1 ImportLinesEnd=-1 TableOwner=SYSTEM OracleTable=INSPECTION LOGS InitializingScript= FinalizingScript= OverwriteDuplicates=True CommitCount=100 Filter= EmptyTable=False TruncateTable=False [ODBC] DSN= UserName= Command= Kind=0 [Fields] Field=0 FieldStart=0 FieldStartValue=0 FieldEnd=2 FieldEndValue=, OracleSQL= OracleField=LID OracleType=1 ODBCField= ODBCFieldNo=0 ODBCType=0 ODBCCType=0 ODBCLength=0 OracleParamNo=0 Field=1 FieldStart=0 FieldStartValue=0 FieldEnd=2 FieldEndValue=, OracleSQL=to\_date('#', 'YYYY-MM-DD') OracleField=INSPECTION DATE OracleType=2 ODBCField= ODBCFieldNo=0 ODBCType=0 ODBCCType=0 ODBCLength=0 OracleParamNo=0

Field=2

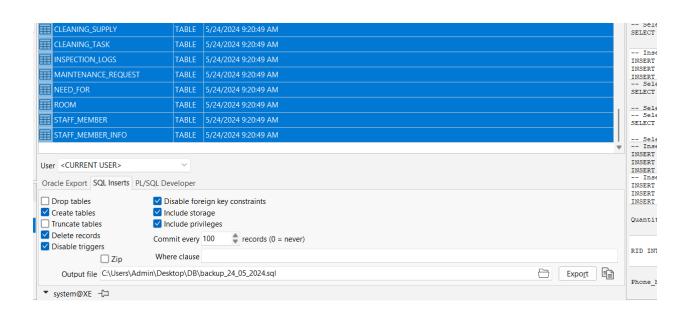
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=INSPECTION\_RESULT
OracleType=0
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

Field=3
FieldStart=0
FieldStartValue=0
FieldEnd=2
FieldEndValue=,
OracleSQL=
OracleField=RID
OracleType=1
ODBCField=
ODBCFieldNo=0
ODBCType=0
ODBCCType=0
ODBCLength=0
OracleParamNo=0

#### Backup:

#### In Export Tables, we made the backup file:





#### **Reproduction:**

We logged in to the user in sqlplus via the command line and ran the backup SQL file created earlier. We can see the result by trying the following instruction

#### Select \* from need\_for;

```
C:\Users\Admin>sqlplus c##jeremiet3/1234@XE

SQL*Plus: Release 21.0.0.0.0 - Production on Mar. Mai 28 18:36:13 2024

Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle. All rights reserved.

Heure de la derniPre connexion rÚussie : Mar. Mai 28 2024 18:35:11 +03:00

ConnectÚ Ó :
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production

Version 21.3.0.0.0

SQL> @C:\Users\Admin\Desktop\DB\Step1\backup_24_05_2024.sql
```

```
SQL> QC:\Users\Admin\Desktop\DB\Step1\backup_24_05_2024.s
SP2-0734: commande inconnue au dÚbut de "´¬¬prompt ..." -
Created by Admin on Friday, May 24, 2024
Creating CLEANING_SUPPLY...
Creating ROOM...
Creating STAFF_MEMBER...
Creating CLEANING_TASK...
Creating INSPECTION_LOGS...
Creating MAINTENANCE_REQUEST...
Creating NEED_FOR...
Creating STAFF_MEMBER_INFO...
Disabling triggers for CLEANING_SUPPLY...
Disabling triggers for STAFF_MEMBER...
```

SQL> select	* from need	_for;		
SUID	QUANTITY	TID	RID	SID
1	10	1	1	1
2	5	2	2	2
3	3	3	3	3
4	2	4	4	4
5	1	5	5	5
6	20	6	6	6
7	4	7	7	7
8	6	8	8	8
9	7	9	9	9
10	2	10	10	10
34	3	11	250	159
SUID	QUANTITY	TID	RID	SID