Hospital

The Housekeeping Department

Yuval Yefet

Jeremie Tordjman

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                                       NOT NULL NUMBER(38)
 FIRST_NAME                                NOT NULL VARCHAR2(30)
 LAST_NAME_                                NOT NULL VARCHAR2(30)
```

```
SQL> desc Cleaning_Task
 Nom                                          NULL ?   Type
 -------------------------------------------- -------- ------------------------------
 TID                                          NOT NULL NUMBER(38)
 STATUS                                       NOT NULL VARCHAR2(30)
 RID                                          NOT NULL NUMBER(38)
 SID                                          NOT NULL NUMBER(38)
```

```
SQL> desc Maintenance_request
 Nom                                       NULL ?   Type
 ----------------------------------------- -------- ----------------------------
 MID                                       NOT NULL NUMBER(38)
 ISSUE_DESCRIPTION                         NOT NULL VARCHAR2(30)
 DATE_REPORTED                             NOT NULL DATE
 RID                                       NOT NULL NUMBER(38)
 SID                                       NOT NULL NUMBER(38)
```

```
SQL> desc ROOM
 Nom                                          NULL ?   Type
 -------------------------------------------- -------- ------------------------
----
 RID                                          NOT NULL NUMBER(38)
 TYPE                                         NOT NULL VARCHAR2(30)
 OCCUPANCY_STATUS                             NOT NULL VARCHAR2(30)
 CLEANING_STATUS                              NOT NULL VARCHAR2(30)
```

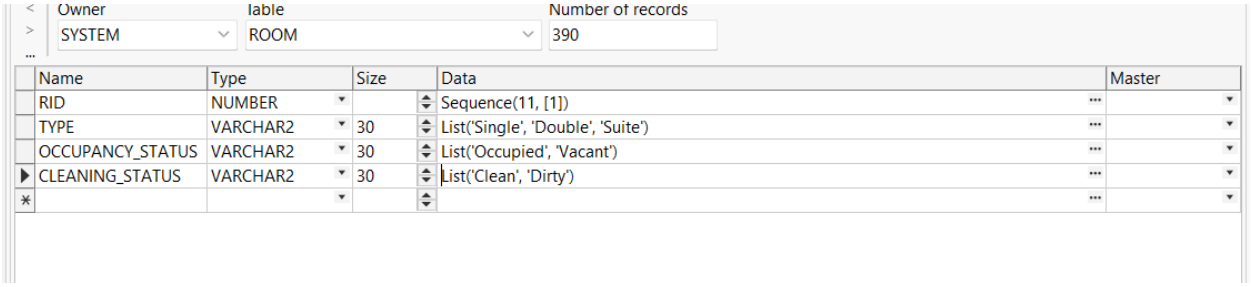
```
SQL> desc Inspection_Logs
 Nom                                       NULL ?   Type
 ----------------------------------------- -------- ----------------------------
 LID                                       NOT NULL NUMBER(38)
 INSPECTION_DATE                           NOT NULL DATE
 INSPECTION_RESULT                         NOT NULL VARCHAR2(30)
 RID                                       NOT NULL NUMBER(38)
```

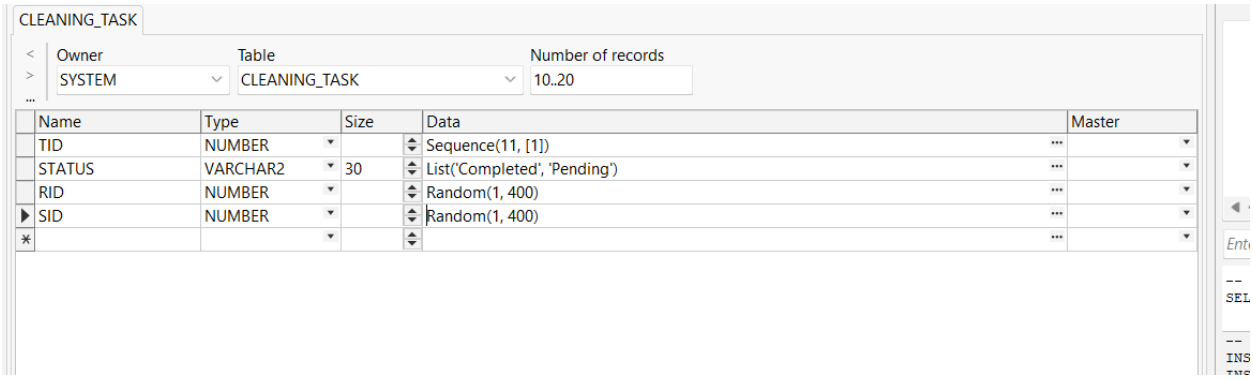
```
SQL> desc need_for
 Nom                                          NULL ?   Type
 -------------------------------------------- -------- ------------------------------
 SUID                                         NOT NULL NUMBER(38)
 QUANTITY                                     NOT NULL NUMBER(38)
 TID                                          NOT NULL NUMBER(38)
 RID                                          NOT NULL NUMBER(38)
 SID                                          NOT NULL NUMBER(38)
```

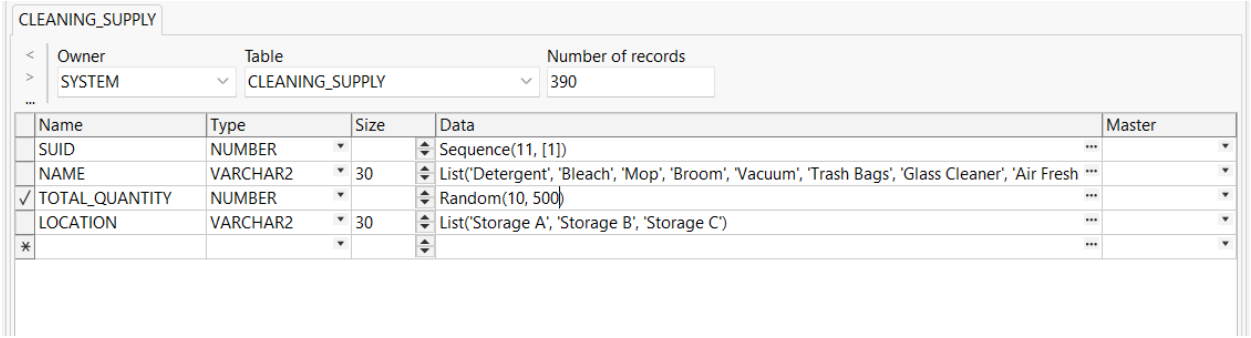
```
SQL> desc Cleaning_Supply
 Nom                                       NULL ?   Type
 ----------------------------------------- -------- ----------------------------
 SUID                                      NOT NULL NUMBER(38)
 NAME                                      NOT NULL VARCHAR2(30)
 TOTAL_QUANTITY                            NOT NULL NUMBER(38)
 LOCATION                                  NOT NULL VARCHAR2(30)
```

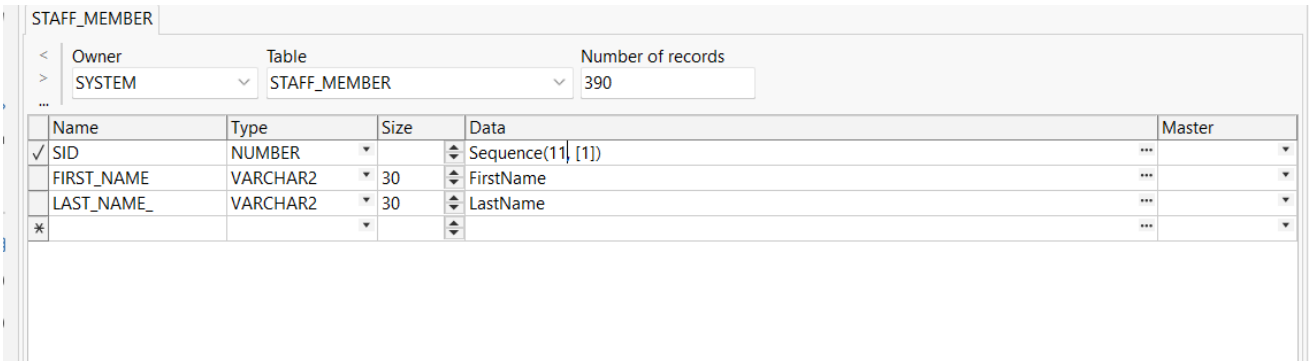
```
SQL> desc Staff_member_info
 Nom                                       NULL ?   Type
 ----------------------------------------- -------- ----------------------------
 SID                                       NOT NULL NUMBER(38)
 PHONE_NUMBER                              NOT NULL VARCHAR2(30)
```

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.

```python
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:
        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
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

```
[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: