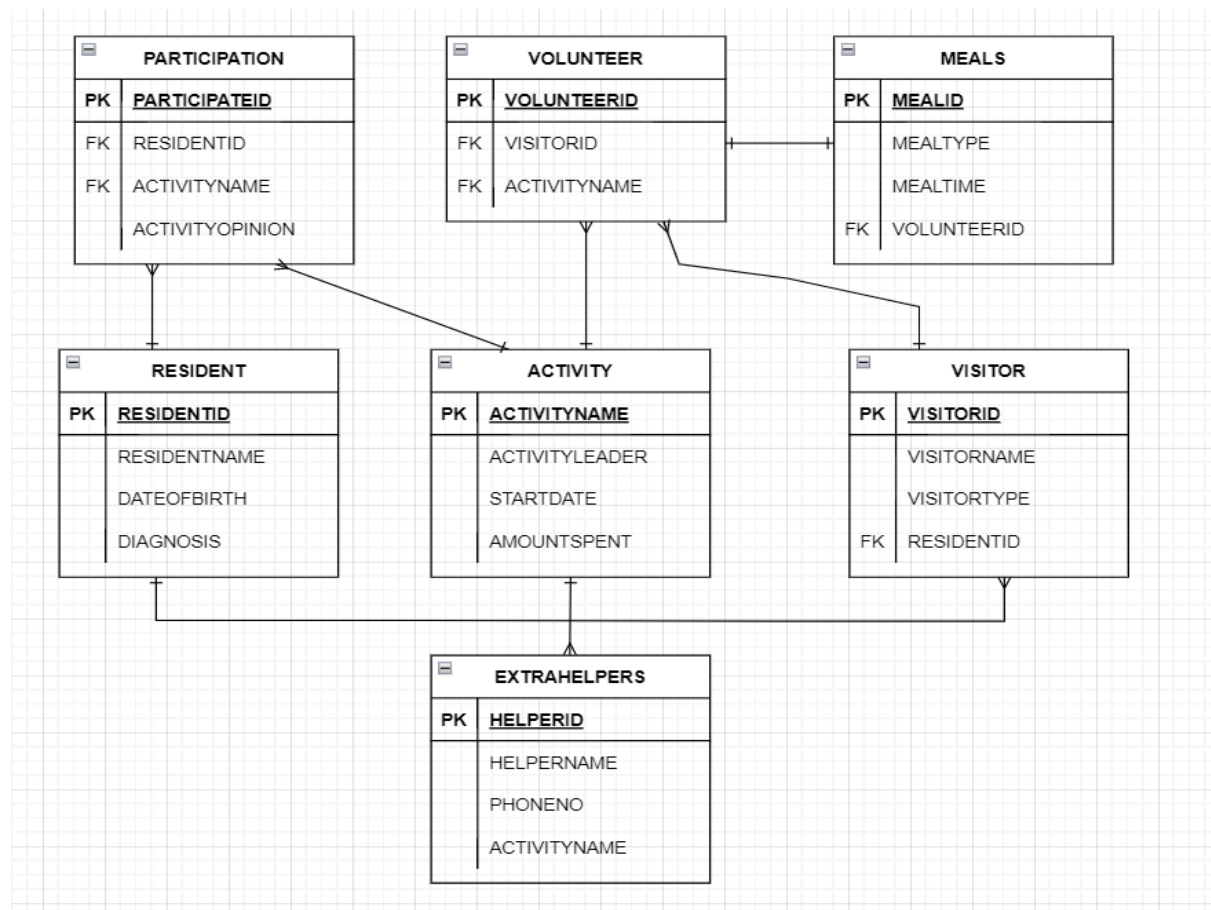


# Project: Patient Database Management System

Business Case Study: Peaceful Haven Residential Care Home

## Database Schema Design - Entity Relationship (ER) Diagram



## RELATIONSHIPS BETWEEN ENTITIES

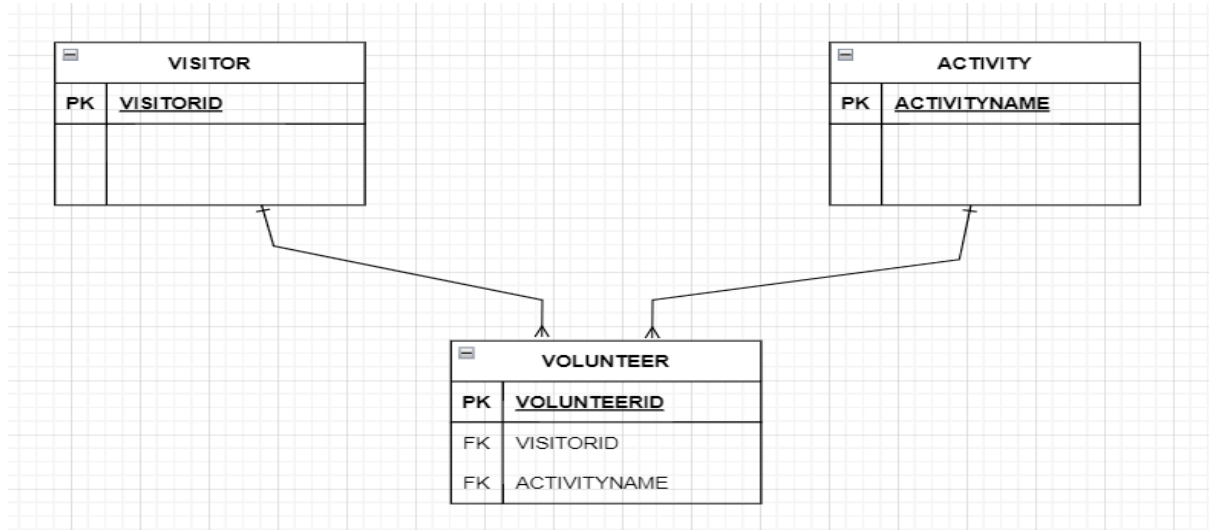
1) RESIDENT and VISITOR (one-to-many)

- A resident can have many visitors.
- A visitor can visit a resident.



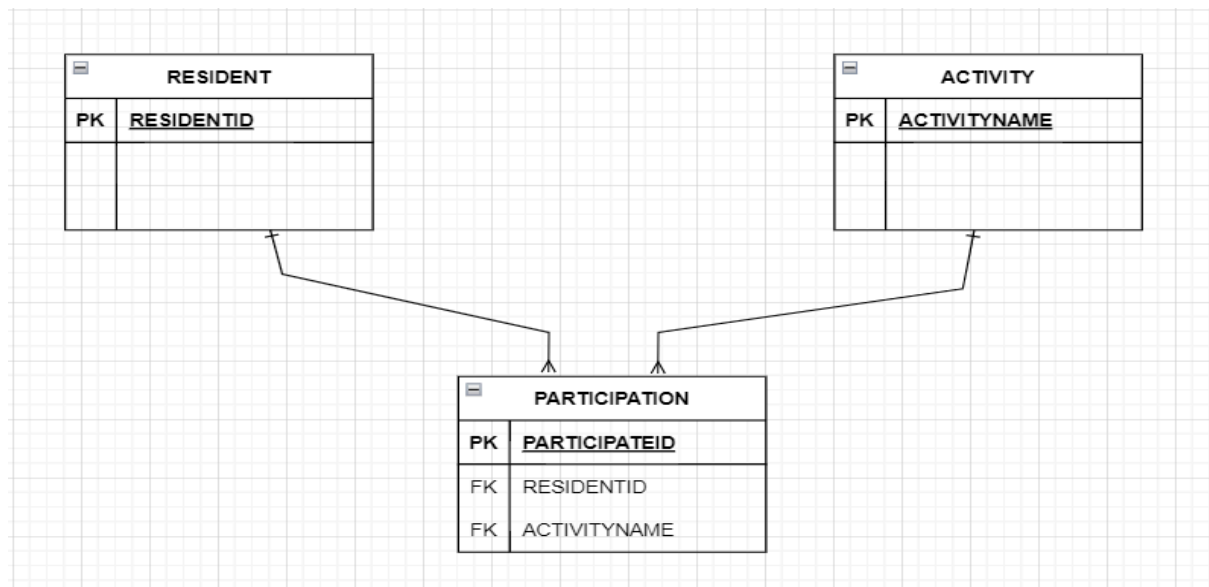
## 2) VISITOR and ACTIVITY (many-to-many)

- A visitor can help out in many activities
- An activity can be conducted with the help of many visitors.



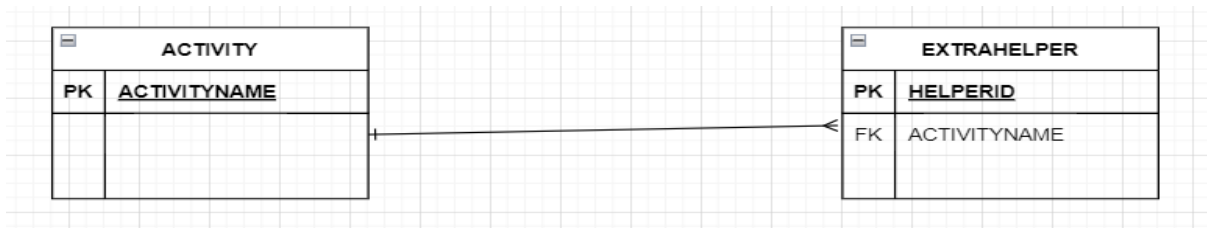
## 3) RESIDENT

- A resident can participate in many activities
- An activity can be performed by many residents.



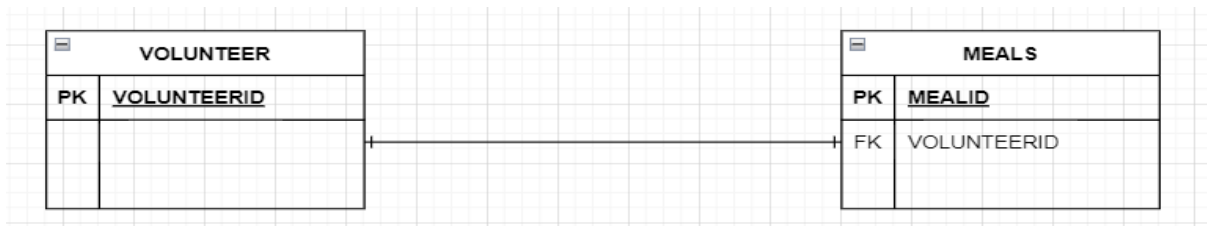
## 4) ACTIVITY and EXTRAHELPERS

- An activity can be conducted with the help of many extra helpers.
- An extra helper can help out with an activity when there are no volunteers available.



## 5) VOLUNTEER and MEALS

- A volunteer can serve one meal to a resident.
- A meal is served by a volunteer.



## ENTITY SPECIFICATION FORMS OF TABLES IN A DATABASE

**ENTITY NAME:** Visitor

**Entity Description:** stores details of all visitors. Approximately, 26 visitors

| Attribute        | Data type and width | Status (pk/ fk/ nn/ l) | Validation   | Example of input and any other relevant info                       |
|------------------|---------------------|------------------------|--|--|
| VisitorID        | NUMBER(5)           | pk                     |  | 101  |
| VisitorName      | VARCHAR2(15)        | nn                     | Must be in uppercase                                   | First name in full, followed by initial of last name.<br>Eg: TOM J |
| VisitorType      | VARCHAR2(15)        | nn                     | Must be Primary or Secondary or Tertiary or Quaternary | SECONDARY  |
| Age              | NUMBER(5)           | nn                     |  | 50   |
| Gender           | CHAR(1)             | nn                     | Must be M (Male) or F (Female) or O (Other)            | M  |
| Nationality      | VARCHAR2(15)        | nn                     |  | Indian   |
| VaccinationLevel | VARCHAR2(15)        | nn                     |  | Second Dose  |
| ResidentID       | CHAR(8)             | fk                     |  | JAM01  |
| DayGranted       | VARCHAR2(15)        |                        |  | MONDAY<br>(All the days except Sunday)                             |
| EntryTime        | TIMESTAMP           |                        |  | 02-05-22 03:00 PM  |
| ExitTime         | TIMESTAMP           |                        |  | 02-05-22 05:00 PM  |
| PhoneNo          | NUMBER(15)          | nn                     |  | 8112378561   |

**ENTITY NAME:** Resident

**Entity Description:** contains details of all residents. Approximately, 10 current residents.

| Attribute    | Data type and width | Status (pk/ fk/ nn/ l) | Validation  | Example of input and any other relevant info   |
|--------------|---------------------|------------------------|---|--|
| ResidentID   | CHAR(8)             | pk                     |   | Made up of first three characters of resident's firstname (CAPITALS) followed by two digit number. Must be unique. Eg: JAM01 |
| ResidentName | VARCHAR2(15)        | nn                     | Must be in uppercase                              | First name in full, followed by initial of last name. Eg: JAMES M  |
| DateofBirth  | DATE                | nn                     |   | 01/02/1950 (dd/mm/yyyy)  |
| Gender       | CHAR(1)             | nn                     | Must be M (Male) or F (Female) or O (Other)       | M  |
| Nationality  | VARCHAR2(15)        | nn                     |   | Indian   |
| Diagnosis    | VARCHAR2(15)        | nn                     |   | Diabetes   |
| AcuityLevel  | VARCHAR2(10)        | nn                     | Must be Excellent or Good or Fair or Bad or Worst | Good   |
| RoomNo       | CHAR(5)             | nn                     |   | R4   |

**ENTITY NAME:** Activity

**Entity Description:** contains details of all leisure activities. Approximately, 15 current leisure activities.

| Attribute      | Data type and width | Status (pk/ fk/ nn/ l) | Validation | Example of input and any other relevant info |
|----------------|---------------------|------------------------|------------|--|
| ActivityName   | VARCHAR2(15)        | pk                     |            | SOLITAIRE                                    |
| ActivityLeader | VARCHAR2(15)        | nn                     |            | TOM J  |
| StartDate      | DATE                | nn                     |            | 01/08/21 (format: dd/mm/yy)                  |
| ActivityBudget | NUMBER(10)          | nn                     |            | 1200   |
| AmountSpent    | NUMBER(10)          | nn                     |            | 1260   |

**ENTITY NAME:** Participation

**Entity Description:** contains details of activities in which residents participated. Approximately, 12 current leisure activities.

| Attribute       | Data type and width | Status (pk/ fk/ nn/ l) | Validation          | Example of input and any other relevant info |
|-----------------|---------------------|------------------------|---------------------|--|
| ParticipateID   | NUMBER(15)          |                        |                     | 1  |
| ResidentID      | CHAR(8)             | fk                     |                     | JAM01  |
| ActivityName    | VARCHAR2(15)        | fk                     |                     | Tennis                                       |
| ActivityOpinion | VARCHAR2(15)        | nn                     | Must be Good or Bad | Good   |

**ENTITY NAME:** Volunteer

**Entity Description:** contains id number of all volunteers. Approximately, 24 current volunteers.

| Attribute    | Data type and width | Status (pk/ fk/ nn/ l) | Validation | Example of input and any other relevant info  |
|--------------|---------------------|------------------------|------------|---|
| VolunteerID  | CHAR(8)             | pk                     |            | (First letter from firstname and lastname (CAPITALS) followed by three digit numbers. Must be unique.)<br>Eg: JR001 |
| VisitorID    | NUMBER(8)           | fk                     |            | 102   |
| ActivityName | VARCHAR2(15)        | fk                     |            | Tennis  |

**ENTITY NAME:** Meals

**Entity Description:** contains details of meals provided by the care home.

| Attribute   | Data type and width | Status (pk/ fk/ nn/ l) | Validation | Example of input and any other relevant info |
|-------------|---------------------|------------------------|------------|--|
| MEALID      | NUMBER(15)          | pk                     |            | 1000   |
| MealType    | VARCHAR2(15)        | nn                     |            | Breakfast                                    |
| MealTime    | VARCHAR2(15)        | nn                     |            | 06:00 AM                                     |
| VolunteerID | CHAR(8)             | fk                     |            | TJ001  |

**ENTITY NAME:** ExtraHelper

**Entity Description:** contains details of people who are interested in helping out with running specific leisure activities sessions. Approximately, there are 10 extra helpers.

| Attribute    | Data type and width | Status (pk/ fk/ nn/ l) | Validation                                  | Example of input and any other relevant info   |
|--------------|---------------------|------------------------|---|--|
| HelperID     | CHAR(8)             | pk                     |   | (First two letters of the word "extra" (CAPITALS) followed by three digit numbers. Must be unique.)<br>Eg: EX001 |
| HelperName   | VARCHAR2(15)        | nn                     |   | Teena  |
| Age          | NUMBER(5)           | nn                     |   | 40   |
| Gender       | CHAR(1)             | nn                     | Must be M (Male) or F (Female) or O (Other) | F  |
| Nationality  | VARCHAR2(15)        | nn                     |   | Italian  |
| PhoneNo      | NUMBER(15)          | nn                     |   | 3457825780   |
| ActivityName | VARCHAR2(15)        | fk                     |   | Tennis   |

## SQL QUERIES

Q1. Find out the Permitted Visitors List of the day of the week (for example, Monday) along with the id number of which resident they are visiting.

```
SELECT VISITORID, VISITORNAME, RESIDENTID, DAYGRANTED
FROM VISITOR
WHERE DAYGRANTED = 'MONDAY';
```

| Results   | Explain     | Describe | Saved SQL  | History    |
|-----------|-------------|----------|------------|------------|
|           |             |          |            |            |
| VISITORID | VISITORNAME |          | RESIDENTID | DAYGRANTED |
| 102       | JANET R     |          | JAM01      | MONDAY     |
| 109       | LUKE B      |          | THO03      | MONDAY     |
| 113       | JOHN A      |          | JUL04      | MONDAY     |
| 117       | CRYSTAL B   |          | ROM05      | MONDAY     |
| 119       | MERIN H     |          | JAS06      | MONDAY     |
| 125       | JOSEPH K    |          | JEN09      | MONDAY     |

6 rows returned in 0.00 seconds [Download](#)

Q2. Find out which is the most popular leisure activity.

```
SELECT ACTIVITYNAME, COUNT(*) "No. of PARTICIPANTS"
FROM PARTICIPATION
GROUP BY ACTIVITYNAME
ORDER BY COUNT(*);
```

| Results        | Explain | Describe            | Saved SQL | History |
|----------------|---------|---------------------|-----------|---------|
| ACTIVITYNAME   |         | No. of PARTICIPANTS |           |         |
| PICTURE PUZZLE |         | 1                   |           |         |
| SOLITAIRE      |         | 1                   |           |         |
| TENNIS         |         | 1                   |           |         |
| MAHJONG        |         | 1                   |           |         |
| CROSSWORD      |         | 2                   |           |         |
| DUMB CHARADES  |         | 3                   |           |         |
| KUNGFU         |         | 3                   |           |         |
| KARATE         |         | 4                   |           |         |

8 rows returned in 0.01 seconds [Download](#)

Q3. Find out if any overspending occurred or not, when conducting the leisure activities.

```
SELECT ACTIVITYNAME, STARTDATE, ACTIVITYBUDGET, AMOUNTSPENT
FROM ACTIVITY
WHERE AMOUNTSPENT > ACTIVITYBUDGET;
```

| Results      | Explain     | Describe       | Saved SQL   | History |
|--------------|-------------|----------------|-------------|---------|
| ACTIVITYNAME | STARTDATE   | ACTIVITYBUDGET | AMOUNTSPENT |         |
| TENNIS       | 01-Jul-2021 | 1200           | 1260        |         |
| KARATE       | 01-Dec-2021 | 3900           | 4000        |         |
| KUNGFU       | 01-Mar-2022 | 3500           | 3600        |         |
| MAHJONG      | 01-Jun-2022 | 900            | 1000        |         |

4 rows returned in 0.01 seconds [Download](#)

Q4. Find out the number of volunteers volunteering for each activity.

```
SELECT ACTIVITYNAME, COUNT(*) "No. of VOLUNTEERS"
FROM VOLUNTEER
GROUP BY ACTIVITYNAME
ORDER BY COUNT(*);
```

| Results   | Explain | Describe          | Saved SQL | History |
|---|---------|-------------------|-----------|---------|
| ACTIVITYNAME  |         | No. of VOLUNTEERS |           |         |
| PICTURE PUZZLE  | 2       |                   |           |         |
| KUNGFU  | 2       |                   |           |         |
| KARATE  | 2       |                   |           |         |
| SOLITAIRE   | 2       |                   |           |         |
| DUMB CHARADES   | 2       |                   |           |         |
| SUDOKU  | 2       |                   |           |         |
| CROSSWORD   | 2       |                   |           |         |
| TENNIS  | 2       |                   |           |         |
| CARROMS   | 2       |                   |           |         |
| MAHJONG   | 2       |                   |           |         |
| LUDO  | 2       |                   |           |         |
| WORD SEARCH   | 2       |                   |           |         |
| 12 rows returned in 0.01 seconds <a href="#">Download</a> |         |                   |           |         |

Q5. Show the individual history of a specific resident.

```
SELECT RESIDENTID, RESIDENTNAME, DATEOFBIRTH, GENDER, NATIONALITY,
DIAGNOSIS,
ACUITYLEVEL
FROM RESIDENT
WHERE RESIDENTID = 'JAS06';
```

[or]

```
SELECT *
FROM RESIDENT
WHERE RESIDENTID = 'JAS06';
```

Results

Explain

Describe

Saved SQL

History

| RESIDENTID | RESIDENTNAME | DATEOFBIRTH | GENDER | NATIONALITY | DIAGNOSIS   | ACUITYLEVEL |
|------------|--------------|-------------|--------|-------------|-------------|-------------|
| JAS06      | JASMINE C    | 01-Oct-1943 | F      | KOREAN      | MEMORY LOSS | WORST       |

1 rows returned in 0.00 seconds

[Download](#)

Q6. Find out which resident signed up for which leisure activity.

```
SELECT RESIDENTID, ACTIVITYNAME
FROM PARTICIPATION
ORDER BY ACTIVITYNAME;
```



| Results         | Explain | Describe   | Saved SQL | History |
|-----------------|---------|--|-----------|---------|
| RESIDENTID      |         | ACTIVITYNAME   |           |         |
| THO03           |         | CROSSWORD  |           |         |
| JUL04           |         | CROSSWORD  |           |         |
| ROM05           |         | DUMB CHARADES  |           |         |
| JAM01           |         | DUMB CHARADES  |           |         |
| BRI08           |         | DUMB CHARADES  |           |         |
| JAS06           |         | KARATE   |           |         |
| RUB10           |         | KARATE   |           |         |
| JEN09           |         | KARATE   |           |         |
| ROS02           |         | KARATE   |           |         |
| RUB10           |         | KUNGFU   |           |         |
| JUL04           |         | KUNGFU   |           |         |
| JEN09           |         | KUNGFU   |           |         |
| gb_a938_sql_s42 |         | gb_a938_sql_s42                                      |           |         |
| en              |         | Copyright © 1999, 2019, Oracle. All rights reserved. |           |         |

Q7. Show the meal time schedule of the residents along with the id number of the volunteer who serves the meals.

SELECT \*  
FROM MEALS;

| Results  | Explain       | Describe | Saved SQL   | History |
|--|---------------|----------|-------------|---------|
| MEALID   | MEALTYPE      | MEALTIME | VOLUNTEERID |         |
| 1000   | MORNING TEA   | 06:00 AM | JR001       |         |
| 1001   | BREAKFAST     | 09:00 AM | AK006       |         |
| 1002   | LUNCH         | 12:30 PM | IT008       |         |
| 1003   | AFTERNOON TEA | 03:30 PM | BG010       |         |
| 1004   | DINNER        | 06:00 PM | KK002       |         |
| 5 rows returned in 0.01 seconds <a href="#">Download</a> |               |          |             |         |

----- X ----- X -----