

Database in Python -Week 8

Database (MySQL) with Python

Exercise: Hospital Information System

1. We are implementing the Hospital Information System.
2. I have created two tables, **Hospital** and **Doctor**.
3. You need to create those two tables on your database server before starting.

SQL Queries for data preparation

Please find below the SQL queries to prepare the required data for our exercise:

1. Create Database: CREATE database python_db;

2. Create Hospital Table:

```
CREATE TABLE Hospital (  
    Hospital_Id INT UNSIGNED NOT NULL,  
    Hospital_Name TEXT NOT NULL,  
    Bed_Count INT,  
    PRIMARY KEY (Hospital_Id));  
  
INSERT INTO Hospital (Hospital_Id, Hospital_Name, Bed_Count)  
VALUES  
( '1', 'Mayo Clinic', 200),  
( '2', 'Cleveland Clinic', 400),  
( '3', 'Johns Hopkins', 1000),  
( '4', 'UCLA Medical Center', 1500);
```

3. Create Doctor Table:

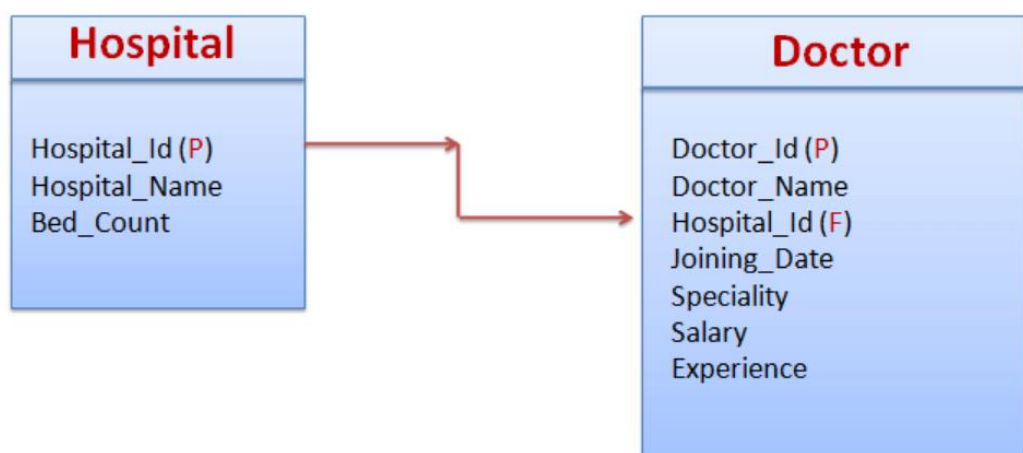
```
CREATE TABLE Doctor (  
    Doctor_Id INT UNSIGNED NOT NULL,  
    Doctor_Name TEXT NOT NULL,  
    Hospital_Id INT NOT NULL,  
    Joining_Date DATE NOT NULL,  
    Speciality TEXT NULL,  
    Salary INT NULL,  
    Experience INT NULL,  
    PRIMARY KEY (Doctor_Id)  
);
```

```

INSERT INTO Doctor (Doctor_Id, Doctor_Name, Hospital_Id, Joining_Date, Speciality, Salary,
Experience)
VALUES
('101', 'David', '1', '2005-2-10', 'Pediatric', '40000', NULL),
('102', 'Michael', '1', '2018-07-23', 'Oncologist', '20000', NULL),
('103', 'Susan', '2', '2016-05-19', 'Garnacologist', '25000', NULL),
('104', 'Robert', '2', '2017-12-28', 'Pediatric ', '28000', NULL),
('105', 'Linda', '3', '2004-06-04', 'Garnacologist', '42000', NULL),
('106', 'William', '3', '2012-09-11', 'Dermatologist', '30000', NULL),
('107', 'Richard', '4', '2014-08-21', 'Garnacologist', '32000', NULL),
('108', 'Karen', '4', '2011-10-17', 'Radiologist', '30000', NULL);

```

SQL data model that we are using for this exercise:



1. Connect to your database server and print its version

Note:

- Write SQL query to get the database server version.
- Connect to the database and use cursor.execute() to execute this query.
- Next, use cursor.fetchone() to fetch the record.

2. Fetch Hospital and Doctor Information using hospital Id and doctor Id

Implement the functionality to read the details of a given doctor from the doctor table and Hospital from the hospital table. i.e., read records from Hospital and Doctor Table as per given hospital Id and Doctor Id.

Given:

```
def get_hospital_detail(hospital_id):
```

```
    #Read data from Hospital table
```

```
def get_doctor_detail(doctor_id):
```

```
    # Read data from Doctor table
```

```
get_hospital_details(2)
```

```
get_doctor_details(105)
```

Hint:

- Connect to python_db and use **cursor.execute()** to execute the parameterized query.
- Next, use **cursor.fetchall()** to fetch the record.
- Next, iterate record/resultSet to print all column values

Expected Output:

```
Question 2: Read given hospital and doctor details
```

```
Printing Hospital record
```

```
Hospital Id: 2
```

```
Hospital Name: Cleveland Clinic
```

```
Bed Count: 400
```

```
Printing Doctor record
```

```
Doctor Id: 105
```

```
Doctor Name: Linda
```

```
Hospital Id: 3
```

```
Joining Date: 2004-06-04
```

```
Specialty: Garnacologist
```

```
Salary: 42000
```

```
Experience: None
```

3. Get the list of doctors as per the given specialty and salary

Note: Fetch all doctors whose salary higher than the input amount and specialty is the same as the input specialty.

Given:

```
def get_specialist_doctors_list(specialty, salary):
```

```
    #Fetch doctor's details as per Speciality and Salary
```

```
get_specialist_doctors_list("Garnacologist", 30000)
```

Hint:

Define the parameterized select query to fetch data from the table as per the given specialty and salary.

- Next, use the **cursor.execute()** to execute the query.
- Next, get all records using **cursor.fetchall()**
- Iterate those records and print each row.

Expected output:

```
Printing doctors whose specialty is Garnacologist and salary greater than 30000
Doctor Id: 105
Doctor Name: Linda
Hospital Id: 3
Joining Date: 2004-06-04
Specialty: Garnacologist
Salary: 42000
Experience: None

Doctor Id: 107
Doctor Name: Richard
Hospital Id: 4
Joining Date: 2014-08-21
Specialty: Garnacologist
Salary: 32000
Experience: None
```

4. Get a list of doctors from a given hospital

Note: Implement the functionality to fetch all the doctors as per the given Hospital Id. **You must display the hospital name of a doctor.**

Given:

```
def get_doctors(hospital_id):
```

```
#Fetch All doctors within given Hospital
```

```
get_doctors(2)
```

Hint:

- Define the parameterized select query to get the hospital name as per the given hospital id.
- Next, use the **cursor.execute()** to execute this query and store the hospital name in a variable.
- Define the parameterized select query to fetch all doctors from the doctor table as per the given hospital id.
- Next, use the **cursor.execute()** to execute the query.
- Next, get all records using **cursor.fetchall()**
- Iterate those records and print each column. Also, display the hospital name we fetched in the first query in each doctor's entry

5. Update doctor experience in years

The value of the experience column for each doctor is **null**. Implement the functionality to update the experience of a given doctor in years.

Given:

```
def update_doctor_experience(doctor_id):
```

```
# Update Doctor Experience in Years
```

```
update_doctor_experience(101)
```

Hint:

- The doctor table has the joining date for each doctor.
- Get a given doctor's joining date.
- To get a difference in a year, we can calculate the difference between today's date and joining-date in years.
- After calculating the difference in a year, you can execute the update table query to update the experience of a given doctor.

Expected Output:

```
Printing Doctor record

Doctor Id: 101
Doctor Name: David
Hospital Id: 1
Joining Date: 2005-02-10
Specialty: Pediatric
Salary: 40000
Experience: None
```

After Output:

```
Printing Doctor record

Doctor Id: 101
Doctor Name: David
Hospital Id: 1
Joining Date: 2005-02-10
Specialty: Pediatric
Salary: 40000
Experience: 15
```