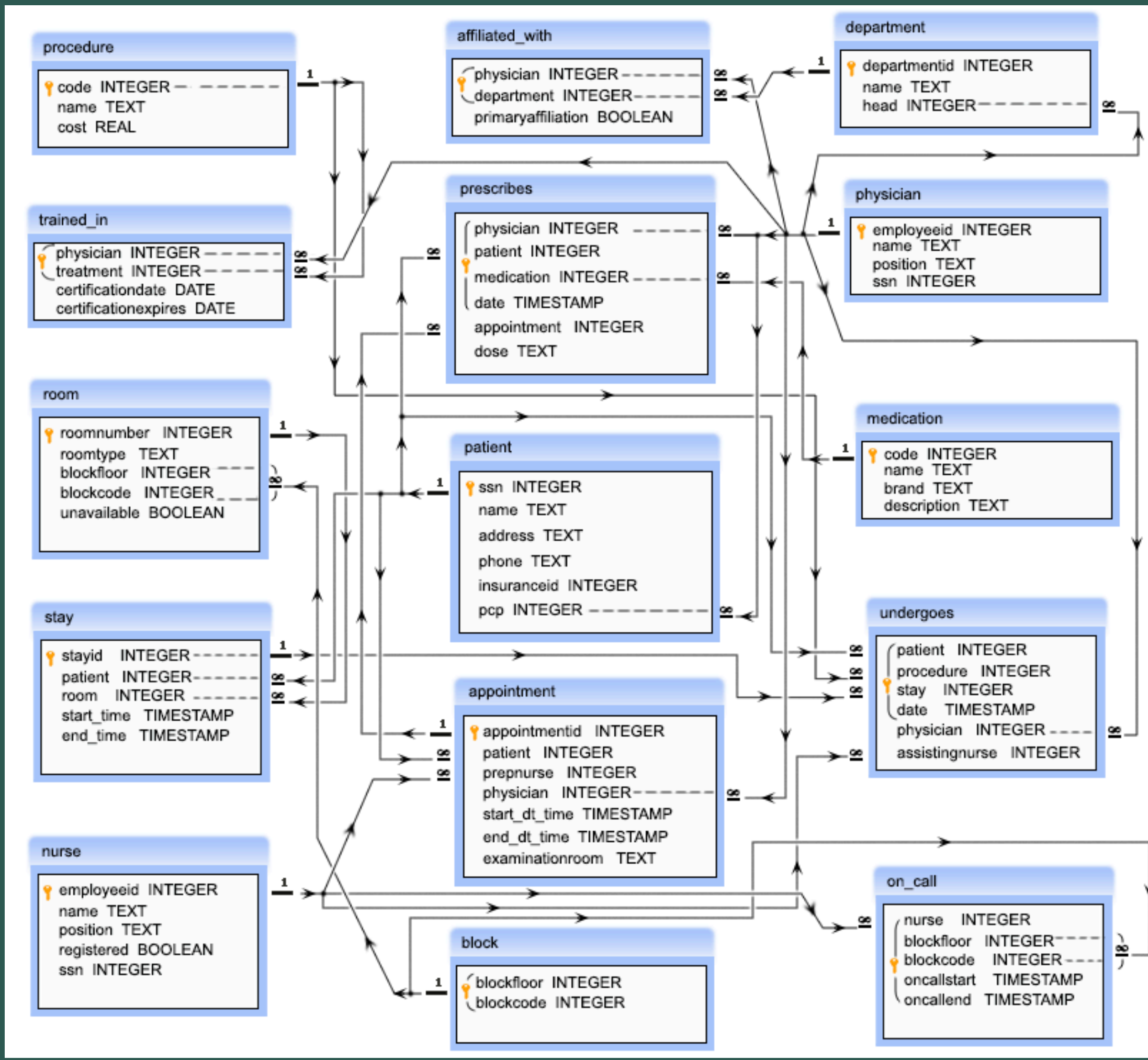
Analysis On Hospital DataBase



Analysis On Hospital DataBase

Inner Join

Question 1: Write a query to retrieve details of all appointments along with the physician's and patient's names.

Query:

```
SELECT
 Appointment.AppointmentID,
 Physician.Name,
 Patient.Name
FROM Appointment
INNER JOIN Physician
  ON Physician.EmployeeID = Appointment.Physician
INNER JOIN Patient
  ON Patient.SSN = Appointment.Patient;
```

Analysis On Hospital DataBase

LEFT Join

Question 2: Retrieve all nurses and their on-call schedules, including those who may not have any on-call assignments.

```
SELECT *
FROM Nurse
LEFT  JOIN On_Call
 ON On_Call.Nurse = Nurse.EmployeeID;
```

GROUP BY WITH HAVING CLAUSE

Question 3: Show the number of procedures each physician is trained in, but only show physicians who are trained in more than 2 procedures.

```
SELECT
 Proceduretable.Name,
 COUNT(Trained_In.Treatment) AS no_of_procedure
FROM Proceduretable
INNER  JOIN Trained_In
 ON Proceduretable.Code = Trained_In.Treatment
GROUP  BYProceduretable.Name
HAVING COUNT(Trained_In.Treatment) > 2;
```

Analysis On Hospital DataBase

SUBQUERY IN FROM CLAUSE

Question 4: Retrieve the name of the patient and the details of the most expensive procedure they underwent during their stay, including the procedure code and cost.

```
SELECT TOP(1)
 patient_name,
 ProcedureCode,
 Cost
FROM (
SELECT
 Patient.Name as patient_name,
 Undergoes.ProcedureCode,
 Proceduretable.Cost
FROM Patient
INNER  JOIN Undergoes
 ON Patient.SSN = Undergoes.Patient
INNER  JOIN Proceduretable
ON Undergoes.ProcedureCode = Proceduretable.Code) AS sub_query
ORDER  BY sub_query.Cost DESC;
```

Analysis On Hospital DataBase

SUBQUERY IN WHERE CLAUSE

Question 5: List all physicians who have prescribed a medication "Awakin" in its description.

```
SELECT Physician.Name
FROM Prescribes
INNER  JOINPhysician
 ON Prescribes.Physician = Physician.EmployeeID
WHERE Prescribes.Medication = (
 SELECT Code
 FROM Medication
 WHERE Name = 'Awakin');
```

UNIQUE CONSTRAINT

Question 6: Write a query to list all physicians and nurses, combining their names in a single result set.

```
SELECT Physician.Name, 'Physician' AS role
FROM Physician
UNION
SELECT Nurse.Name, 'Nurse' AS role
FROM Nurse
```

Analysis On Hospital DataBase

CTE (COMMON TABLE EXPRESSIONS)

Question 7: Use a CTE to list all nurses who assisted in procedures, along with the number of procedures they assisted in.

```
WITH nurse_assisted AS (
 SELECT
  n.Name AS NurseName,
  COUNT(u.ProcedureCode) AS ProceduresAssisted
 FROM Nurse n
 JOIN Undergoes u
  ON n.EmployeeID = u.AssistingNurse
 GROUP BY n.Name
)

SELECT
 NurseName,
 ProceduresAssisted
FROM nurse_assisted;
```

Analysis On Hospital DataBase

CASES IN SQL

Question 8: Write a query to classify physicians based on the number of procedures they are trained in (<3: 'Basic', 3-5: 'Intermediate', >5: 'Advanced').

```
SELECT Physician.Name, COUNT(Proceduretable.Name) AS num_proc,
 CASE
  WHEN count(Proceduretable.Name) < 3 THEN 'Basic'
  WHEN count(Proceduretable.Name) >= 3
  AND count(Proceduretable.Name) <= 5 THEN 'Intermediate'
  WHEN count(Proceduretable.Name) > 5 THEN 'Advance'
 END  AS no_of_proc
FROM physician
INNER  JOINtrained_in
 ON Physician.EmployeeID = Trained_In.Physician
INNER  JOINProceduretable
 ON Trained_In.Treatment = Proceduretable.Code
GROUP  BYPhysician.Name
```

Analysis On Hospital DataBase

COALESCE FUNCTION

Question 9: Retrieve all patients, showing their primary care physician (PCP). If a PCP is not assigned, display "No PCP".

```
SELECT
    patient.name AS PatientName,
    COALESCE(physician.name, 'No PCP') AS PrimaryCarePhysician
FROM
    patient
 LEFT JOIN physician
      ON patient.pcp = physician.employeeid;
```

INDEXES IN SQL

Question 10: Create an index on the Stay table's Room column to optimize queries that search by room number.

```
CREATE INDEX room_number_index
ON Stay (room);
```

Analysis On Hospital DataBase

VIEWS IN SQL

Question 11: Create a view to simplify the retrieval of appointment information, including the patient's and physician's names and the appointment start time.

```
CREATE VIEW AppointmentInfo AS
SELECT
 ap.AppointmentID,
 pt.Name AS PatientName,
 p.Name AS PhysicianName,
 ap.Start AS AppointmentStartTime
FROM Appointment ap
JOIN Patient pt
 ON ap.Patient = pt.SSN
JOIN Physician p
 ON ap.Physician = p.EmployeeID;
```

Analysis On Hospital DataBase

STORED PROCEDURES

Question 12: Write a stored procedure that takes a physician's ID and retrieves all procedures that physician has performed.

```
CREATE PROCEDURE get_physician_procedures
    @PhysicianID INT
AS
BEGIN
    SELECT
        pr.Code AS ProcedureCode,
        pr.Name AS ProcedureName,
        pr.Cost AS ProcedureCost,
        u.Date AS ProcedureDate
    FROM
        Undergoes u
    JOIN
        Proceduretable pr
    ON u.ProcedureCode = pr.code
    WHERE
        u.physician = @PhysicianID;
END;


EXEC get_physician_procedures 3;
```

Thank You So Much

You may find the source code with Tables, Data for the Tables and Complete Code on my github link in the description