Assignment -01

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Subject :- Database management system

Subject code :- CSA0593

Date: 13-11-2024 ASSIGNMENT-01

B. Lakshmi Anjali
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1. Develop a database for managing student housing, including rooms, residents, maintenance requests, and staff assignments.

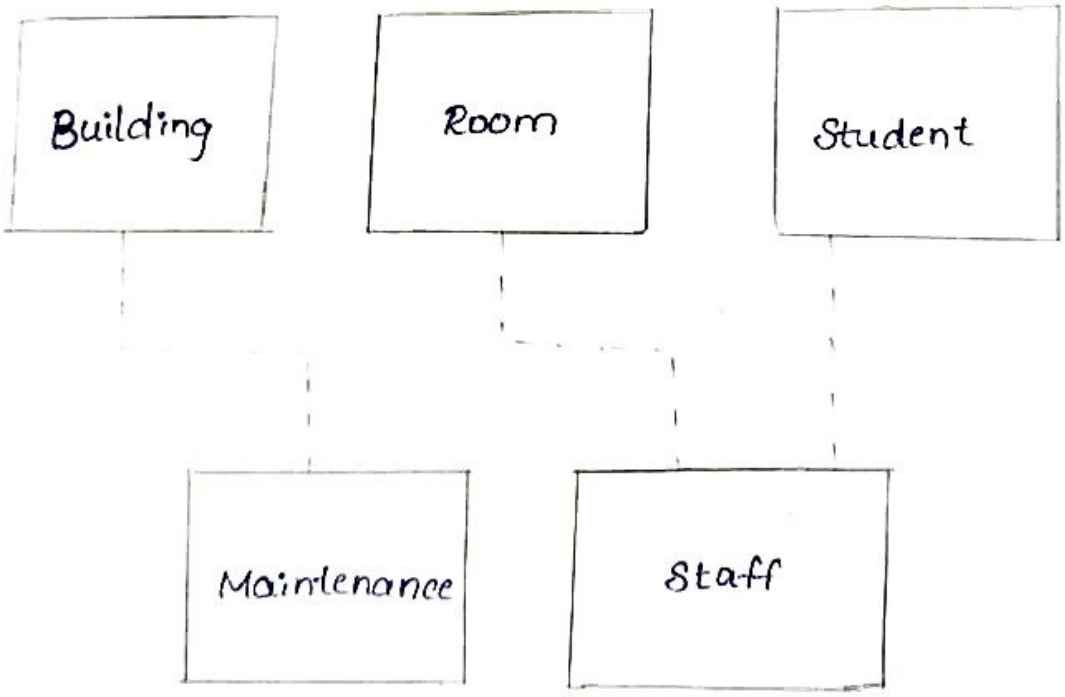
Requirements :- * Model tables for building rooms, students, maintenance requests, and staff.

*write stored procedures for processing maintenance requests and assigning rooms to students

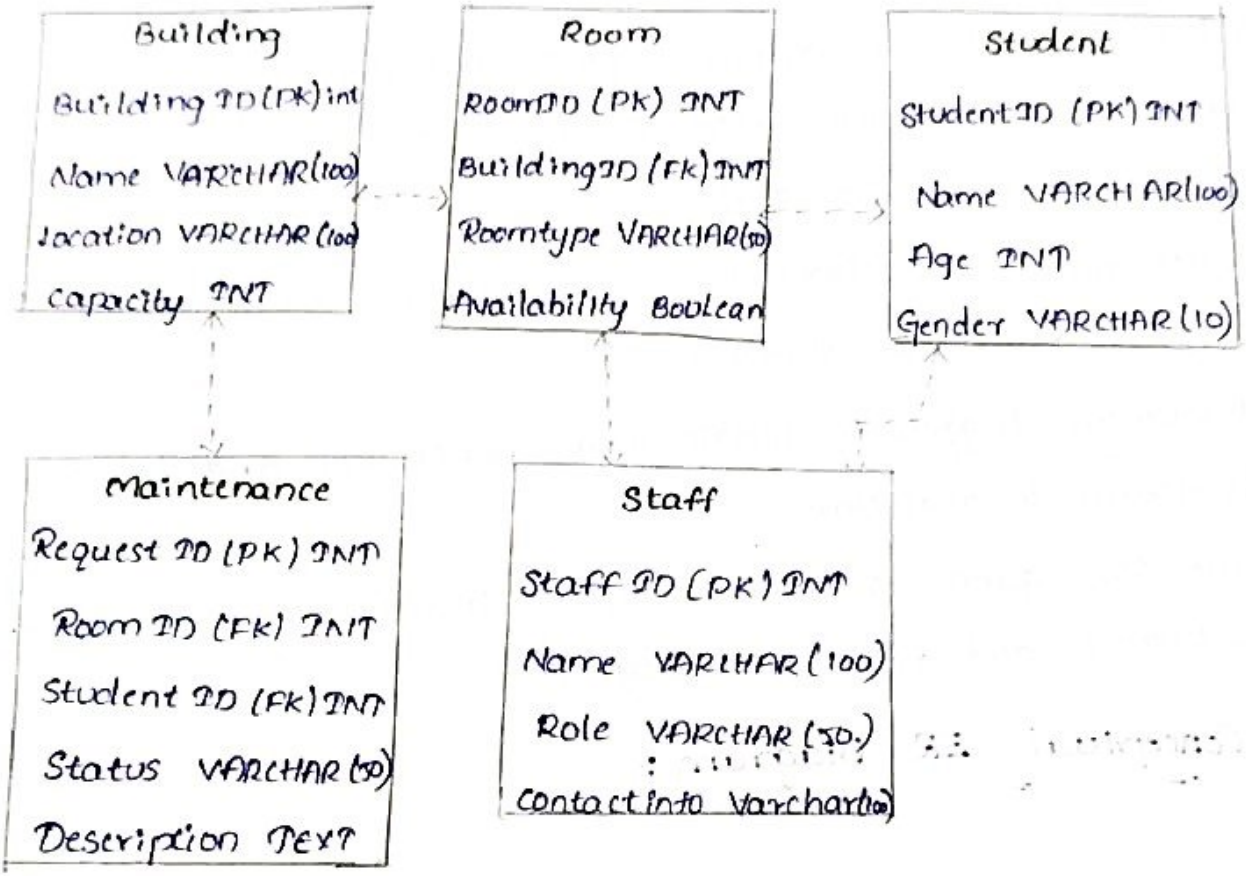
*Implement triggers to update room availability and track occupancy in real-time.

*Write SQL queries to generate reports on occupancy rates, pending maintenance, and resident demographics.

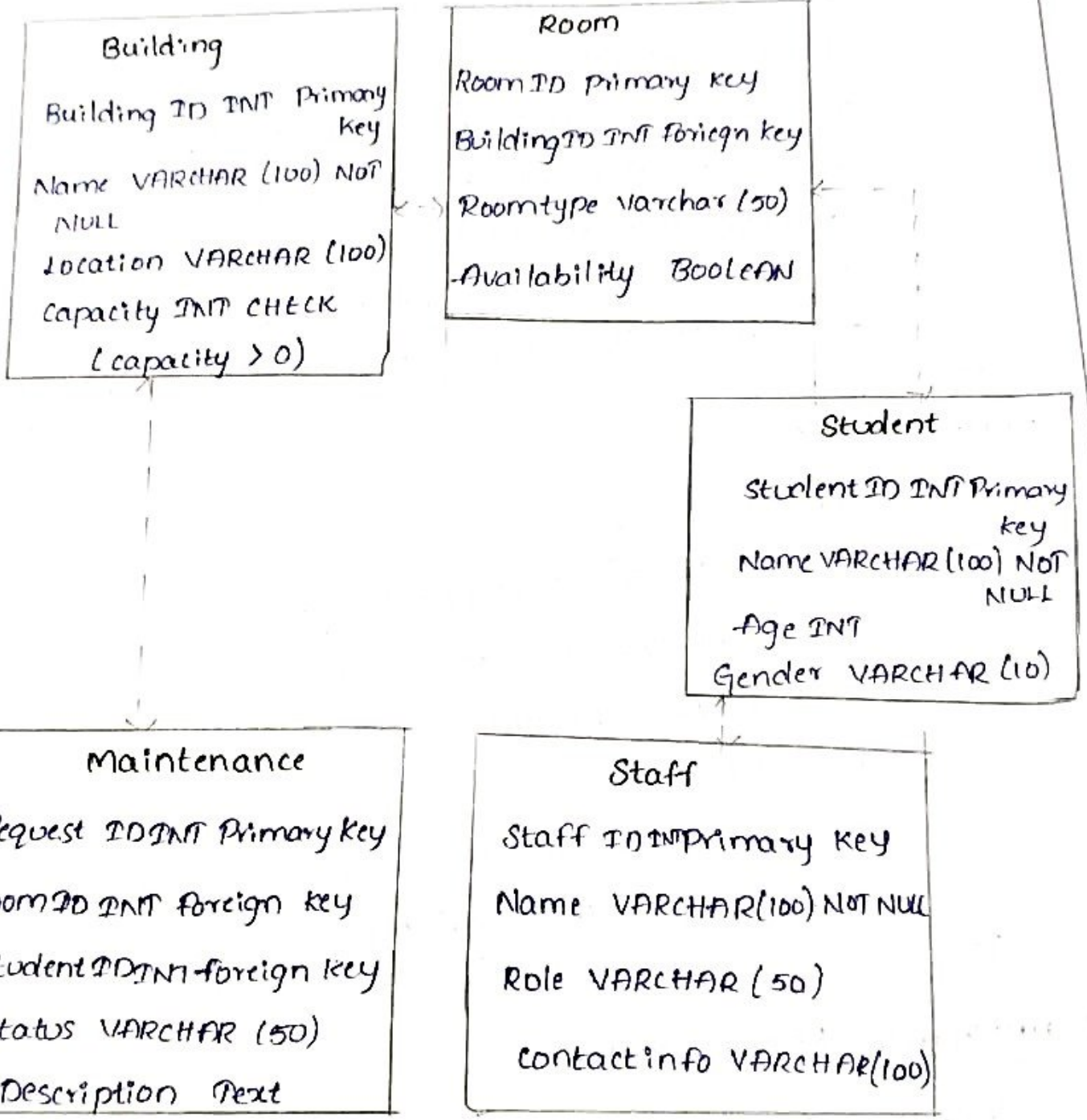
Soli- Conceptual ER Diagram :-



Logical ER DIAGRAM:



Physical ER DIAGRAM



Building Table

```
Create Table Buildings (
        building_id INT Primary key,
        building_Name VARCHAR (100) NOT NULL;
          Location varchar (100) NOT NULL
);
```

Rooms Table

```
CREATE TABLE Rooms (
        room_id INT PRIMARY KEY,
        building_Id INT,
        room_number VARCHAR(10) NOT NULL,
        room_type VARCHAR(50) NOT NULL,
        capacity INT NOT NULL,
        availability_status BOOLEAN DEFAULT TRUE,
        FOREIGN KEY (building_id) REFERENCES Buildings(building_id)
);
```

Students Table

```
CREATE TABLE Students(
        Student_id INT PRIMARY KEY,
        name VARCHAR(100) NOT NULL,
        contact_info VARCHAR(100),
        room_id INT,
        date_of_occupancy DATE DEFAULT CURRENT_DATE,
        FOREIGN KEY (room_id) References Rooms (room_id)
);
```

Maintenance Requests Table.

```
CREATE TABLE MaintenanceRequests (
        request_id INT PRIMARY KEY,
        room_id INT,
        Staff_id INT,
        request_date DATE DEFAULT CURRENT_DATE,
        Status VARCHAR(20) DEFAULT 'Pending',
```

```
    issue_details TEXT,
    FOREIGN KEY (room_id) REFERENCES Rooms (room_id),
    FOREIGN KEY (staff_id) REFERENCES Staff (staff_id)
);
```

Staff Table

```
CREATE TABLE Staff (
    Staff_id INT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    role VARCHAR (50),
    contact_info VARCHAR (100)
);
```

Stored Procedures

```
CREATE PROCEDURE AssignRoomToStudent (IN Student_name
VARCHAR (100), IN selected_room_Id INT BEGIN.
    DECLARE Student_id INT:
    INSERT INTO STUDENTS (name, room_id, date_of_occupancy)
    VALUES (student_name, selected SET Student_id =
        LAST_INSERT_ID():
    UPDATE Rooms SET availability_status = FALSE WHERE
    room_id = Selected_room_id;
DELIMITER;
```

Process Maintenance Request

```
CREATE PROCEDURE ProcessMaintenanceRequest (IN room_id INT,
  IN staff_id INT, IN issue TEXT)
BEGIN
    INSERT INTO NaintenanceRequests (room_id, staff_id, request
      _date, status, issue_detail).
```

```
VALUES (room_id, staff_id, CURRENT_DATE, 'Pending', issue);
DELIMITER ;
```

Triggers

```
CREATE TRIGGER UpdateRoomavailability On checkout
AFTER DELETE ON Students
  FOR EACH ROW
  BEGIN
      UPDATE Rooms SET availability-status = TRUE WHERE room_
      id = OLD.room_id ;
    END
DELIMITER ;
```

Track Maintenance Request Completion

```
CREATE TRIGGER Track Maintenance completion
AFTER UPDATE ON Maintenance Requests
  FOR EACH ROW
  BEGIN
      IF New.status= 'completed' THEN
          UPDATE Rooms SET availability -Status=TRUE
      WHERE Room_id = New.room_id;
          END IF;
    END
DELIMITER;
```

```
(RoomToStudent (IN Student_name VARCHAR(100), IN
  Selected_room_id INT)
```

Conclusion :

These ERD's, along with SQL code for tables, stored procedures, triggers and analytical queries, provide a complete Student Housing management database that supports real-time occupancy tracking, room assignment, maintenance requests, and useful reports.