

Assigment

Name : B. Lakshmi Anjali

Reg No : 192311344

Subject : Database management system

Subject code : CS00593

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

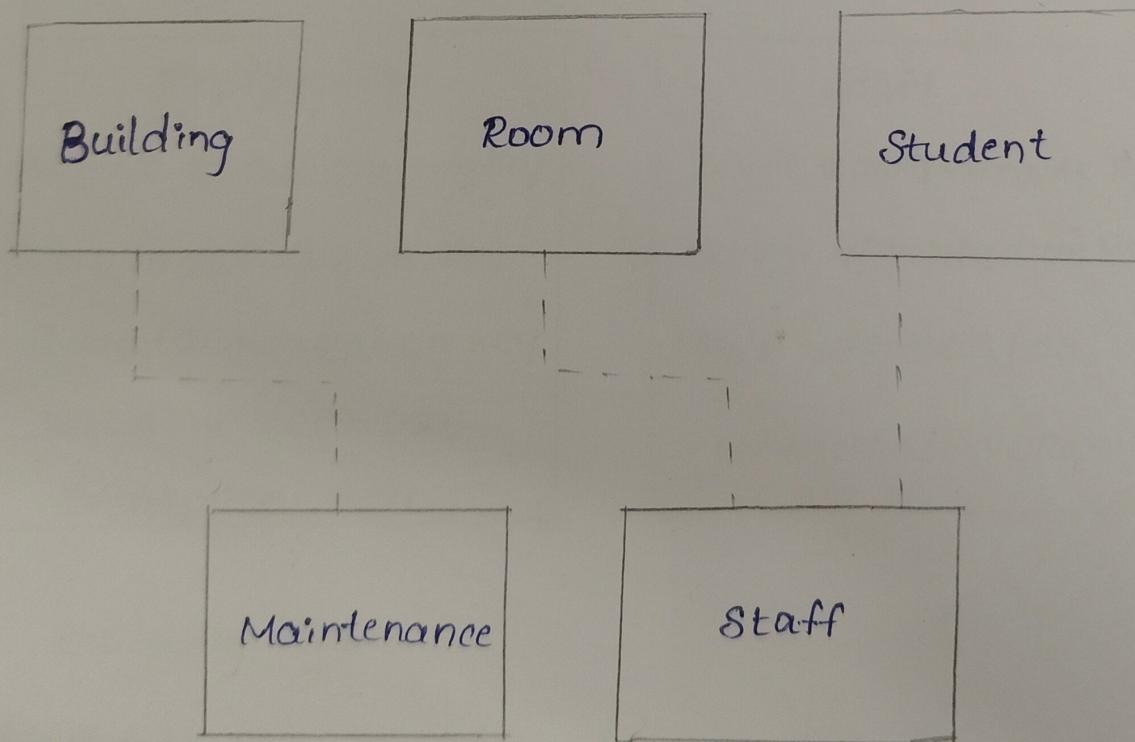
Requirements :- * Model tables for building rooms, students, maintenance requests, and staff.

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

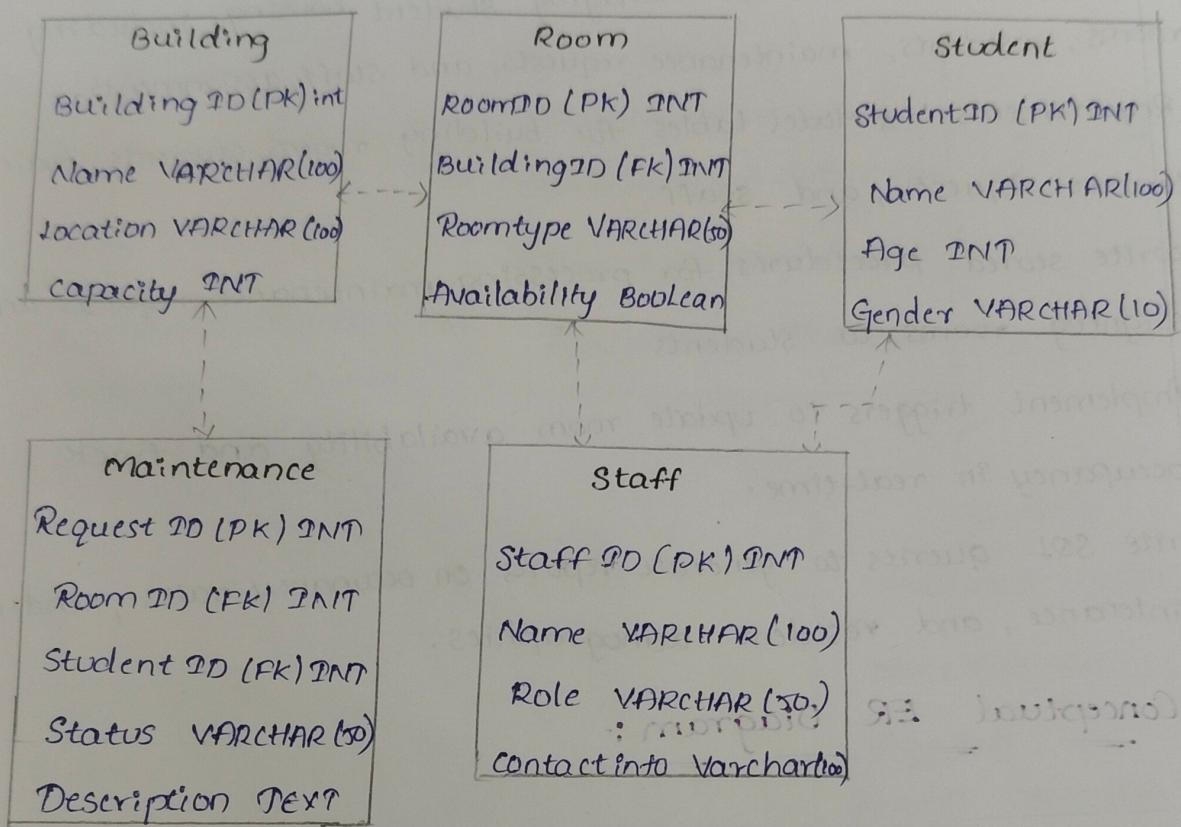
* Implement triggers to update room availability and track occupancy in real-time.

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

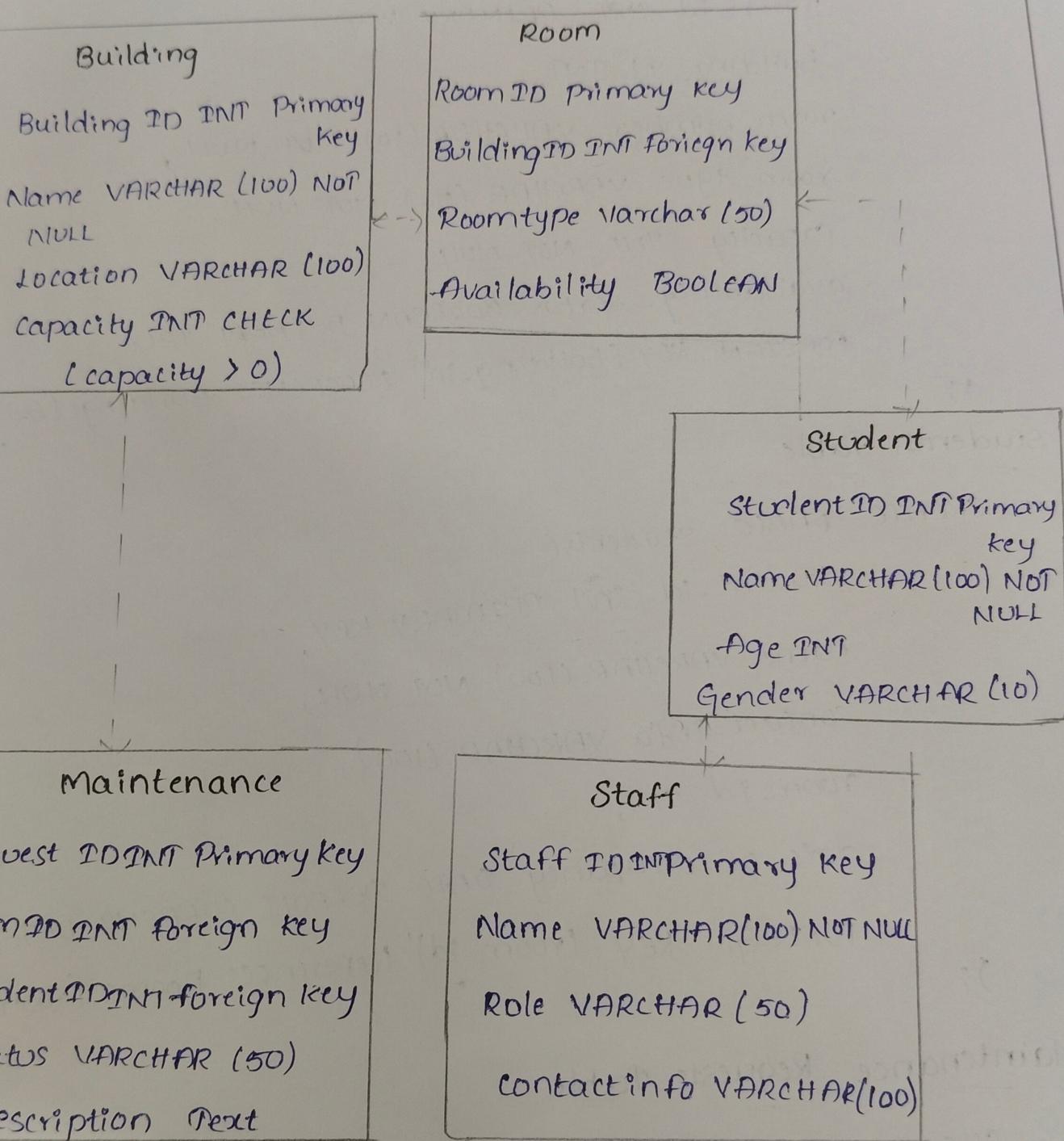
Conceptual ER Diagram :-



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(400)  
);
```

Stored Procedures

```
CREATE PROCEDURE Assign RoomToStudent (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 Process Maintenance Request (IN room_id INT  
IN staff_id INT, IN issue TEXT)  
BEGIN  
    INSERT INTO Maintenance Requests (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 trackMaintenanceCompletion

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 ;

~~(Room TO Student (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.