BIRMINGHAM CITY University

ERM Proposal (individual)

Database and Web Application Development

DIG5127

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Introduction

This report aims to propose an Entity-Relationship Model (ERM) for a Hostel Management System. PHP will be used in the development of the application, and an SQL database will handle data management. As an online application's fundamental stage, the "Campus Stay" Hostel Management System's structure is the main subject of this research. The main characteristics, entities, qualities, and the connections between them will all be covered, in addition to the logical and physical schemas. The major objective is to provide a user-friendly, scalable, and effective system to oversee all aspects of hostel management, such as room assignment, fee administration, student housing, and maintenance requests.

Proposed Application

Administrators and students can effectively manage hostel-related activities with the help of the web-based Hostel Management System Its goal is to make the process of managing student housing smooth and intuitive. Registering, managing accommodations, paying fees, and submitting maintenance requests are all available to users. They will also have tools to monitor their past room assignments and fee payments.

Key Features

1. Room Allocation: To ensure a seamless check-in procedure, administrators can allocate rooms to visitors in accordance with booking information and availability.

2. Occupancy Tracking: Effective room allocation is ensured and overbooking is avoided with real-time occupancy monitoring.

3. Check-in and Check-out: It is simple for visitors to check in when they arrive and out when they depart, and the occupancy status of their rooms is updated accordingly.

4. Room Maintenance: Administrators have the power to designate a room as requiring maintenance, which will temporarily remove it from use until the work is finished.

Logical Schema

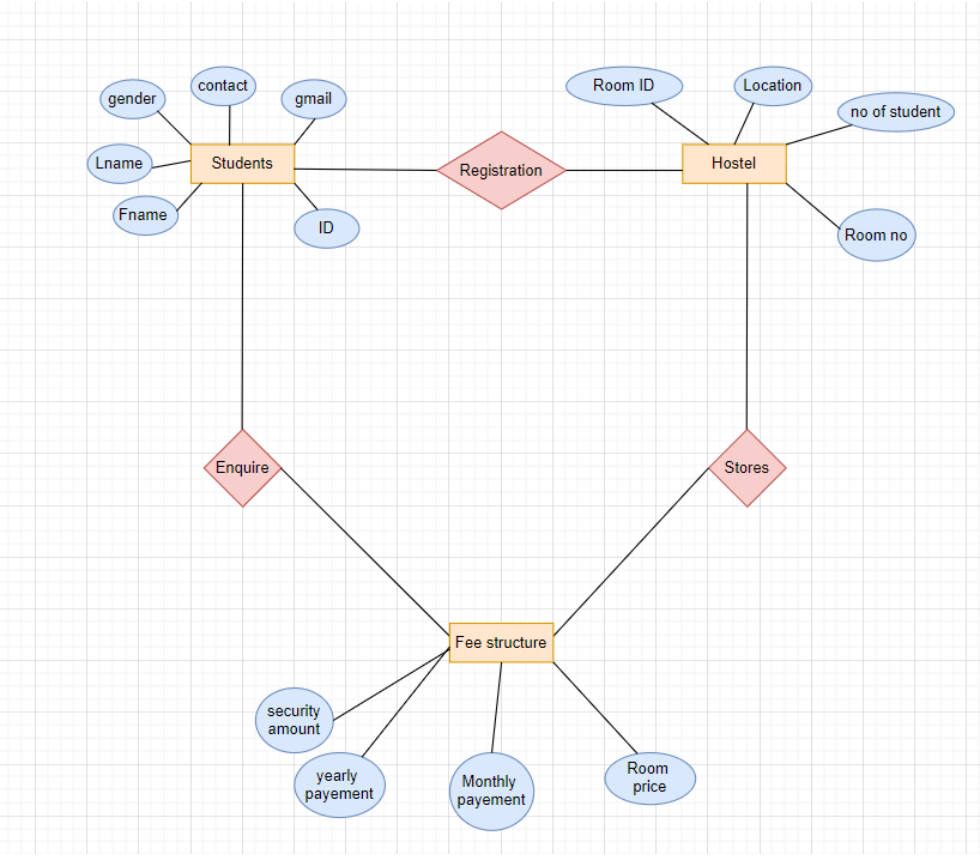

Figure 1: Erm diagram of Hostel management system

Entities

A. Student's Entity:

ID (primary key): A special number given to every student.

First Name (fname): The student's first name.

Last Name (lname): The student's last name, also known as their surname.

Contact Number: The number that can be used to get in touch with the student.

Gender: The student's gender.

Email (gmail): The student's email address.

B. Hostel Entity:

Room ID (primary key): A special number allotted to every hostel room.

Location: The hostel's actual address.

Total number of students: the total number of pupils.

Room Number: The hostel's unique room number.

C. Fee structure entity:

Security Amount: Each student must provide a refundable security deposit.

Yearly Payment: The entire amount of fees that students must pay on a yearly basis.

Monthly Payment: The total amount of the cost that students must pay each month.

Room Price: The price for a certain kind of hostel room

Physical Schema

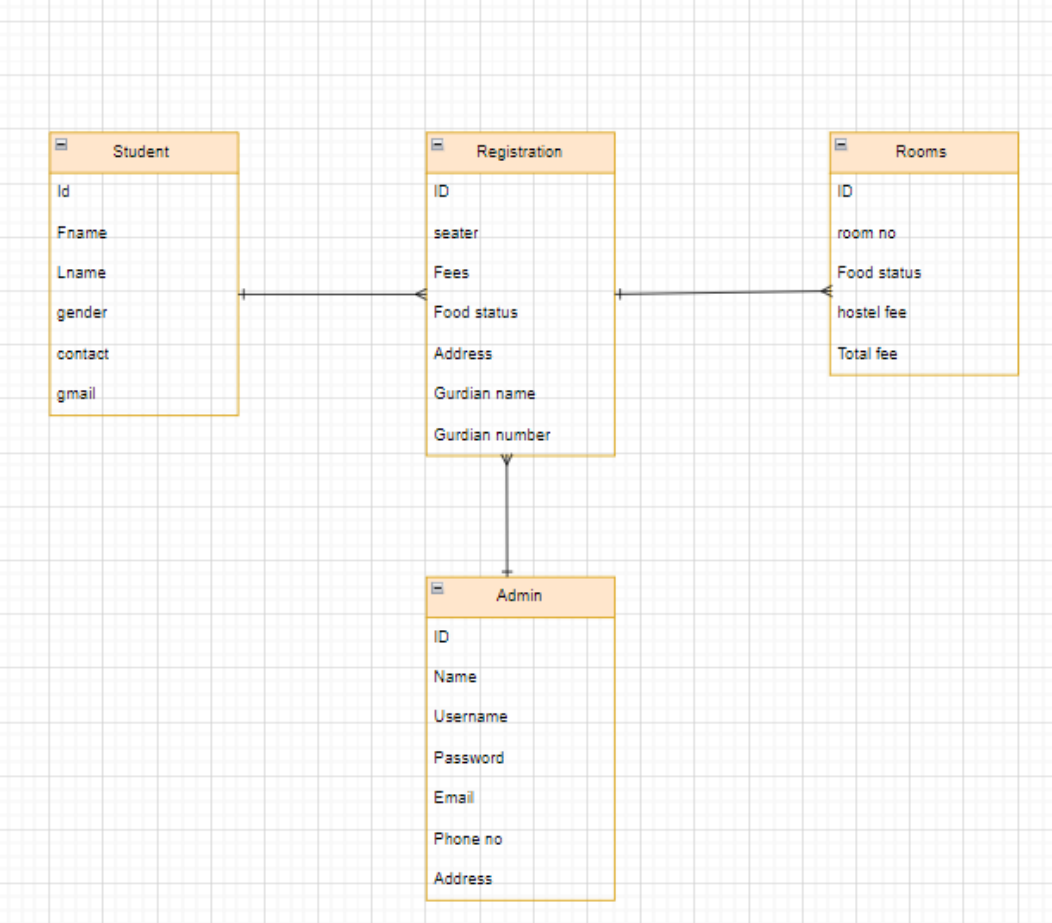

Figure 2: database Schema

Relationships

A. Relationship Between Student and Registration:

A one-to-many relationship can arise from the fact that a single student has several registrations. Each student will be able to register more than once for various terms or events thanks to this link.

B. Registration - Room Relationship:

A single room is linked to each registration, although over time, a room may be connected to more than one registration. As a result, there is a one-to-many relationship between registrations and rooms, meaning that different students may use each room at different times.

C. Admin-Registration Relationship:

An admin might establish a one-to-many relationship by managing several registrations. This guarantees that each administrator can manage several students' registrations.

Conclusion

The all-inclusive hostel management system makes it easier to handle administrative duties and student housing efficiently. The system guarantees the effective processing of accommodation requests using pre-existing relationships, such as multiple registrations for students and registrations associated with rooms. The solution increases operational efficiency and improves user experience with its user-friendly interfaces for students and powerful features for administrators. To further improve its usefulness and convenience, future improvements might include the addition of mobile accessibility and online payment features.