Homework Assignment 2

Student Housing and Residence Life Database

***Description of the Company:***

Student Housing and Residence Life is part of University Housing and Maintenance Department providing on campus living to the college students. Students can enroll in the various housing options provided. The database keeps tracks of accommodation provided to students and helps maintain information regarding issues in the houses. This organization helps students have an amazing experience during their stay in college.

***Need for a database:***

A well-planned database is needed by the Housing department to keep track of students who enroll in on-campus stay. There are dorms that need immediate attention which are attended by supervisors as directed by managers. All the data related to student accommodation and their issues will have to be stored in a database.

***Business Requirements:***

1. Many students report to one supervisor.
2. One supervisor attends to many students.
3. One manager manages many supervisors.
4. One supervisor is managed by one manager.
5. One supervisor attends to many dorms.
6. One dorm is attended by many supervisors.

***Entities:***

1. **Student**- This entity collects each student data to keep track of them on campus stay.

**Attributes-** STUDENT(STU\_FIRSTNAME, STU\_LASTNAME, STU\_ADMIT, STU\_DOB, STU\_PHNO)

**Description of attributes:**

**-**STU\_FIRSTNAME: This attribute mentions student’s first name.

**-**STU\_LASTNAME: This attribute mentions student’s last name.

**-**STU\_ADMIT :This attribute mentions if a student is freshmen/junior/sophomore /senior.

**-**STU\_DOB: This attribute mentions student’s date of birth.

**-**STU\_PHNO: This attribute mentions student’s phone number.

**Data types included:**

-STU\_FIRSTNAME, STU\_LASTNAME, STU\_ADMIT: varchar

-STU\_DOB: date

-STU\_PHNO: int

1. **Manager**- This entity holds the manager data who handles if there is any issue in the dorms.

**Attributes**- MANAGER(MAN\_ID, MAN\_FIRSTNAME, MAN\_LASTNAME, MAN\_PHNO, MAN\_LOCATION, MAN\_ROOMNO)

**Description of attributes:**

MAN\_ID: This attribute mentions manager ID.

MAN\_FIRSTNAME: This attribute mentions manager first name.

MAN\_LASTNAME: This attribute mentions manager last name.

MAN\_PHNO: This attribute mentions manager phone number.

MAN\_LOCATION: This attribute mentions manager location(his office).

MAN\_ROOMNO: This attribute mentions manager room no.

**Data types included:**

-MAN\_FIRSTNAME, MAN\_LASTNAME, MAN\_LOCATION: varchar

-MAN\_ID, MAN\_PHNO, MAN\_ROOMNO: int

1. **Supervisor-** This entity records the supervisor data who attends the issue in the dorms and reports to manager.

**Attributes-**SUPERVISOR(SUP\_ID, SUP\_FIRSTNAME, SUP\_LASTNAME, SUP\_PHNO)

**Description of attributes:**

SUP\_ID: This attribute mentions supervisor ID.

SUP\_FIRSTNAME: This attribute mentions supervisor first name.

SUP\_LASTNAME: This attribute mentions supervisor last name.

SUP\_PHNO: This attribute mentions supervisor phone number.

**Data types included:**

-SUP\_FIRSTNAME, SUP\_LASTNAME: varchar

-SUP\_ID, SUP\_PHNO: int

1. **Dorm-** This entity holds information of housing where the students reside.

**Attributes-** DORM(DORM\_LOCATION, DORM\_ROOMNO, DORM\_NAME, DORM\_TYPE, DORM\_PRICE)

**Description of attributes:**

DORM\_LOCATION: This attribute mentions the location of the dorm.

DORM\_ROOMNO: This attribute mentions the room number of the dorm.

DORM\_NAME: This attribute mentions the name of dorm.

DORM\_TYPE: This attribute mentions the number of rooms.

DORM\_PRICE: This attribute mentions the price of the dorm.

**Data types included:**

-DORM\_LOCATION, DORM\_NAME, DORM\_TYPE- varchar

-DORM\_ROOMNO, DORM\_PRICE- int

***Relationship description:***

1. **Relation between Student and Supervisor:**

Many students are reported to one supervisor, so here it is M:1 relation and one supervisor will attend to many students, so here it is 1:M relation. After evaluating the relations from both sides, it is M:1 relation.

1. **Relation between Manager and Supervisor:**

Each manager manages many supervisors, so it is 1:M relation. Many supervisors are managed by one manager, it is M:1 relation. After evaluating from both sides, it is 1:M relation.

1. **Relation between Supervisor and Dorm:**

One supervisor attends work in many dorms, so it is 1:M relation. Work in one dorm is attended by many supervisors, it is 1:M relation. After evaluating from both sides, it is M:N relation.

***Users of the database:***

The users who can access the Student Housing and Residence Life Database are the manager, supervisor, administrator.

1. **Manager:** The manager is given access to the database to check the records of the students, to see the work order that need to be attended in dorms by the supervisors.
2. **Supervisor:** The supervisor is given limited access to the database to process the work orders requested by the students in dorms.
3. **Administrator:** Admin is like the owner of database who is given complete access to the database. The admin maintains the database, recovers if any data is lot, allocates storage and looks for any requirements.

***DBMS Architecture:***

For the Student Housing and Residence Life database, a three-tier architecture would be apt. It is because, this database needs data to be accessed, storing data and maintenance. A three-tier architecture also provides a great flexibility to the team managing the database if there is any need to update data in database. I would not consider other architectures because of the performance issues on increasing data among users, cost inefficiency and other architecture’s do not provide remote access.