### **Final Design Description**

### **Key Entities:**

**Buildings**: Represents all buildings on campus (academic, residential, administrative, etc.).

**Attributes:**

1. Building\_Id
2. building\_type**(e.g., academic, residential, administrative, mosque, library, TSC, gymnasium, auditorium, research center, booth, veterinary hospital, bank, medical center, cafeteria, guest house, IRT, field lab)**
3. numbers\_of\_building\_on\_type

**Note:** It serves as the central entity to which other entities are linked.

**Academic Building:**

**Attributes:**

1. building\_id **(Foreign Key)**
2. building\_no **(Primary Key)**
3. building\_name
4. location
5. total\_floors
6. total\_rooms

**Academic\_Building\_Floors:** The floors entity stores information about individual floors within the buildings.

**Attributes:**

1. building\_no **(Foreign Key Ref. Academic Building entities)**
2. floor\_number **(Primary Key)**
3. number\_of\_classrooms
4. number\_of\_teachers\_rooms
5. number\_of\_office\_rooms
6. number\_of\_washrooms
7. number\_of\_lab\_rooms

**Note:** The building\_id establishes a relationship between floors and buildings, indicating that each floor belongs to a specific building.

**Rooms**: Represents individual rooms within a building.

**Attributes**:

1. room\_number **(Primary Key)**
2. floor\_number **(Foreign key ref. Floors entities)**
3. room\_type**(e.g. . lab room, classroom, teachers room, office room ,storage room, reading room, bed room, dining, prayer room, washroom)**

**Note:** The building\_id establishes a relationship between rooms and buildings, indicating that each floor belongs to a specific building. Also floor\_number establishes a relationship between floors and rooms.

**Classrooms:** Represent individual classroom within a building.

**Attributes:**

1. room\_number**(Foreign key ref. Rooms entities)**
2. class\_room\_id**(Primary key)**
3. room\_size
4. student\_capacity\_for\_class
5. student\_capacity\_for\_exam

**Teachers Room:** Represents teachers and their assigned chamber.

**Attributes:**

1. department\_name
2. room\_number **(Foreign key ref. Room entities)**
3. teachers\_room\_id**(Primary Key)**
4. faculty\_name

**Office\_Room**: Represent office room for each faculty.

**Attributes:**

1. faculty\_name
2. room\_number **(Foreign key ref. Room entities)**
3. office\_room\_id**(Primary Key)**

**Lab\_Room:** Represent lab room information.

**Attributes:**

1. room\_number **(Foreign key ref. Room entities)**
2. lab\_room\_id**(Primary Key)**
3. department\_name
4. type\_of\_equipment
5. student\_capacity

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**Dormitory\_Building:** Represent individual rooms within a hall building.

**Attributes:**

1. building\_id **(Foreign key ref. Building entities)**
2. building\_no(Primary Key)
3. building\_name
4. type**(e.g.: Girls, Boys)**
5. total\_floors
6. total\_rooms

**Dormitory\_Building\_Floors:** The floors entity stores information about individual floors within the buildings.

**Attributes:**

1. building\_no **(Foreign Key Ref. dormitory Building entities)**
2. floor\_number **(Primary Key)**
3. number\_of\_living
4. number\_of\_dining\_rooms
5. number\_of\_office\_rooms
6. number\_of\_washrooms
7. number\_of\_study\_room
8. number\_of\_prayer\_room

**Rooms**: Represents individual rooms within a building.

**Attributes**:

1. room\_number **(Primary Key)**
2. floor\_number **(Foreign key ref. Floors entities)**
3. room\_type**(e.g. . lab room, classroom, teachers room, office room ,storage room, reading room, bed room, dining, prayer room, washroom)**
4. location

**Living\_Room:**

**Attributes:**

1. room\_number**(Foreign Key ref. room)**
2. living\_room\_id(Primary key)
3. total\_capacity\_of\_student