Assignment: Creating Database for Lift Management System

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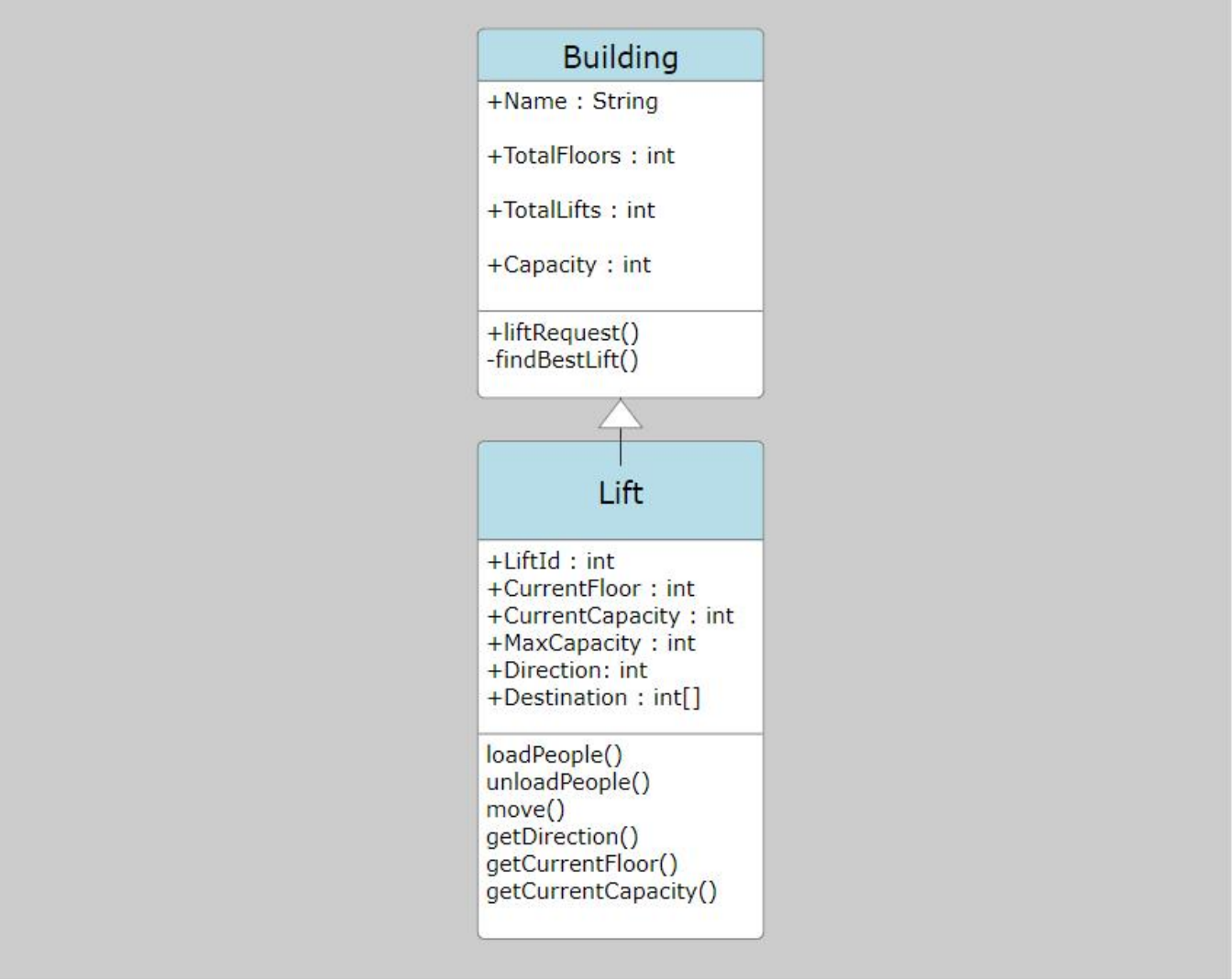
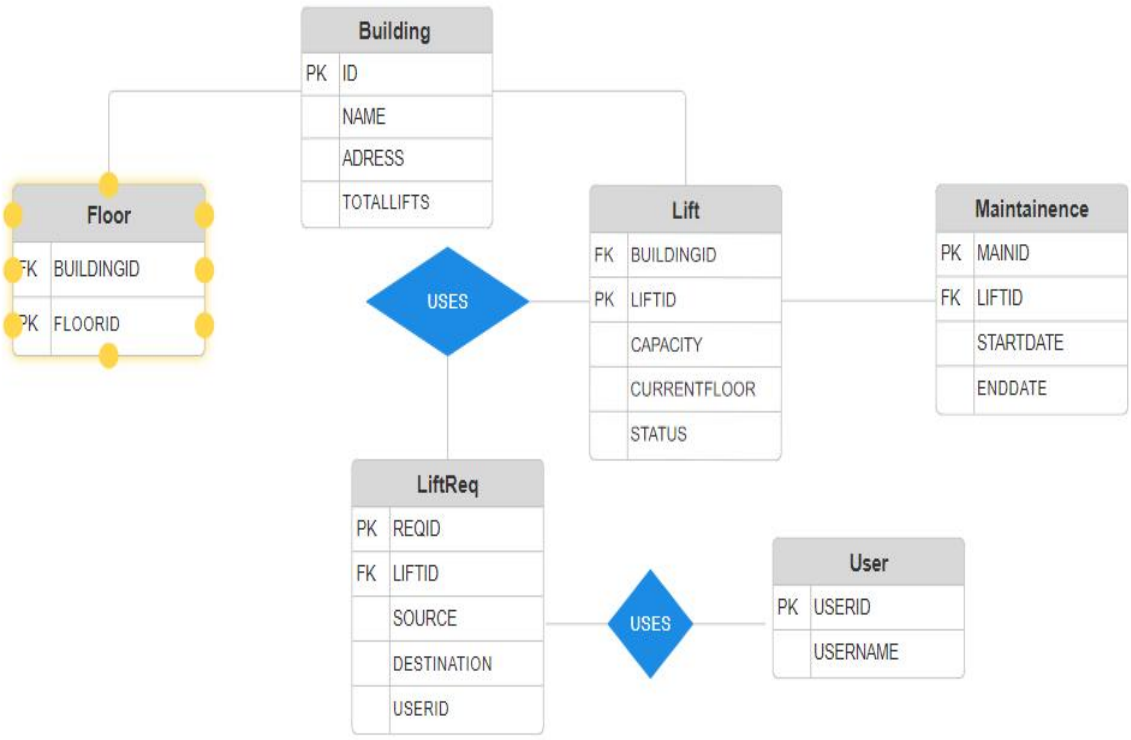
Class Diagram For the Lift Management System



Entity Relationship Diagram



Database : MYSQL

Tables count : 6

Tables : Building,Floor, Lift, LiftReq,Users,Maintainence

CREATING THE RELEVANT TABLES

```
-- creating table
CREATE TABLE Building(
  BuildingID int PRIMARY KEY NOT NULL AUTO_INCREMENT,
  BuildingName varchar(255) NOT NULL,
  Adress varchar(255) NOT NULL
);

CREATE TABLE Lift(
  LiftID int PRIMARY KEY NOT NULL AUTO_INCREMENT,
  BuildingID int NOT NULL,
  Capacity int NOT NULL,
  CurrentFloor int NOT NULL,
  Speed int NOT NULL,
  Status enum('Active','Maintance'),
  FOREIGN KEY (BuildingID) REFERENCES Building(BuildingID)
);
```

```
CREATE TABLE Floor(
  FloorID int PRIMARY KEY NOT NULL AUTO_INCREMENT,
  BuildingID int NOT NULL,
  FloorNumber int NOT NULL,
  FOREIGN KEY (BuildingID) REFERENCES Building(BuildingID)

);
```

```
CREATE TABLE Maintainence(
  MaintainenceID int PRIMARY KEY NOT NULL AUTO_INCREMENT,
  LiftID int NOT NULL,
  MaintainenceDate date NOT NULL,
  MaintainenceTime time NOT NULL,
  MaintainenceDescription varchar(255) NOT NULL,
  FOREIGN KEY (LiftID) REFERENCES Lift(LiftID)
);
```

```
  CREATE TABLE Users(
  UserID int PRIMARY KEY NOT NULL AUTO_INCREMENT,
  Username varchar(255) NOT NULL
  );
```

```
CREATE TABLE LiftReq(
  LiftReqID int PRIMARY KEY NOT NULL AUTO_INCREMENT,
  LiftID int NOT NULL,
  UserID int NOT NULL,
  SourceFloor int NOT NULL,
  DestinationFloor int NOT NULL,
  FOREIGN KEY (LiftID) REFERENCES Lift(LiftID),
  FOREIGN KEY (UserID) REFERENCES Users(UserID)
);
```

INSERTING THE RELEVANT VALUES INTO THE TABLES

```
-- inserting the values in the tables
INSERT INTO Building (BuildingName, Adress)
VALUES
('Pune Heights ','123 Baner ,Pune'),
('Pune Residency ','Pashan Palace ,Pune'),
('Pune IT Hub','404 Hinjawadi,Pune'),
('Pune Towers','101 Sb raod,Pune'),
('Pune House ','Koregaon Park, Pune');
```

```
INSERT INTO Lift (BuildingID, Capacity, CurrentFloor, Speed, Status)
VALUES
(1, 10, 1, 2, 'Active'),
(1, 15, 5, 3, 'Maintance'),
(2, 8, 3, 2, 'Active'),
(3, 12, 4, 4, 'Active'),
(4, 6, 2, 1, 'Maintance');
```

```
INSERT INTO Floor (BuildingID, FloorNumber)
VALUES
-- Pune Heights
(1, 1),
(1, 2),
(1, 3),
(1, 4),
(1, 5),
```

```
-- Pune Residency
(2, 1),
(2, 2),
(2, 3),
(2, 4),
(2, 5),
(2, 6),
```

```
-- Pune IT Hub
(3, 1),
(3, 2),
(3, 3),
(3, 4),
(3, 5),
(3, 6),
(3, 7),
```

```
-- Pune Towers
(4, 1),
(4, 2),
(4, 3),
(4, 4),
(4, 5),
(4, 6),
(4, 7),
(4, 8),
```

```
-- Pune house
(5, 1),
```

```
(5, 2),
(5, 3),
(5, 4),
(5, 5);
```

```
INSERT INTO Lift (BuildingID, Capacity, CurrentFloor, Speed, Status)
VALUES
-- Lifts for Pune Height
(1, 10, 1, 2, 'Active'),
(1, 8, 3, 2, 'Maintance'),
```

```
-- Lifts for Pune Residency
(2, 12, 2, 3, 'Active'),
(2, 15, 1, 4, 'Active'),
```

```
-- Lifts for Pune IT Hub
(3, 10, 4, 3, 'Active'),
(3, 12, 1, 2, 'Maintance'),
```

```
-- Lifts for Pune Towers
(4, 8, 3, 2, 'Active'),
(4, 10, 5, 3, 'Maintance'),
```

```
-- Lifts for Pune House
(5, 6, 1, 1, 'Active'),
(5, 8, 2, 2, 'Active');
```

```
INSERT INTO Users (Username)
VALUES
('Pradeep'),
('Vineet'),
('Ketan'),
('Nishant'),
('Shahid');
```

```
INSERT INTO Maintainence (LiftID, MaintainenceDate, MaintainenceTime, MaintainenceDescription)
VALUES
(2, '2025-01-05', '09:30:00', 'Routine checkup'),
(3, '2025-01-08', '12:45:00', 'Sensor replacement'),
(6, '2025-01-10', '15:20:00', 'Motor service'),
(8, '2025-01-12', '11:00:00', 'Cable inspection'),
(4, '2025-01-15', '14:30:00', 'Brake testing');
```

```
INSERT INTO LiftReq (LiftID, UserID, SourceFloor, DestinationFloor)
VALUES
(1, 1, 1, 5),
(2, 2, 2, 4),
(3, 3, 3, 6),
(4, 4, 1, 5),
(5, 5, 1, 7),
(6, 1, 2, 3),
(7, 2, 5, 1),
(8, 3, 4, 6),
(9, 4, 3, 8),
(10, 5, 1, 5);
```

```sql
-- getting lift which are under maintance
SELECT *
FROM Lift
WHERE Status = 'Maintance'
ORDER BY BuildingID;
```

LiftID	BuildingID	Capacity	CurrentFloor	Speed	Status
7	1	8	3	2	Maintance
11	3	12	1	2	Maintance
5	4	6	2	1	Maintance
13	4	10	5	3	Maintance
NULL	NULL	NULL	NULL	NULL	NULL

```sql
--top 3 most recent lift under maintance

SELECT * FROM Maintainence
ORDER BY MaintainenceDate DESC, MaintainenceTime DESC
LIMIT 3;
```

MaintainenceID	LiftID	MaintainenceDate	MaintainenceTime	MaintainenceDescription
5	4	2025-01-15	14:30:00	Brake testing
4	8	2025-01-12	11:00:00	Cable inspection
3	6	2025-01-10	15:20:00	Motor service
NULL	NULL	NULL	NULL	NULL

```sql
-- get lift where sourcefloor is between 2 or 4
SELECT *
FROM LiftReq
WHERE SourceFloor
BETWEEN 2 AND 4 ;
```

LiftReqID	LiftID	UserID	SourceFloor	DestinationFloor
2	2	2	2	4
3	3	3	3	6
6	6	1	2	3
8	8	3	4	6
9	9	4	3	8
NULL	NULL	NULL	NULL	NULL

```sql
-- user who made the request for the lifts
SELECT LiftReq.LiftReqID, Users.Username, LiftReq.SourceFloor, LiftReq.DestinationFloor
FROM LiftReq
JOIN Users ON LiftReq.UserID = Users.UserID;
```

LiftReqID	Username	SourceFloor	DestinationFloor
1	Pradeep	1	5
6	Pradeep	2	3
2	Vineet	2	4
7	Vineet	5	1
3	Ketan	3	6
8	Ketan	4	6
4	Nishant	1	5
9	Nishant	3	8
5	Shahid	1	7
10	Shahid	1	5

```sql
-- counting total number of lifts in each building
SELECT BuildingID, COUNT(LiftID)
FROM Lift
GROUP BY BuildingID;
```

BuildingID	COUNT(LiftID)
1	4
2	3
3	3
4	3
5	2

```sql
-- getting lifts that are in building 1,2,3
SELECT *
FROM Lift
WHERE BuildingID in (1,2,3);
```

LiftID	BuildingID	Capacity	CurrentFloor	Speed	Status
1	1	10	1	2	Active
2	1	15	5	3	Active
3	2	8	3	2	Active
4	3	12	4	4	Active
6	1	10	1	2	Active
7	1	8	3	2	Maintance
8	2	12	2	3	Active
9	2	15	1	4	Active
10	3	10	4	3	Active
11	3	12	1	2	Maintance
NULL	NULL	NULL	NULL	NULL	NULL

```sql
--adding a new colum to Lift
ALTER TABLE Lift
ADD DateInstalled DATE;
```

LiftID	BuildingID	Capacity	CurrentFloor	Speed	Status	DateInstalled
1	1	10	1	2	Active	NULL
2	1	15	5	3	Maintance	NULL
3	2	8	3	2	Active	NULL
4	3	12	4	4	Active	NULL
5	4	6	2	1	Maintance	NULL
6	1	10	1	2	Active	NULL
7	1	8	3	2	Maintance	NULL
8	2	12	2	3	Active	NULL
9	2	15	1	4	Active	NULL
10	3	10	4	3	Active	NULL
11	3	12	1	2	Maintance	NULL

```sql
-- updating a particular lift
Update Lift set Status="Active" WHERE LiftID=2;
```

LiftID	BuildingID	Capacity	CurrentFloor	Speed	Status	DateInstalled
1	1	10	1	2	Active	NULL
2	1	15	5	3	Maintance	NULL
3	2	8	3	2	Active	NULL
4	3	12	4	4	Active	NULL
5	4	6	2	1	Maintance	NULL
6	1	10	1	2	Active	NULL
7	1	8	3	2	Maintance	NULL
8	2	12	2	3	Active	NULL
9	2	15	1	4	Active	NULL
10	3	10	4	3	Active	NULL
11	3	12	1	2	Maintance	NULL

LiftID	BuildingID	Capacity	CurrentFloor	Speed	Status	DateInstalled
1	1	10	1	2	Active	NULL
2	1	15	5	3	Active	NULL
3	2	8	3	2	Active	NULL
4	3	12	4	4	Active	NULL
5	4	6	2	1	Maintance	NULL
6	1	10	1	2	Active	NULL
7	1	8	3	2	Maintance	NULL
8	2	12	2	3	Active	NULL
9	2	15	1	4	Active	NULL
10	3	10	4	3	Active	NULL
11	3	12	1	2	Maintance	NULL