Relational Databases – Practical 2

Entity Relationship Diagram -
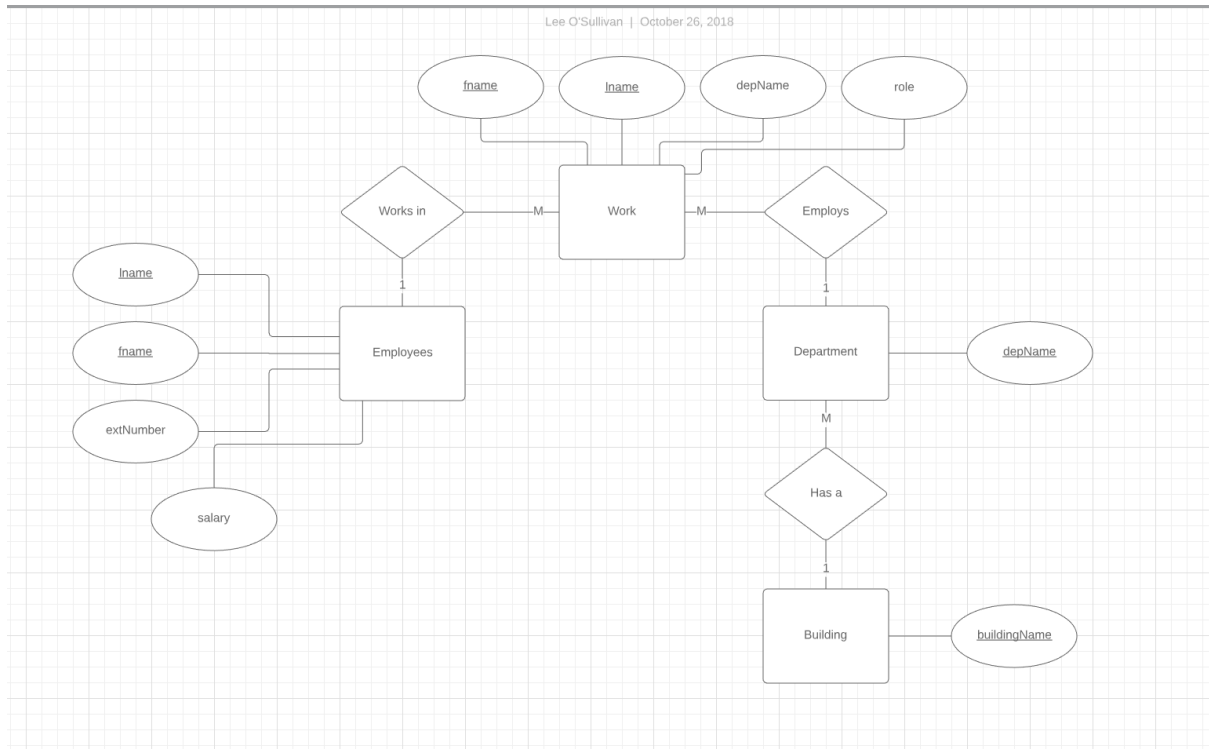

Table Descriptions –

```
mysql> DESCRIBE Building;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| buildingName | varchar(30) | NO   | PRI | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
1 row in set (0.04 sec)
```

```
mysql> DESCRIBE Department;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| depName      | varchar(30) | NO   | PRI | NULL    |       |
| buildingName | varchar(30) | YES  | MUL | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> DESCRIBE Employees;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| fname     | varchar(30) | NO   | PRI | NULL    |       |
| lname     | varchar(30) | NO   | PRI | NULL    |       |
| extNumber | varchar(4)  | YES  |     | NULL    |       |
| salary    | int(11)     | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> DESCRIBE Work;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| fname   | varchar(30) | NO   | PRI | NULL    |       |
| lname   | varchar(30) | NO   | PRI | NULL    |       |
| depName | varchar(30) | NO   | PRI | NULL    |       |
| role    | varchar(30) | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> SHOW Tables;
+-------------------+
| Tables_in_company |
+-------------------+
| building          |
| department        |
| employees         |
| work              |
+-------------------+
4 rows in set (0.09 sec)
```

SQL Queries –

Query 1 -

```
mysql> SELECT fname, lname, role FROM Work
    -> WHERE role = 'manager';
+------------+---------+---------+
| fname      | lname   | role    |
+------------+---------+---------+
| Caitlyn    | Terrell | Manager |
| Lanford    | Burnham | Manager |
| Montgomery | Burns   | Manager |
+------------+---------+---------+
3 rows in set (0.00 sec)
```

Query 02

```
mysql> SELECT depName, SUM(salary)
    -> FROM Employees e RIGHT JOIN Work w ON w.lname = e.lname
    -> GROUP BY depName
    -> ORDER BY SUM(salary) DESC;
+-----------------------+-------------+
| depName               | SUM(salary) |
+-----------------------+-------------+
| Engineering Department |      160000 |
| HR Department         |      145000 |
| CEO Department        |      100000 |
| IT Department         |       75000 |
+-----------------------+-------------+
4 rows in set (0.00 sec)
```

Query 03

```
mysql> SELECT fname, lname, depName FROM Work
    -> WHERE role = 'manager';
+------------+---------+------------------------+
| fname      | lname   | depName                |
+------------+---------+------------------------+
| Caitlyn    | Terrell | IT Department          |
| Lanford    | Burnham | Engineering Department |
| Montgomery | Burns   | HR Department          |
+------------+---------+------------------------+
3 rows in set (0.00 sec)
```

Query 04

```
mysql> SELECT depName FROM Department
    -> WHERE buildingName = 'Main Building';
+----------------+
| depName        |
+----------------+
| CEO Department |
| HR Department  |
| IT Department  |
+----------------+
3 rows in set (0.00 sec)
```

Query 05

```
mysql> SELECT e.extNumber
    -> FROM Employees e LEFT JOIN Work w ON e.lname = w.lname
    -> WHERE depName = 'Engineering Department';
+-----------+
| extNumber |
+-----------+
| 4455      |
| 4454      |
| 4455      |
+-----------+
3 rows in set (0.00 sec)
```