Section 1: MSSQL DB

**UC 1:**

mysql> create database payroll\_service;

mysql> show databases;

+--------------------+

| Database |

+--------------------+

| information\_schema |

| mysql |

| payroll\_service |

| performance\_schema |

| sakila |

| sys |

| test |

| world |

+--------------------+

8 rows in set (0.01 sec)

**UC 2:**

mysql> use payroll\_service;

Database changed

mysql> create table employee\_payroll(

-> EmpId int unsigned not null auto\_increment,

-> EmpName varchar(200) not null,

-> Salary double not null,

-> EmpStart Date not null,

-> primary key (EmpId)

-> );

Query OK, 0 rows affected (0.16 sec)

mysql> desc employee\_payroll;

+----------+--------------+------+-----+---------+----------------+

| Field | Type | Null | Key | Default | Extra |

+----------+--------------+------+-----+---------+----------------+

| EmpId | int unsigned | NO | PRI | NULL | auto\_increment |

| EmpName | varchar(200) | NO | | NULL | |

| Salary | double | NO | | NULL | |

| EmpStart | date | NO | | NULL | |

+----------+--------------+------+-----+---------+----------------+

4 rows in set (0.01 sec)

**UC 3:**

mysql> insert into employee\_payroll(EmpName, Salary, EmpStart)values('Bill',1000000.00,'2018-01-03');

Query OK, 1 row affected (0.02 sec)

mysql> insert into employee\_payroll(EmpName, Salary, EmpStart)values('Mark',2000000.00,'2019-11-13');

Query OK, 1 row affected (0.01 sec)

mysql> insert into employee\_payroll(EmpName, Salary, EmpStart)values('Charlie',3000000.00,'2020-05-21');

Query OK, 1 row affected (0.01 sec)

**UC 4:**

mysql> select \* from employee\_payroll;

+-------+---------+---------+------------+

| EmpId | EmpName | Salary | EmpStart |

+-------+---------+---------+------------+

| 1 | Bill | 1000000 | 2018-01-03 |

| 2 | Mark | 2000000 | 2019-11-13 |

| 3 | Charlie | 3000000 | 2020-05-21 |

+-------+---------+---------+------------+

3 rows in set (0.01 sec)

**UC 5:**

mysql> select Salary from employee\_payroll where EmpName = 'Bill';

+---------+

| Salary |

+---------+

| 1000000 |

+---------+

1 row in set (0.01 sec)

mysql> select \* from employee\_payroll WHERE EmpStart BETWEEN CAST('2018-01-01'

-> AS DATE) AND DATE(NOW());

+-------+---------+---------+------------+

| EmpId | EmpName | Salary | EmpStart |

+-------+---------+---------+------------+

| 1 | Bill | 1000000 | 2018-01-03 |

| 2 | Mark | 2000000 | 2019-11-13 |

| 3 | Charlie | 3000000 | 2020-05-21 |

+-------+---------+---------+------------+

3 rows in set (0.01 sec)

**UC 6:**

mysql> update employee\_payroll set gender = 'M' where EmpName = 'Bill' or EmpName = 'Charlie';

Query OK, 2 rows affected (0.01 sec)

Rows matched: 2 Changed: 2 Warnings: 0

mysql> update employee\_payroll set gender = 'F' where EmpName = 'Mark';

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from employee\_payroll;

+-------+---------+--------+---------+------------+

| EmpId | EmpName | gender | Salary | EmpStart |

+-------+---------+--------+---------+------------+

| 1 | Bill | M | 1000000 | 2018-01-03 |

| 2 | Mark | F | 2000000 | 2019-11-13 |

| 3 | Charlie | M | 3000000 | 2020-05-21 |

+-------+---------+--------+---------+------------+

3 rows in set (0.00 sec)

**UC 7:**

mysql> select avg(Salary) from employee\_payroll where gender = 'M' group by gender;

+-------------+

| avg(Salary) |

+-------------+

| 2000000 |

+-------------+

1 row in set (0.01 sec)

mysql> select sum(Salary) from employee\_payroll where gender = 'M' group by gender;

+-------------+

| sum(Salary) |

+-------------+

| 4000000 |

+-------------+

1 row in set (0.00 sec)

mysql> select count(Salary) from employee\_payroll where gender = 'M' group by gender;

+---------------+

| count(Salary) |

+---------------+

| 2 |

+---------------+

1 row in set (0.00 sec)

mysql> select min(Salary) from employee\_payroll where gender = 'M' group by gender;

+-------------+

| min(Salary) |

+-------------+

| 1000000 |

+-------------+

1 row in set (0.01 sec)

mysql> select max(Salary) from employee\_payroll where gender = 'M' group by gender;

+-------------+

| max(Salary) |

+-------------+

| 3000000 |

+-------------+

1 row in set (0.00 sec)

**Section 2: ER Diagram**

**UC 8:**

mysql> select \* from employee\_payroll;

+-------+---------+--------+---------+------------+

| EmpId | EmpName | gender | Salary | EmpStart |

+-------+---------+--------+---------+------------+

| 1 | Bill | M | 1000000 | 2018-01-03 |

| 2 | Mark | F | 2000000 | 2019-11-13 |

| 3 | Charlie | M | 3000000 | 2020-05-21 |

+-------+---------+--------+---------+------------+

3 rows in set (0.00 sec)

mysql> alter table employee\_payroll add phone\_number varchar(300) after EmpName;

Query OK, 0 rows affected (0.17 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employee\_payroll add Address varchar(300) after phone\_number;

Query OK, 0 rows affected (0.13 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employee\_payroll add Department varchar(300) not null after Address;

Query OK, 0 rows affected (0.12 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employee\_payroll alter address set default 'TBD';

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> desc employee\_payroll;

+--------------+--------------+------+-----+---------+----------------+

| Field | Type | Null | Key | Default | Extra |

+--------------+--------------+------+-----+---------+----------------+

| EmpId | int unsigned | NO | PRI | NULL | auto\_increment |

| EmpName | varchar(200) | NO | | NULL | |

| phone\_number | varchar(300) | YES | | NULL | |

| Address | varchar(300) | YES | | TBD | |

| Department | varchar(300) | NO | | NULL | |

| gender | char(1) | YES | | NULL | |

| Salary | double | NO | | NULL | |

| EmpStart | date | NO | | NULL | |

+--------------+--------------+------+-----+---------+----------------+

8 rows in set (0.01 sec)

mysql> insert into employee\_payroll(EmpName, Salary, EmpStart) values('Megha',4000000.00, '2018-01-03');

ERROR 1364 (HY000): Field 'Department' doesn't have a default value

**UC 9:**

mysql> alter table employee\_payroll rename column Salary to Basic\_Pay;

Query OK, 0 rows affected (0.04 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employee\_payroll add Deductions double not null after Basic\_pay;

Query OK, 0 rows affected (0.52 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employee\_payroll add Taxable\_Pay double not null after Deductions;

Query OK, 0 rows affected (0.12 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employee\_payroll add Tax double not null after Taxable\_Pay;

Query OK, 0 rows affected (0.12 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> alter table employee\_payroll add Net\_Pay double not null after Tax;

Query OK, 0 rows affected (0.12 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> desc employee\_payroll;

+--------------+--------------+------+-----+---------+----------------+

| Field | Type | Null | Key | Default | Extra |

+--------------+--------------+------+-----+---------+----------------+

| EmpId | int unsigned | NO | PRI | NULL | auto\_increment |

| EmpName | varchar(200) | NO | | NULL | |

| phone\_number | varchar(300) | YES | | NULL | |

| Address | varchar(300) | YES | | TBD | |

| Department | varchar(300) | NO | | NULL | |

| gender | char(1) | YES | | NULL | |

| Basic\_Pay | double | NO | | NULL | |

| Deductions | double | NO | | NULL | |

| Taxable\_Pay | double | NO | | NULL | |

| Tax | double | NO | | NULL | |

| Net\_Pay | double | NO | | NULL | |

| EmpStart | date | NO | | NULL | |

+--------------+--------------+------+-----+---------+----------------+

12 rows in set (0.03 sec)

mysql> select \* from employee\_payroll;

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+-----+---------+------------+

| EmpId | EmpName | phone\_number | Address | Department | gender | Basic\_Pay | Deductions | Taxable\_Pay | Tax | Net\_Pay | EmpStart |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+-----+---------+------------+

| 1 | Bill | NULL | NULL | | M | 1000000 | 0 | 0 | 0 | 0 | 2018-01-03 |

| 2 | Mark | NULL | NULL | | F | 2000000 | 0 | 0 | 0 | 0 | 2019-11-13 |

| 3 | Charlie | NULL | NULL | | M | 3000000 | 0 | 0 | 0 | 0 | 2020-05-21 |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+-----+---------+------------+

3 rows in set (0.00 sec)

mysql> update employee\_payroll set department = 'Seles' where EmpName = 'Mark';

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from employee\_payroll;

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+-----+---------+------------+

| EmpId | EmpName | phone\_number | Address | Department | gender | Basic\_Pay | Deductions | Taxable\_Pay | Tax | Net\_Pay | EmpStart |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+-----+---------+------------+

| 1 | Bill | NULL | NULL | | M | 1000000 | 0 | 0 | 0 | 0 | 2018-01-03 |

| 2 | Mark | NULL | NULL | Seles | F | 2000000 | 0 | 0 | 0 | 0 | 2019-11-13 |

| 3 | Charlie | NULL | NULL | | M | 3000000 | 0 | 0 | 0 | 0 | 2020-05-21 |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+-----+---------+------------+

3 rows in set (0.01 sec)

mysql> insert into employee\_payroll(EmpName, Department, gender, Basic\_Pay, Deductions, Taxable\_Pay, Tax, Net\_Pay, EmpStart) values('Terisa', 'Marketting', 'F', 3000000.00, 1000000.00, 2000000.00, 500000.00, 1500000.00, '2018-01-03');

Query OK, 1 row affected (0.01 sec)

mysql> select \* from employee\_payroll;

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

| EmpId | EmpName | phone\_number | Address | Department | gender | Basic\_Pay | Deductions | Taxable\_Pay | Tax | Net\_Pay | EmpStart |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

| 1 | Bill | NULL | NULL | | M | 1000000 | 0 | 0 | 0 | 0 | 2018-01-03 |

| 2 | Mark | NULL | NULL | Seles | F | 2000000 | 0 | 0 | 0 | 0 | 2019-11-13 |

| 3 | Charlie | NULL | NULL | | M | 3000000 | 0 | 0 | 0 | 0 | 2020-05-21 |

| 4 | Terisa | NULL | TBD | Marketting | F | 3000000 | 1000000 | 2000000 | 500000 | 1500000 | 2018-01-03 |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

4 rows in set (0.00 sec)

**UC 10 :**

mysql> select \* from employee\_payroll;

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

| EmpId | EmpName | phone\_number | Address | Department | gender | Basic\_Pay | Deductions | Taxable\_Pay | Tax | Net\_Pay | EmpStart |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

| 1 | Bill | 9123456789 | Thane | IT | M | 1000000 | 1000000 | 4000000 | 400000 | 7000000 | 2018-01-03 |

| 2 | Mark | 8354738282 | Mumbai | Seles | F | 2000000 | 3000000 | 3000000 | 200000 | 1000000 | 2019-11-13 |

| 3 | Charlie | 8123645855 | Bandra | CS | M | 3000000 | 2500000 | 1000000 | 100000 | 9000000 | 2020-05-21 |

| 4 | Terisa | 8023484833 | Airoli | Marketting | F | 3000000 | 1000000 | 2000000 | 500000 | 1500000 | 2020-09-23 |

| 5 | Terisa | 8426828374 | TBD | Seles | F | 5000000 | 2000000 | 5000000 | 700000 | 2500000 | 2019-03-13 |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

5 rows in set (0.00 sec)

mysql>

mysql> select \* from employee\_payroll where EmpName='Terisa';

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

| EmpId | EmpName | phone\_number | Address | Department | gender | Basic\_Pay | Deductions | Taxable\_Pay | Tax | Net\_Pay | EmpStart |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

| 4 | Terisa | 8023484833 | Airoli | Marketting | F | 3000000 | 1000000 | 2000000 | 500000 | 1500000 | 2020-09-23 |

| 5 | Terisa | 8426828374 | TBD | Seles | F | 5000000 | 2000000 | 5000000 | 700000 | 2500000 | 2019-03-13 |

+-------+---------+--------------+---------+------------+--------+-----------+------------+-------------+--------+---------+------------+

2 rows in set (0.00 sec)

**UC11:**

mysql> create table employee\_department

-> (

-> employee\_id int unsigned not null,

-> department\_id int unsigned not null

-> );

Query OK, 0 rows affected (0.15 sec)

mysql> desc employee\_department;

+---------------+--------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+---------------+--------------+------+-----+---------+-------+

| employee\_id | int unsigned | NO | PRI | NULL | |

| department\_id | int unsigned | NO | | NULL | |

+---------------+--------------+------+-----+---------+-------+

2 rows in set (0.02 sec)

**UC 12:**

mysql> insert into employee\_department values ('1','102');

Query OK, 1 row affected (0.01 sec)

mysql> insert into employee\_department values ('2','103');

Query OK, 1 row affected (0.01 sec)

mysql> insert into employee\_department values ('3','104');

Query OK, 1 row affected (0.01 sec)

mysql> insert into employee\_department values ('4','105');

Query OK, 1 row affected (0.01 sec)

mysql> insert into employee\_department values ('6','106');

Query OK, 1 row affected (0.01 sec)

mysql> select \* from employee\_department;

+-------------+---------------+

| employee\_id | department\_id |

+-------------+---------------+

| 1 | 102 |

| 2 | 103 |

| 3 | 104 |

| 4 | 105 |

| 6 | 106 |

+-------------+---------------+

5 rows in set (0.00 sec)

mysql> select department\_id from employee\_department where employee\_id=6;

+---------------+

| department\_id |

+---------------+

| 106 |

+---------------+

1 row in set (0.01 sec)

mysql> update employee\_department set employee\_id=5 where department\_id=106;

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from employee\_department;

+-------------+---------------+

| employee\_id | department\_id |

+-------------+---------------+

| 1 | 102 |

| 2 | 103 |

| 3 | 104 |

| 4 | 105 |

| 5 | 106 |

+-------------+---------------+

5 rows in set (0.01 sec)

mysql> select sum(employee\_id) from employee\_department where department\_id;

+------------------+

| sum(employee\_id) |

+------------------+

| 15 |

+------------------+

1 row in set (0.01 sec)

mysql> select avg(employee\_id) from employee\_department where department\_id;

+------------------+

| avg(employee\_id) |

+------------------+

| 3.0000 |

+------------------+

1 row in set (0.00 sec)

mysql> select min(employee\_id) from employee\_department where department\_id;

+------------------+

| min(employee\_id) |

+------------------+

| 1 |

+------------------+

1 row in set (0.01 sec)

mysql> select max(employee\_id) from employee\_department where department\_id;

+------------------+

| max(employee\_id) |

+------------------+

| 5 |

+------------------+

1 row in set (0.00 sec)

