Employee Payroll Problems
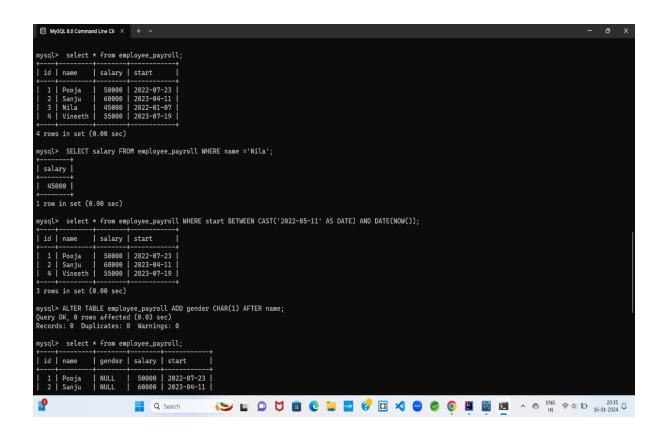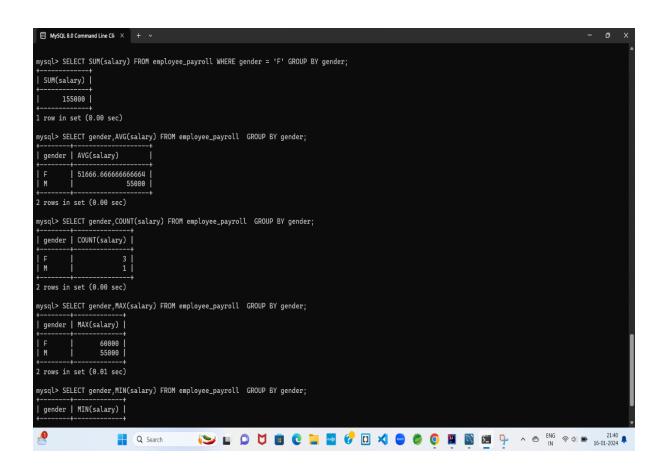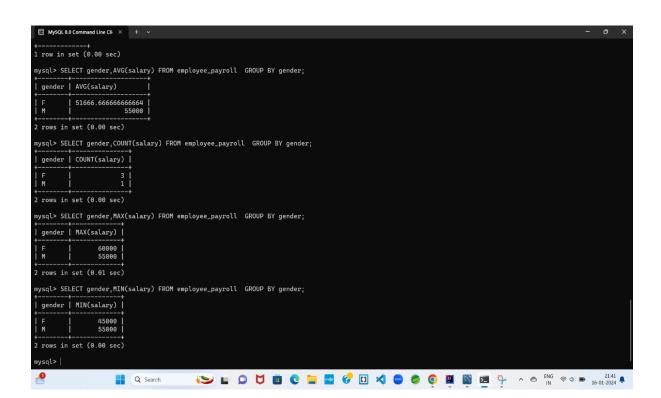
```
mysql> create database payroll_service;
Query OK, 1 row affected (0.04 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| payroll_service    |
| performance_schema |
| sampledb           |
| studentdatabase    |
| sys                |
+--------------------+
7 rows in set (0.00 sec)

mysql> use  payroll_service;
Database changed
mysql> Create Table employee_payroll;
ERROR 4028 (HY000): A table must have at least one visible column.
mysql> Create Table employee_payroll(id INT unsigned NOT NULL AUTO_INCREMENT,name VARCHAR(150) NOT NULL,salary Double NOT NULL,start DATE NOT NULl,PRIMARY K
EY (id));
Query OK, 0 rows affected (0.07 sec)

mysql> select * from employee_payroll;
Empty set (0.00 sec)

mysql> insert into employee_payroll  (name,salary,start) values('Pooja',50000,'2022-07-23');
Query OK, 1 row affected (0.04 sec)

mysql>  insert into employee_payroll  (name,salary,start) values('Sanju',60000,'2023-04-11');
Query OK, 1 row affected (0.04 sec)

mysql>  insert into employee_payroll  (name,salary,start) values('Nila',45000,'2022-01-07');
Query OK, 1 row affected (0.04 sec)

mysql>  insert into employee_payroll  (name,salary,start) values('Vineeth',55000,'2023-07-19');
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from employee_payroll;
+----+---------+--------+------------+
| id | name    | salary | start      |
+----+---------+--------+------------+
|  1 | Pooja   |  50000 | 2022-07-23 |
|  2 | Sanju   |  60000 | 2023-04-11 |
|  3 | Nila    |  45000 | 2022-01-07 |
|  4 | Vineeth |  55000 | 2023-07-19 |
+----+---------+--------+------------+
4 rows in set (0.00 sec)

mysql>  SELECT salary FROM employee_payroll WHERE name ='Nila';
+--------+
| salary |
+--------+
|  45000 |
+--------+
1 row in set (0.00 sec)

mysql>  select * from employee_payroll WHERE start BETWEEN CAST('2022-05-11' AS DATE) AND DATE(NOW());
+----+---------+--------+------------+
| id | name    | salary | start      |
+----+---------+--------+------------+
|  1 | Pooja   |  50000 | 2022-07-23 |
|  2 | Sanju   |  60000 | 2023-04-11 |
|  4 | Vineeth |  55000 | 2023-07-19 |
+----+---------+--------+------------+
3 rows in set (0.00 sec)

mysql> ALTER TABLE employee_payroll ADD gender CHAR(1) AFTER name;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>  select * from employee_payroll;
+----+---------+--------+--------+------------+
| id | name    | gender | salary | start      |
+----+---------+--------+--------+------------+
|  1 | Pooja   | NULL   |  50000 | 2022-07-23 |
|  2 | Sanju   | NULL   |  60000 | 2023-04-11 |
```

```
mysql> ALTER TABLE employee_payroll ADD gender CHAR(1) AFTER name;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>  select * from employee_payroll;
+----+---------+--------+--------+------------+
| id | name    | gender | salary | start      |
+----+---------+--------+--------+------------+
|  1 | Pooja   | NULL   |  50000 | 2022-07-23 |
|  2 | Sanju   | NULL   |  60000 | 2023-04-11 |
|  3 | Nila    | NULL   |  45000 | 2022-01-07 |
|  4 | Vineeth | NULL   |  55000 | 2023-07-19 |
+----+---------+--------+--------+------------+
4 rows in set (0.00 sec)

mysql> UPDATE employee_payroll set gender ='F' where name='Pooja' or name='Sanju' or name='Nila';
Query OK, 3 rows affected (0.01 sec)
Rows matched: 3  Changed: 3  Warnings: 0

mysql> UPDATE employee_payroll set gender ='M' where name='Vineeth';
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql>  select * from employee_payroll;
+----+---------+--------+--------+------------+
| id | name    | gender | salary | start      |
+----+---------+--------+--------+------------+
|  1 | Pooja   | F      |  50000 | 2022-07-23 |
|  2 | Sanju   | F      |  60000 | 2023-04-11 |
|  3 | Nila    | F      |  45000 | 2022-01-07 |
|  4 | Vineeth | M      |  55000 | 2023-07-19 |
+----+---------+--------+--------+------------+
4 rows in set (0.00 sec)
```

```
mysql> SELECT SUM(salary) FROM employee_payroll WHERE gender = 'F' GROUP BY gender;
+-------------+
| SUM(salary) |
+-------------+
|      155000 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT gender,AVG(salary) FROM employee_payroll  GROUP BY gender;
+--------+-------------------+
| gender | AVG(salary)       |
+--------+-------------------+
| F      | 51666.66666666664 |
| M      |             55000 |
+--------+-------------------+
2 rows in set (0.00 sec)

mysql> SELECT gender,COUNT(salary) FROM employee_payroll  GROUP BY gender;
+--------+---------------+
| gender | COUNT(salary) |
+--------+---------------+
| F      |             3 |
| M      |             1 |
+--------+---------------+
2 rows in set (0.00 sec)

mysql> SELECT gender,MAX(salary) FROM employee_payroll  GROUP BY gender;
+--------+-------------+
| gender | MAX(salary) |
+--------+-------------+
| F      |       60000 |
| M      |       55000 |
+--------+-------------+
2 rows in set (0.01 sec)

mysql> SELECT gender,MIN(salary) FROM employee_payroll  GROUP BY gender;
+--------+-------------+
| gender | MIN(salary) |
+--------+-------------+
```

```
+-------------+
1 row in set (0.00 sec)

mysql> SELECT gender,AVG(salary) FROM employee_payroll  GROUP BY gender;
+--------+-------------------+
| gender | AVG(salary)       |
+--------+-------------------+
| F      | 51666.66666666664 |
| M      |             55000 |
+--------+-------------------+
2 rows in set (0.00 sec)

mysql> SELECT gender,COUNT(salary) FROM employee_payroll  GROUP BY gender;
+--------+---------------+
| gender | COUNT(salary) |
+--------+---------------+
| F      |             3 |
| M      |             1 |
+--------+---------------+
2 rows in set (0.00 sec)

mysql> SELECT gender,MAX(salary) FROM employee_payroll  GROUP BY gender;
+--------+-------------+
| gender | MAX(salary) |
+--------+-------------+
| F      |       60000 |
| M      |       55000 |
+--------+-------------+
2 rows in set (0.01 sec)

mysql> SELECT gender,MIN(salary) FROM employee_payroll  GROUP BY gender;
+--------+-------------+
| gender | MIN(salary) |
+--------+-------------+
| F      |       45000 |
| M      |       55000 |
+--------+-------------+
2 rows in set (0.00 sec)

mysql>
```

```
mysql> ALTER TABLE employee_payroll ADD phone VARCHAR(15),ADD address VARCHAR(255) DEFAULT 'Not Provided',ADD department VARCHAR(50) NOT NULL;
Query OK, 0 rows affected (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM employee_payroll;
+----+---------+--------+--------+------------+-------+--------------+------------+
| id | name    | gender | salary | start      | phone | address      | department |
+----+---------+--------+--------+------------+-------+--------------+------------+
|  1 | Pooja   | F      |  50000 | 2022-07-23 | NULL  | Not Provided |            |
|  2 | Sanju   | F      |  60000 | 2023-04-11 | NULL  | Not Provided |            |
|  3 | Nila    | F      |  45000 | 2022-01-07 | NULL  | Not Provided |            |
|  4 | Vineeth | M      |  55000 | 2023-07-19 | NULL  | Not Provided |            |
+----+---------+--------+--------+------------+-------+--------------+------------+
4 rows in set (0.00 sec)

mysql> ALTER TABLE employee_payroll ADD basic_pay FLOAT,ADD deductions FLOAT,ADD taxable_pay FLOAT,ADD income_tax FLOAT,ADD net_pay FLOAT;
Query OK, 0 rows affected (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM employee_payroll;
+----+---------+--------+--------+------------+-------+--------------+------------+-----------+------------+-------------+------------+---------+
| id | name    | gender | salary | start      | phone | address      | department | basic_pay | deductions | taxable_pay | income_tax | net_pay |
+----+---------+--------+--------+------------+-------+--------------+------------+-----------+------------+-------------+------------+---------+
|  1 | Pooja   | F      |  50000 | 2022-07-23 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
|  2 | Sanju   | F      |  60000 | 2023-04-11 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
|  3 | Nila    | F      |  45000 | 2022-01-07 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
|  4 | Vineeth | M      |  55000 | 2023-07-19 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
+----+---------+--------+--------+------------+-------+--------------+------------+-----------+------------+-------------+------------+---------+
4 rows in set (0.00 sec)

mysql> UPDATE employee_payroll set department='Sales and Marketing' where id=1;
Query OK, 1 row affected (0.05 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE employee_payroll set department='Sales' where id=2;
Query OK, 1 row affected (0.04 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE employee_payroll set department='Marketing' where id=3;
```

```
mysql> SELECT * FROM employee_payroll;
+----+---------+--------+--------+------------+-------+--------------+------------+-----------+------------+-------------+------------+---------+
| id | name    | gender | salary | start      | phone | address      | department | basic_pay | deductions | taxable_pay | income_tax | net_pay |
+----+---------+--------+--------+------------+-------+--------------+------------+-----------+------------+-------------+------------+---------+
|  1 | Pooja   | F      |  50000 | 2022-07-23 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
|  2 | Sanju   | F      |  60000 | 2023-04-11 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
|  3 | Nila    | F      |  45000 | 2022-01-07 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
|  4 | Vineeth | M      |  55000 | 2023-07-19 | NULL  | Not Provided |            |      NULL |       NULL |        NULL |       NULL |    NULL |
+----+---------+--------+--------+------------+-------+--------------+------------+-----------+------------+-------------+------------+---------+
4 rows in set (0.00 sec)

mysql> UPDATE employee_payroll set department='Sales and Marketing' where id=1;
Query OK, 1 row affected (0.05 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE employee_payroll set department='Sales' where id=2;
Query OK, 1 row affected (0.04 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE employee_payroll set department='Marketing' where id=3;
Query OK, 1 row affected (0.04 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE employee_payroll set department='Marketing' where id=4;
Query OK, 1 row affected (0.04 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM employee_payroll;
+----+---------+--------+--------+------------+-------+--------------+---------------------+-----------+------------+-------------+------------+---------+
| id | name    | gender | salary | start      | phone | address      | department          | basic_pay | deductions | taxable_pay | income_tax | net_pay |
+----+---------+--------+--------+------------+-------+--------------+---------------------+-----------+------------+-------------+------------+---------+
|  1 | Pooja   | F      |  50000 | 2022-07-23 | NULL  | Not Provided | Sales and Marketing |      NULL |       NULL |        NULL |       NULL |    NULL |
|  2 | Sanju   | F      |  60000 | 2023-04-11 | NULL  | Not Provided | Sales               |      NULL |       NULL |        NULL |       NULL |    NULL |
|  3 | Nila    | F      |  45000 | 2022-01-07 | NULL  | Not Provided | Marketing           |      NULL |       NULL |        NULL |       NULL |    NULL |
|  4 | Vineeth | M      |  55000 | 2023-07-19 | NULL  | Not Provided | Marketing           |      NULL |       NULL |        NULL |       NULL |    NULL |
+----+---------+--------+--------+------------+-------+--------------+---------------------+-----------+------------+-------------+------------+---------+
4 rows in set (0.00 sec)

mysql>
```

```
mysql> CREATE TABLE Company (CompanyID INT PRIMARY KEY,Name VARCHAR(255) NOT NULL);
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO Company VALUES(100,'Wipro'),(101,'TCS');
Query OK, 2 rows affected (0.05 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from Company;
+-----------+-------+
| CompanyID | Name  |
+-----------+-------+
|       100 | Wipro |
|       101 | TCS   |
+-----------+-------+
2 rows in set (0.00 sec)

mysql> CREATE TABLE Employee (EmployeeID INT PRIMARY KEY, Name VARCHAR(255) NOT NULL,Phone VARCHAR(15),Address VARCHAR(255),Gender CHAR(1), CompanyID INT,FO
REIGN KEY (CompanyID) REFERENCES Company(CompanyID));
Query OK, 0 rows affected (0.08 sec)

mysql> INSERT INTO Company VALUES(1,'Pooja','9376645368','Bangalor','F',100),(2,'Sanju','8768645368','Bangalor','F',101),(3,'Vineeth','7376645368','Chennai'
,'M',100);
ERROR 1136 (21S01): Column count doesn't match value count at row 1
mysql> INSERT INTO Employee VALUES(1,'Pooja','9376645368','Bangalor','F',100),(2,'Sanju','8768645368','Bangalor','F',101),(3,'Vineeth','7376645368','Chennai
','M',100);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from Employee;
+------------+---------+------------+----------+--------+-----------+
| EmployeeID | Name    | Phone      | Address  | Gender | CompanyID |
+------------+---------+------------+----------+--------+-----------+
|          1 | Pooja   | 9376645368 | Bangalor | F      |       100 |
|          2 | Sanju   | 8768645368 | Bangalor | F      |       101 |
|          3 | Vineeth | 7376645368 | Chennai  | M      |       100 |
+------------+---------+------------+----------+--------+-----------+
3 rows in set (0.00 sec)

mysql> CREATE TABLE Department (DeptID INT PRIMARY KEY, Name VARCHAR(255) NOT NULL));sql>
        CREATE TABLE Department (DeptID INT PRIMARY KEY, Name VARCHAR(255) NOT NULL)); CREATE TABLE Department (DeptID INT PRIMARY KEY, Name VARCHAR(255) N
```

```
mysql>  CREATE TABLE Department (DeptID INT PRIMARY KEY, Name VARCHAR(255) NOT NULL);
Query OK, 0 rows affected (0.04 sec)

mysql> CREATE TABLE EmployeeDepartment ( EmployeeID INT,DeptID INT, PRIMARY KEY (EmployeeID, DeptID),FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID
),FOREIGN KEY (DeptID) REFERENCES Department(DeptID));
Query OK, 0 rows affected (0.09 sec)

mysql> INSERT INTO Department VALUES(150,'Marketing'),(151,'Sales');
Query OK, 2 rows affected (0.02 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> INSERT INTO  EmployeeDepartment VALUES(1,150),(2,151),(3,150);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from EmployeeDepartment;
+------------+--------+
| EmployeeID | DeptID |
+------------+--------+
|          1 |    150 |
|          3 |    150 |
|          2 |    151 |
+------------+--------+
3 rows in set (0.00 sec)

mysql> CREATE TABLE Payroll ( BasicPay DECIMAL,Deductions DECIMAL,TaxablePay DECIMAL,IncomeTax DECIMAL,NetPay DECIMAL,EmployeeID INT,FOREIGN KEY (EmployeeID
) REFERENCES Employee(EmployeeID));
Query OK, 0 rows affected (0.05 sec)

mysql> INSERT INTO Payroll (BasicPay,Deductions,EmployeeID) VALUES(50000,2000,1),(55000,2500,2),(60000,3000,3);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from Payroll;
+----------+------------+------------+-----------+--------+------------+
| BasicPay | Deductions | TaxablePay | IncomeTax | NetPay | EmployeeID |
+----------+------------+------------+-----------+--------+------------+
|    50000 |       2000 |       NULL |      NULL |   NULL |          1 |
|    55000 |       2500 |       NULL |      NULL |   NULL |          2 |
|    60000 |       3000 |       NULL |      NULL |   NULL |          3 |
```

```
mysql> UPDATE Payroll SET TaxablePay = BasicPay - Deduction;
ERROR 1054 (42S22): Unknown column 'Deduction' in 'field list'
mysql> UPDATE Payroll SET TaxablePay = BasicPay - Deductions;
Query OK, 3 rows affected (0.02 sec)
Rows matched: 3  Changed: 3  Warnings: 0

mysql> UPDATE Payroll SET NetPay= TaxablePay - IncomeTax;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 3  Changed: 0  Warnings: 0

mysql> INSERT INTO Payroll (IncomeTax) VALUES (500),(600),(700);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from Payroll;
+----------+------------+------------+-----------+--------+------------+
| BasicPay | Deductions | TaxablePay | IncomeTax | NetPay | EmployeeID |
+----------+------------+------------+-----------+--------+------------+
|    50000 |       2000 |      48000 |      NULL |   NULL |          1 |
|    55000 |       2500 |      52500 |      NULL |   NULL |          2 |
|    60000 |       3000 |      57000 |      NULL |   NULL |          3 |
|     NULL |       NULL |       NULL |       500 |   NULL |       NULL |
|     NULL |       NULL |       NULL |       600 |   NULL |       NULL |
|     NULL |       NULL |       NULL |       700 |   NULL |       NULL |
+----------+------------+------------+-----------+--------+------------+
6 rows in set (0.00 sec)

mysql> delete from payroll where IncomeTax=500;
Query OK, 1 row affected (0.02 sec)

mysql> delete from payroll where IncomeTax=600;
Query OK, 1 row affected (0.01 sec)

mysql> delete from payroll where IncomeTax=700;
Query OK, 1 row affected (0.02 sec)

mysql> select * from Payroll;
+----------+------------+------------+-----------+--------+------------+
| BasicPay | Deductions | TaxablePay | IncomeTax | NetPay | EmployeeID |
```

```
|    55000 |       2500 |      52500 |      NULL |   NULL |          2 |
|    60000 |       3000 |      57000 |      NULL |   NULL |          3 |
+----------+------------+------------+-----------+--------+------------+
3 rows in set (0.00 sec)

mysql> UPDATE Payroll SET IncomeTax=500 where BasicPay=50000;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE Payroll SET IncomeTax=600 where BasicPay=55000;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE Payroll SET IncomeTax=700 where BasicPay=60000;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from Payroll;
+----------+------------+------------+-----------+--------+------------+
| BasicPay | Deductions | TaxablePay | IncomeTax | NetPay | EmployeeID |
+----------+------------+------------+-----------+--------+------------+
|    50000 |       2000 |      48000 |       500 |   NULL |          1 |
|    55000 |       2500 |      52500 |       600 |   NULL |          2 |
|    60000 |       3000 |      57000 |       700 |   NULL |          3 |
+----------+------------+------------+-----------+--------+------------+
3 rows in set (0.00 sec)

mysql> UPDATE Payroll SET NetPay= TaxablePay - IncomeTax;
Query OK, 3 rows affected (0.02 sec)
Rows matched: 3  Changed: 3  Warnings: 0

mysql> select * from Payroll;
+----------+------------+------------+-----------+--------+------------+
| BasicPay | Deductions | TaxablePay | IncomeTax | NetPay | EmployeeID |
+----------+------------+------------+-----------+--------+------------+
|    50000 |       2000 |      48000 |       500 |  47500 |          1 |
|    55000 |       2500 |      52500 |       600 |  51900 |          2 |
|    60000 |       3000 |      57000 |       700 |  56300 |          3 |
+----------+------------+------------+-----------+--------+------------+
3 rows in set (0.00 sec)
```

company
- 🔑 CompanyID INT
- 🔷 Name VARCHAR(255)

Indexes ▶

employee
- 🔑 EmployeeID INT
- 🔷 Name VARCHAR(255)
- 🔷 Phone VARCHAR(15)
- 🔷 Address VARCHAR(255)
- 🔷 Gender CHAR(1)
- 🔷 CompanyID INT

Indexes ▶

payroll
- 🔷 BasicPay DECIMAL(10,0)
- 🔷 Deductions DECIMAL(10,0)
- 🔷 TaxablePay DECIMAL(10,0)
- 🔷 IncomeTax DECIMAL(10,0)
- 🔷 NetPay DECIMAL(10,0)
- 🔷 EmployeeID INT

Indexes ▶

employeedepartment
- 🔑 EmployeeID INT
- 🔑 DeptID INT

Indexes ▶

department
- 🔑 DeptID INT
- 🔷 Name VARCHAR(255)

Indexes ▶