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STAT 4260
Assignment 3

1.

```
CREATE TABLE regions
(REGION_ID INT,
REGION_NAME VARCHAR(25),
CONSTRAINT pk_regions PRIMARY KEY (REGION_ID)
);
```

```
CREATE TABLE countries
(COUNTRY_ID CHAR(2),
COUNTRY_NAME VARCHAR(40),
REGION_ID INT,
CONSTRAINT pk_countries PRIMARY KEY (COUNTRY_ID),
CONSTRAINT fk_countries FOREIGN KEY (REGION_ID)
REFERENCES regions (REGION_ID)
);
```

```
CREATE TABLE locations
(LOCATION_ID INT,
STREET_ADDRESS VARCHAR(25),
POSTAL_CODE VARCHAR(12),
CITY VARCHAR(30),
STATE_PROVINCE VARCHAR(12),
COUNTRY_ID CHAR(2),
CONSTRAINT pk_locations PRIMARY KEY (LOCATION_ID),
CONSTRAINT fk_locations FOREIGN KEY (COUNTRY_ID)
REFERENCES countries (COUNTRY_ID)
);
```

Note: I used VARCHAR and not VARCHAR2 since MySQL did not recognize VARCHAR2.

2.

```
INSERT INTO departments
(DEPARTMENT_ID, DEPARTMENT_NAME, MANAGER_ID, LOCATION_ID)
VALUES (10, ‘Administration’, 200, 1700);
```

```
INSERT INTO departments
(DEPARTMENT_ID, DEPARTMENT_NAME, MANAGER_ID, LOCATION_ID)
VALUES (20, ‘Marketing’, 201, 1800);
```

3.

```
SELECT FIRST_NAME FirstName, LAST_NAME LastName
FROM employees;
```

4.

```
SELECT DISTINCT DEPARTMENT_ID
FROM employees;
```

5.

```
SELECT FIRST_NAME, LAST_NAME, SALARY, SALARY*0.15 PF
FROM employees
ORDER BY FIRST_NAME DESC;
```

6.

```
SELECT FIRST_NAME, LAST_NAME, SALARY
FROM employees
ORDER BY SALARY;
```

7.

```
SELECT FIRST_NAME, LAST_NAME, SALARY
FROM employees
WHERE (SALARY < 10000 OR SALARY > 15000) AND
(DEPARTMENT_ID = 30 OR DEPARTMENT_ID = 100);
```

8.

```
SELECT FIRST_NAME, LAST_NAME, HIRE_DATE
FROM employees
WHERE YEAR(HIRE_DATE) = 1987;
```

9.

```
SELECT FIRST_NAME
FROM employees
WHERE (FIRST_NAME LIKE ‘%b%c%’) OR
(FIRST_NAME LIKE ‘%c%b%’);
```

10.

```
SELECT LAST_NAME, JOB_ID, SALARY
FROM employees
```

```
WHERE (JOB_ID IN (‘IT_PROG’, ‘SH_CLERK’)) AND
(SALARY != 4500 AND SALARY != 10000 AND SALARY != 15000);
```

11.

```
SELECT LAST_NAME
FROM employees
WHERE CONCAT(FIRST_NAME, LAST_NAME) LIKE ‘_____’;
```

12.

```
SELECT LAST_NAME
FROM employees
WHERE FIRST_NAME LIKE ‘__e%’;
```

13.

```
SELECT LAST_NAME, PHONE_NUMBER
FROM employees
WHERE PHONE_NUMBER LIKE ‘%124%’;
```

14.

```
SELECT e.FIRST_NAME, e.LAST_NAME, e.DEPARTMENT_ID, d.DEPARTMENT_NAME
FROM employees e INNER JOIN departments d
ON e.DEPARTMENT_ID = d.DEPARTMENT_ID;
```

15.

```
SELECT e.EMPLOYEE_ID, e.LAST_NAME, e.MANAGER_ID,
e_mgr.LAST_NAME MANAGER_NAME
FROM employees e INNER JOIN employees e_mgr
ON e.MANAGER_ID = e_mgr.EMPLOYEE_ID;
```

16.

```
SELECT e.FIRST_NAME, e.LAST_NAME, e.JOB_ID,
e.DEPARTMENT_ID, d.DEPARTMENT_NAME
FROM employees e INNER JOIN departments d
ON e.DEPARTMENT_ID = d.DEPARTMENT_ID
INNER JOIN locations l
ON d.LOCATION_ID = l.LOCATION_ID
WHERE l.CITY = ‘London’;
```

17.

```sql
SELECT h.EMPLOYEE_ID, j.JOB_TITLE,
DATEDIFF(h.END_DATE, h.START_DATE) DURATION
FROM job_history h INNER JOIN jobs j
ON h.JOB_ID = j.JOB_ID
WHERE h.DEPARTMENT_ID = 90;
```

18.

```sql
SELECT d.DEPARTMENT_NAME, e_mgr.FIRST_NAME MGR_FIRST_NAME,
e_mgr.LAST_NAME MGR_LAST_NAME, l.CITY
FROM employees e INNER JOIN employees e_mgr
ON e.MANAGER_ID = e_mgr.EMPLOYEE_ID
INNER JOIN departments d
ON e.DEPARTMENT_ID = d.DEPARTMENT_ID
INNER JOIN locations l
ON d.LOCATION_ID = l.LOCATION_ID;
```

19.

```sql
SELECT EMPLOYEE_ID, DEPARTMENT_ID
FROM job_history
WHERE JOB_ID IS NULL
ORDER BY START_DATE;
```

20.

```sql
SELECT EMPLOYEE_ID, DEPARTMENT_ID
FROM job_history
WHERE JOB_ID IS NOT NULL
ORDER BY DEPARTMENT_ID;
```

21.

```sql
SELECT h.EMPLOYEE_ID, h.JOB_ID, j.JOB_TITLE, j.MIN_SALARY
FROM job_history h INNER JOIN jobs j
ON h.JOB_ID = j.JOB_ID OR h.JOB_ID IS NULL;
```

22.

```sql
SELECT h.EMPLOYEE_ID, j.JOB_TITLE, j.MIN_SALARY
FROM job_history h RIGHT OUTER JOIN jobs j
ON h.JOB_ID = j.JOB_ID;
```

23.

```sql
SELECT COUNT(DISTINCT JOB_ID)
```

```
FROM employees;
```

24.

```
SELECT COUNT(JOB_ID)
FROM employees;
```

25.

```
SELECT SUM(SALARY)
FROM employees;
```

26.

```
SELECT MIN(SALARY)
FROM employees;
```

27.

```
SELECT MAX(SALARY)
FROM employees
WHERE JOB_ID = ‘IT_PROG’;
```

28.

```
SELECT AVG(SALARY), COUNT(EMPLOYEE_ID)
FROM employees
WHERE DEPARTMENT_ID = 90;
```

29.

```
SELECT ROUND(MAX(SALARY)), ROUND(MIN(SALARY)),
ROUND(SUM(SALARY)), ROUND(AVG(SALARY))
FROM employees;
```

30.

```
SELECT MAX(SALARY) - MIN(SALARY) SALARY_RANGE
FROM employees;
```