EX : 07

DATE: 25/10/2024

USING SET OPERATIONS

```
CREATE TABLE employees (
   employee_id INT PRIMARY KEY,
   last_name VARCHAR(50),
   job_id VARCHAR(10),
   department_id INT
);
CREATE TABLE job_history (
   employee_id INT,
   job_id VARCHAR(10),
   department_id INT,
   start_date DATE,
   end_date DATE,
   PRIMARY KEY (employee_id, start_date)
);
CREATE TABLE departments (
   department_id INT PRIMARY KEY,
   department_name VARCHAR(50),
   manager_id INT,
   location_id INT
);
CREATE TABLE countries (
   country_id VARCHAR(2) PRIMARY KEY,
   country_name VARCHAR(50)
);
CREATE TABLE jobs (
   job_id VARCHAR(10) PRIMARY KEY,
   job_title VARCHAR(50),
   min_salary DECIMAL(10, 2),
   max_salary DECIMAL(10, 2)
);
```

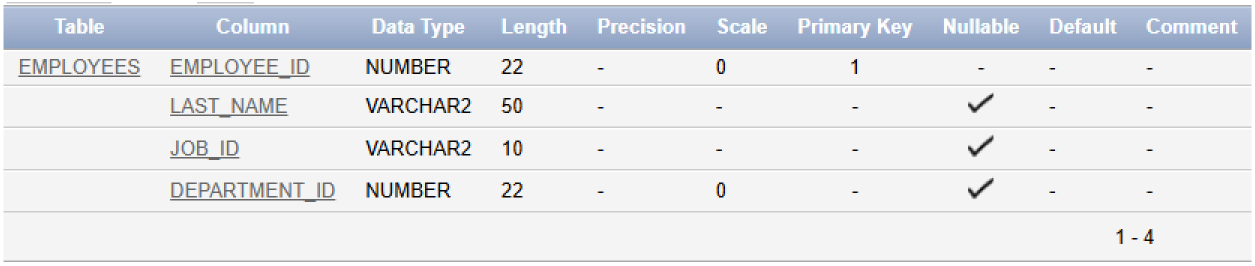


Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMPLOYEES	EMPLOYEE_ID	NUMBER	22	-	0	1	-	-	-
	LAST_NAME	VARCHAR2	50	-	-	-	✓	-	-
	JOB_ID	VARCHAR2	10	-	-	-	✓	-	-
	DEPARTMENT_ID	NUMBER	22	-	0	-	✓	-	-
									1 - 4

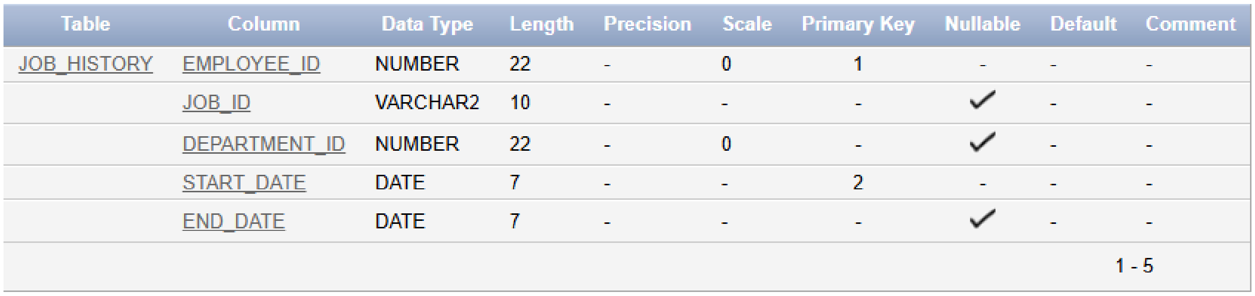


Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
JOB_HISTORY	EMPLOYEE_ID	NUMBER	22	-	0	1	-	-	-
	JOB_ID	VARCHAR2	10	-	-	-	✓	-	-
	DEPARTMENT_ID	NUMBER	22	-	0	-	✓	-	-
	START_DATE	DATE	7	-	-	2	-	-	-
	END_DATE	DATE	7	-	-	-	✓	-	-
									1 - 5

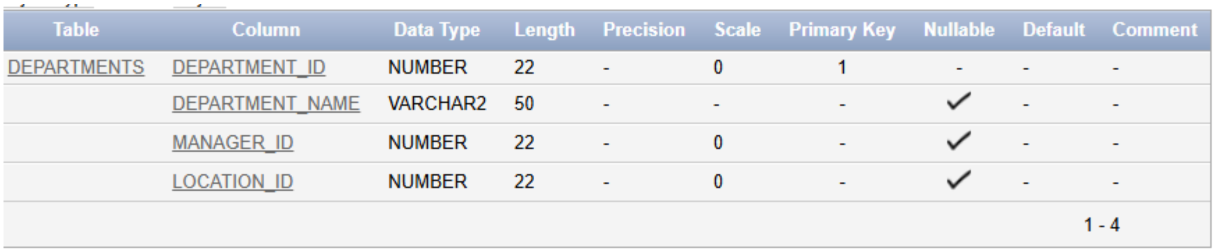


Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DEPARTMENTS	DEPARTMENT_ID	NUMBER	22	-	0	1	-	-	-
	DEPARTMENT_NAME	VARCHAR2	50	-	-	-	✓	-	-
	MANAGER_ID	NUMBER	22	-	0	-	✓	-	-
	LOCATION_ID	NUMBER	22	-	0	-	✓	-	-
									1 - 4

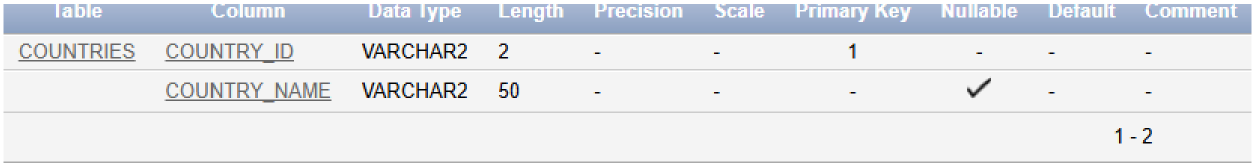


Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
COUNTRIES	COUNTRY_ID	VARCHAR2	2	-	-	1	-	-	-
	COUNTRY_NAME	VARCHAR2	50	-	-	-	✓	-	-
								1 - 2	

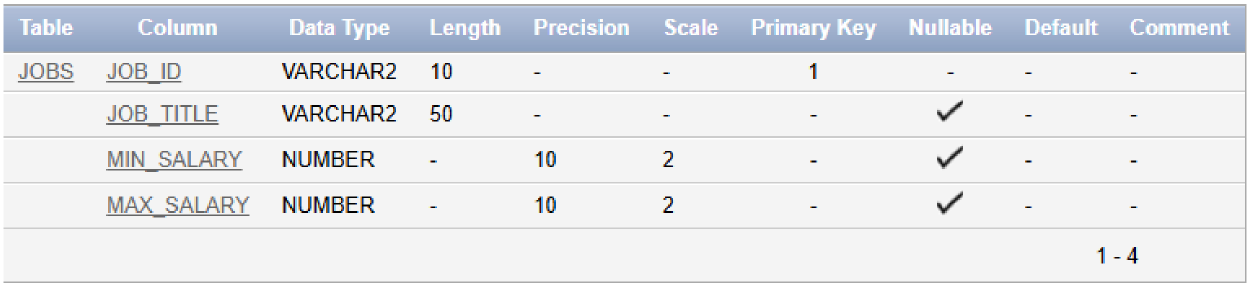


Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
JOBS	JOB_ID	VARCHAR2	10	-	-	1	-	-	-
	JOB_TITLE	VARCHAR2	50	-	-	-	✓	-	-
	MIN_SALARY	NUMBER	-	10	2	-	✓	-	-
	MAX_SALARY	NUMBER	-	10	2	-	✓	-	-
								1 - 4	

INSERT DATA INTO **EMPLOYEES** :

INSERT INTO employees (employee_id, last_name, job_id, department_id) VALUES

(1, 'Smith', 'ST_CLERK', 10);

INSERT INTO employees (employee_id, last_name, job_id, department_id) VALUES

(2, 'Johnson', 'IT_PROG', 20);

INSERT INTO employees (employee_id, last_name, job_id, department_id) VALUES

(3, 'Williams', 'ST_CLERK', 30);

INSERT INTO employees (employee_id, last_name, job_id, department_id) VALUES

(4, 'Jones', 'HR_REP', NULL);

INSERT DATA INTO THE **JOB_HISTORY**:

INSERT INTO job_history (employee_id, job_id, department_id, start_date, end_date) VALUES

(1, 'ST_CLERK', 10, TO_DATE('2020-01-01', 'YYYY-MM-DD'), TO_DATE('2021-01-01', 'YYYY-MM-DD'));

INSERT INTO job_history (employee_id, job_id, department_id, start_date, end_date) VALUES

(2, 'IT_PROG', 20, TO_DATE('2019-02-01', 'YYYY-MM-DD'), TO_DATE('2021-06-01', 'YYYY-MM-DD'));

```
INSERT INTO job_history (employee_id, job_id, department_id, start_date, end_date)
VALUES

(3, 'SA_REP', 30, TO_DATE('2018-03-01', 'YYYY-MM-DD'), TO_DATE('2019-05-01',
'YYYY-MM-DD'));

INSERT INTO job_history (employee_id, job_id, department_id, start_date, end_date)
VALUES

(1, 'HR_REP', 30, TO_DATE('2021-01-02', 'YYYY-MM-DD'), TO_DATE('2022-01-01',
'YYYY-MM-DD'));
```

INSERT DATA INTO **THE DEPARTMENTS TABLE:**

```
INSERT INTO departments (department_id, department_name, manager_id, location_id)
VALUES

(10, 'Administration', 101, 1);

INSERT INTO departments (department_id, department_name, manager_id, location_id)
VALUES

(20, 'IT', 102, 2);

INSERT INTO departments (department_id, department_name, manager_id, location_id)
VALUES

(30, 'Sales', 103, 3);
```

INSERT DATA INTO **THE COUNTRIES TABLE:**

```
INSERT INTO countries (country_id, country_name) VALUES

('US', 'United States');

INSERT INTO countries (country_id, country_name) VALUES

('UK', 'United Kingdom');

INSERT INTO countries (country_id, country_name) VALUES

('CA', 'Canada');
```

INSERT DATA INTO **THE JOBS TABLE**:

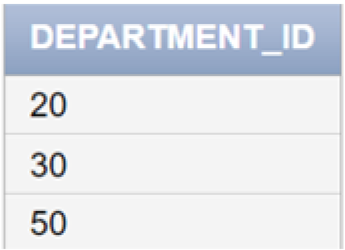
```
INSERT INTO jobs (job_id, job_title, min_salary, max_salary) VALUES

('ST_CLERK', 'Stock Clerk', 2000, 4000);
```

```
INSERT INTO jobs (job_id, job_title, min_salary, max_salary) VALUES
('IT_PROG', 'Programmer', 3000, 6000);
INSERT INTO jobs (job_id, job_title, min_salary, max_salary) VALUES
('SA_REP', 'Sales Representative', 4000, 8000);
INSERT INTO jobs (job_id, job_title, min_salary, max_salary) VALUES
('HR_REP', 'HR Representative', 2500, 5000);
```

Find the Solution for the following:

1. The HR department needs a list of department IDs for departments that do not contain the job ID ST_CLERK. Use set operators to create this report.

```
SELECT department_id
FROM departments
MINUS
   SELECT DISTINCT department_id
   FROM EMPLOYEES
   WHERE job_id = 'ST_CLERK';
```

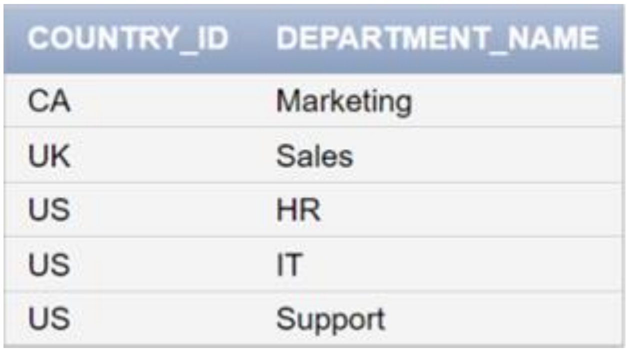


DEPARTMENT_ID
20
30
50

2. The HR department needs a list of countries that have no departments located in them. Display the country ID and the name of the countries. Use set operators to create this report.

```
SELECT country_id, country_name
FROM DEPARTMENTS
MINUS
```

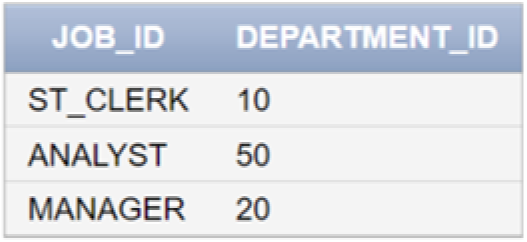
```
  SELECT DISTINCT country_id ,NULL
  FROM departments
WHERE DEPARTMENT_ID IS NOT NULL;
```



COUNTRY_ID	DEPARTMENT_NAME
CA	Marketing
UK	Sales
US	HR
US	IT
US	Support

3. Produce a list of jobs for departments 10, 50, and 20, in that order. Display job ID and department ID using set operators.

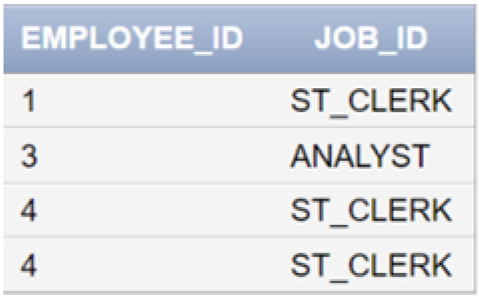
```
SELECT job_id, department_id
FROM EMPLOYEES
WHERE department_id = 10
UNION ALL
SELECT job_id, department_id
FROM EMPLOYEES
WHERE department_id = 20
UNION ALL
SELECT job_id, department_id
FROM EMPLOYEES
WHERE department_id = 50;
```



JOB_ID	DEPARTMENT_ID
ST_CLERK	10
ANALYST	50
MANAGER	20

4. Create a report that lists the employee IDs and job IDs of those employees who currently have a job title that is the same as their job title when they were initially hired by the company (that is, they changed jobs but have now gone back to doing their original job).

```
SELECT EMPLOYEE_ID, JOB_ID
FROM EMPLOYEES
WHERE JOB_ID = ORIGINAL_JOB_ID;
```

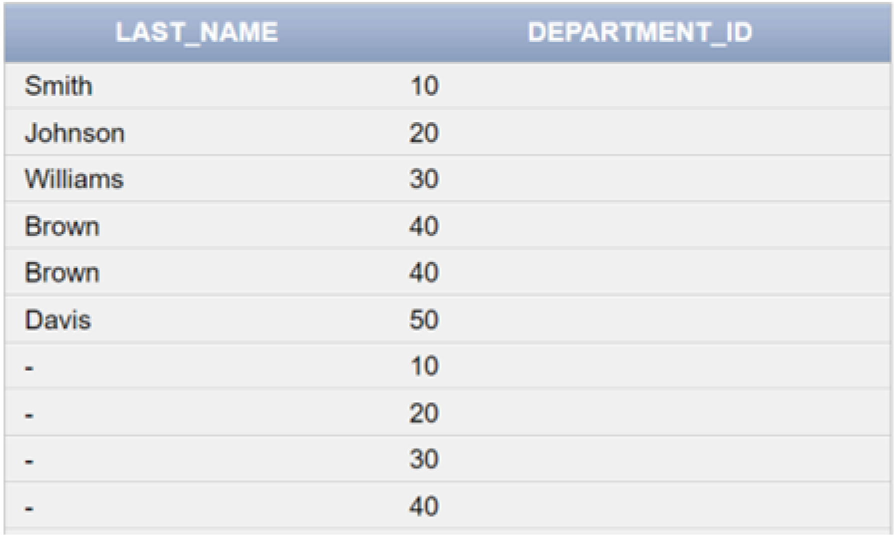


EMPLOYEE_ID	JOB_ID
1	ST_CLERK
3	ANALYST
4	ST_CLERK
4	ST_CLERK

5. The HR department needs a report with the following specifications:

- Last name and department ID of all the employees from the EMPLOYEES table, regardless of whether or not they belong to a department.
- Department ID and department name of all the departments from the DEPARTMENTS table, regardless of whether or not they have employees working in them Write a compound query to accomplish this.

```
SELECT last_name, department_id

FROM employees

UNION ALL

SELECT NULL AS LAST_NAME, DEPARTMENT_ID

FROM DEPARTMENTS;
```



LAST_NAME	DEPARTMENT_ID
Smith	10
Johnson	20
Williams	30
Brown	40
Brown	40
Davis	50
-	10
-	20
-	30
-	40