TASK-1

JOINS

PRACTICE

Introduction

In SQL, JOIN operations are used to combine rows from two or more tables based on a related column between them. These operations allow for querying data spread across multiple tables effectively, by retrieving related data.

Joins

SQL JOINs are used to retrieve data from multiple tables based on related columns. They enable combining rows from two or more tables based on a common field.

Types of joins

1. INNER JOIN: Combines rows from both tables where there is a match in the joining column.

2. LEFT JOIN (LEFT OUTER JOIN): Returns all rows from the left table and matched rows from the right table. Rows from the left table with no match in the right table will show NULL for columns from the right table.

3. RIGHT JOIN (RIGHT OUTER JOIN): Returns all rows from the right table and matched rows from the left table. Rows from the right table with no match in the left table will show NULL for columns from the left table.

4. FULL JOIN (FULL OUTER JOIN): Combines the result of both LEFT and RIGHT JOINs. It includes all rows from both tables, with NULLs where there are no matches.

Coding

```
SQL*Plus: Release 21.0.0.0.0 - Production on Fri Jan 17 20:20:52 2025

Version 21.3.0.0.0

Copyright (c) 1982, 2021, Oracle.  All rights reserved.

Enter user-name: system

Enter password:

Last Successful login time: Fri Jan 17 2025 20:18:38 +05:30

Connected to:

Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production

Version 21.3.0.0.0
```

#CREATING TABLES

(1)EMPLOYEES TABLE:

```
SQL> create table Employees(EmployeeID int,Name
varchar(100),DepartmentID int);

Table created.

SQL> insert into Employees values(1,'Alice',101);

1 row created.

SQL> insert into Employees values(2,'Rapunzel',102);

1 row created.

SQL> insert into Employees values(3,'Belle',NULL);

1 row created.

SQL> insert into Employees values(4,'Elsa',103);
```

```
1 row created.

SQL> insert into Employees values(5,'Ariel',104);

1 row created.

SQL> desc Employees;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPLOYEEID                                         NUMBER(38)
 NAME                                               VARCHAR2(100)
 DEPARTMENTID                                       NUMBER(38)
```

(2)DEPARTMENT TABLE:

```
SQL> create table Departments(DepartmentID int,DepartmentName
varchar(50));

Table created.

SQL> insert into Departments values(101,'HR');
```

```
1 row created.

SQL> insert into Departments values(102,'IT');

1 row created.

SQL> insert into Departments values(103,'Finance');

1 row created.

SQL> insert into Departments values(104,'Marketing');

1 row created.

SQL> desc Departments;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPARTMENTID                                       NUMBER(38)
 DEPARTMENTNAME                                     VARCHAR2(50)
```

#SQL QUERIES FOR JOINS

(1)INNER JOIN:

COMBINES ROWS FROM BOTH TABLES WHERE THERE IS A MATCHING DEPARTMENTID

```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName
from Employees e
  2  inner join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         1
Alice
         101 HR


         2
Rapunzel
         102 IT
```

```
EMPLOYEEID

----------

NAME

--------------------------------------------------------------------------------

DEPARTMENTID DEPARTMENTNAME

------------ --------------------------------------------------


        4

Elsa

        103 Finance


        5

Ariel


EMPLOYEEID

----------

NAME

--------------------------------------------------------------------------------

DEPARTMENTID DEPARTMENTNAME

------------ --------------------------------------------------

        104 Marketing
```

(2)LEFT JOIN

INCLUDES ALL ROWS FROM THE EMPLOYEES TABLE AND THE MATCHED ROWS FROM DEPARTMENTS.

NULLS ARE RETURNED FOR NON-MATCHING ROWS.

```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName from Employees e
  2  left join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         1
Alice
         101 HR


         2
Rapunzel
         102 IT
```

```
EMPLOYEEID

----------

NAME

--------------------------------------------------------------------------------

DEPARTMENTID DEPARTMENTNAME

------------ --------------------------------------------------



         4

Elsa

         103 Finance



         5

Ariel



EMPLOYEEID

----------

NAME

--------------------------------------------------------------------------------

DEPARTMENTID DEPARTMENTNAME

------------ --------------------------------------------------

         104 Marketing
```

```
        3
Belle
```

(3)RIGHT JOIN:

INCLUDES ALL ROWS FROM THE DEPARTMENTS TABLE AND THE MATCHED ROWS FROM EMPLOYEES.

NULLS ARE RETURNED FOR NON-MATCHING ROWS.

```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName from Employees e
  2  right join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
        1
Alice
        101 HR
```

```
         2
Rapunzel
         102 IT

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------


         4
Elsa
         103 Finance


         5
Ariel


EMPLOYEEID
----------
NAME
```

```
--------------------------------------------------------------------------------

DEPARTMENTID DEPARTMENTNAME

------------ --------------------------------------------------

         104 Marketing
```

(4)FULL JOIN:

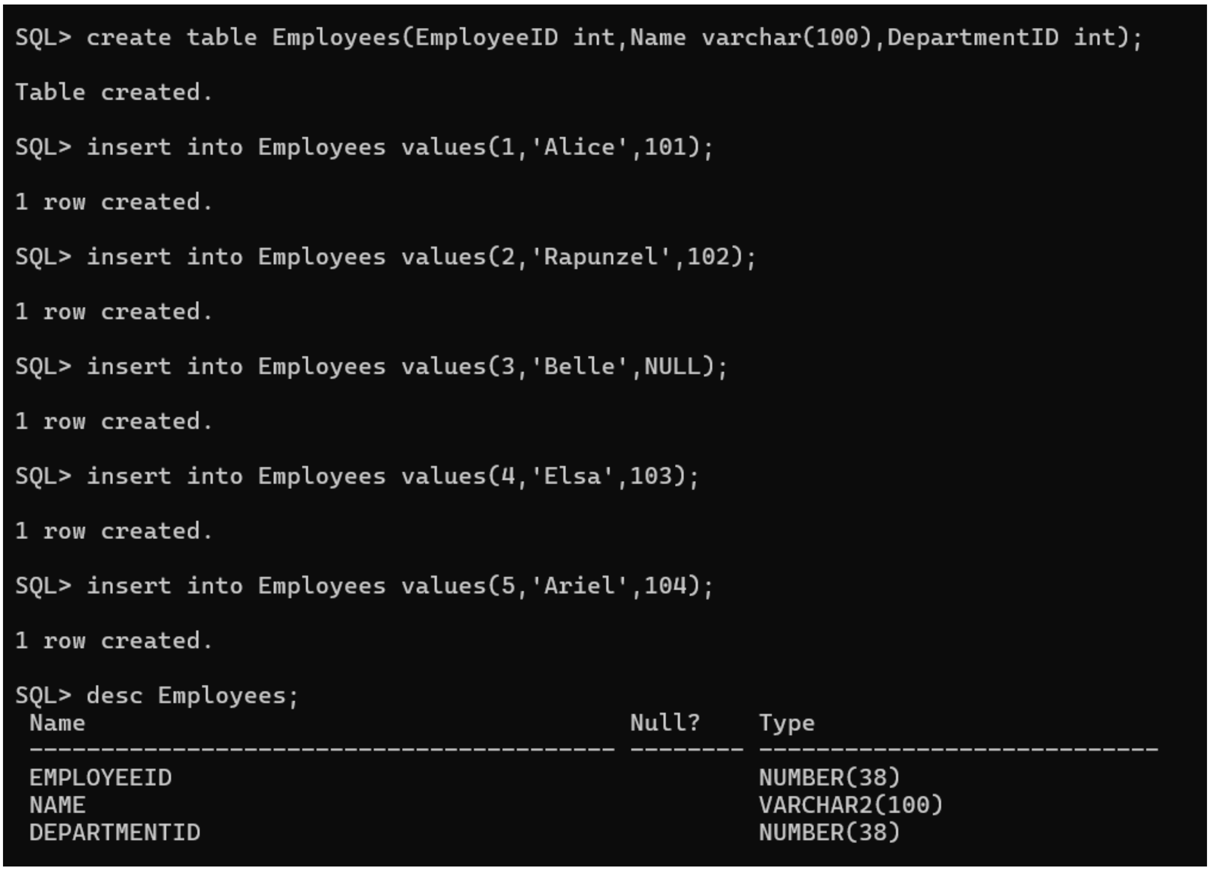
INCLUDES ALL ROWS FROM BOTH TABLES.NULLS ARE

RETURNED FOR NON-MATCHING ROWS.

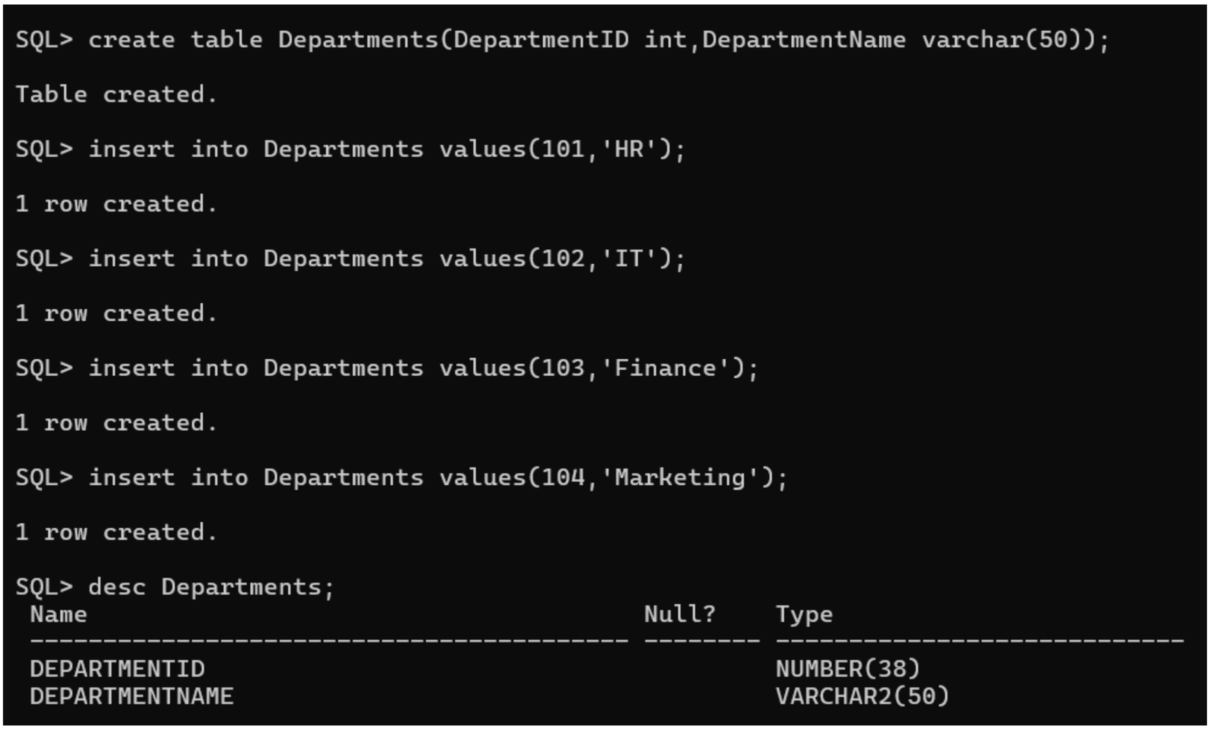
```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName from Employees e
  2  full join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         1
Alice
         101 HR
         2
Rapunzel
         102 IT

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------


         3
Belle



         4
Elsa


EMPLOYEEID
----------
NAME
```

```
--------------------------------------------------------------------------------

DEPARTMENTID DEPARTMENTNAME

------------ --------------------------------------------------

       103 Finance



         5

Ariel

       104 Marketing
```

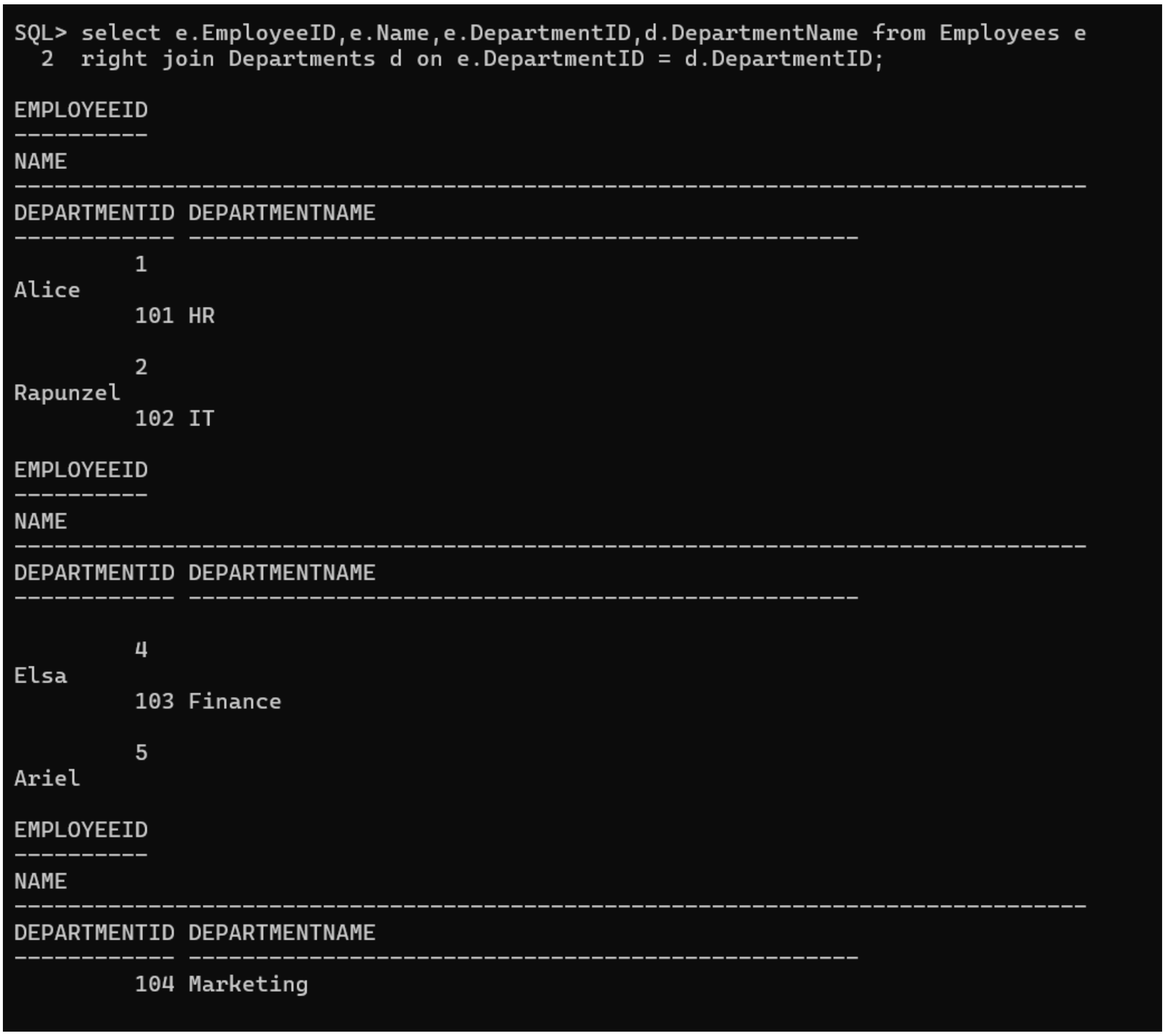
Output



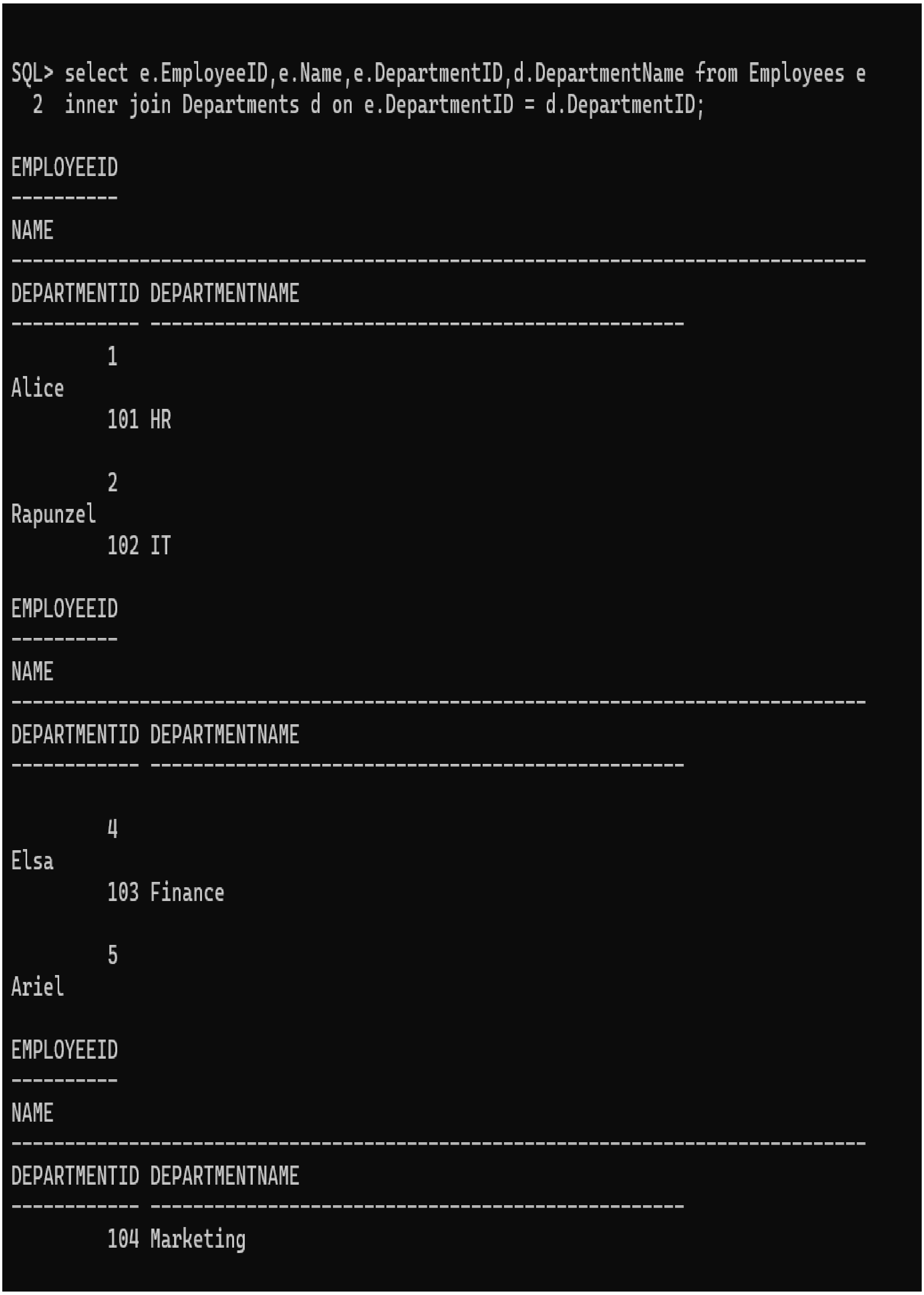
```
SQL> create table Employees(EmployeeID int,Name varchar(100),DepartmentID int);

Table created.

SQL> insert into Employees values(1,'Alice',101);

1 row created.

SQL> insert into Employees values(2,'Rapunzel',102);

1 row created.

SQL> insert into Employees values(3,'Belle',NULL);

1 row created.

SQL> insert into Employees values(4,'Elsa',103);

1 row created.

SQL> insert into Employees values(5,'Ariel',104);

1 row created.

SQL> desc Employees;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPLOYEEID                                         NUMBER(38)
 NAME                                               VARCHAR2(100)
 DEPARTMENTID                                       NUMBER(38)
```



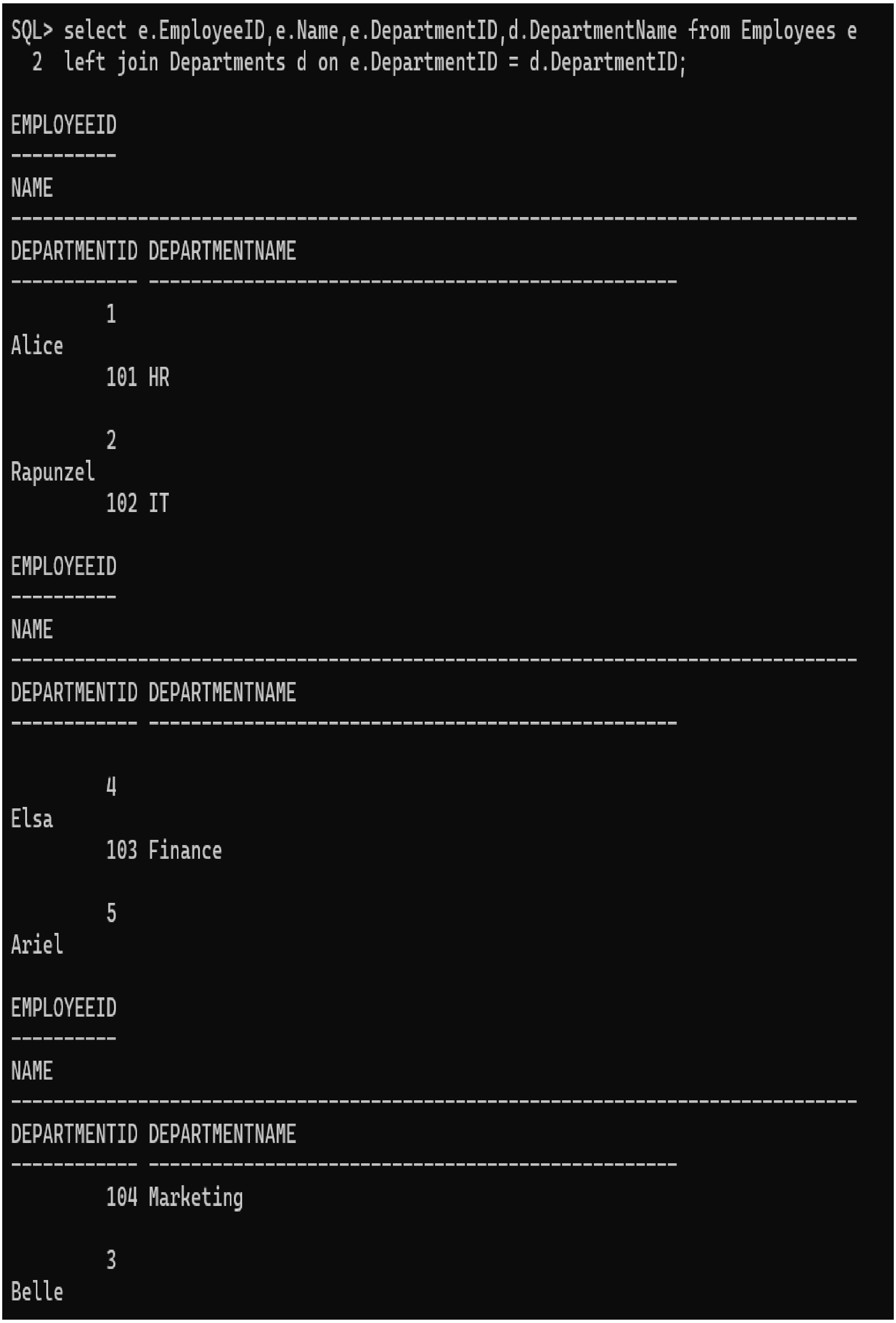
```
SQL> create table Departments(DepartmentID int,DepartmentName varchar(50));

Table created.

SQL> insert into Departments values(101,'HR');

1 row created.

SQL> insert into Departments values(102,'IT');

1 row created.

SQL> insert into Departments values(103,'Finance');

1 row created.

SQL> insert into Departments values(104,'Marketing');

1 row created.

SQL> desc Departments;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPARTMENTID                                       NUMBER(38)
 DEPARTMENTNAME                                     VARCHAR2(50)
```



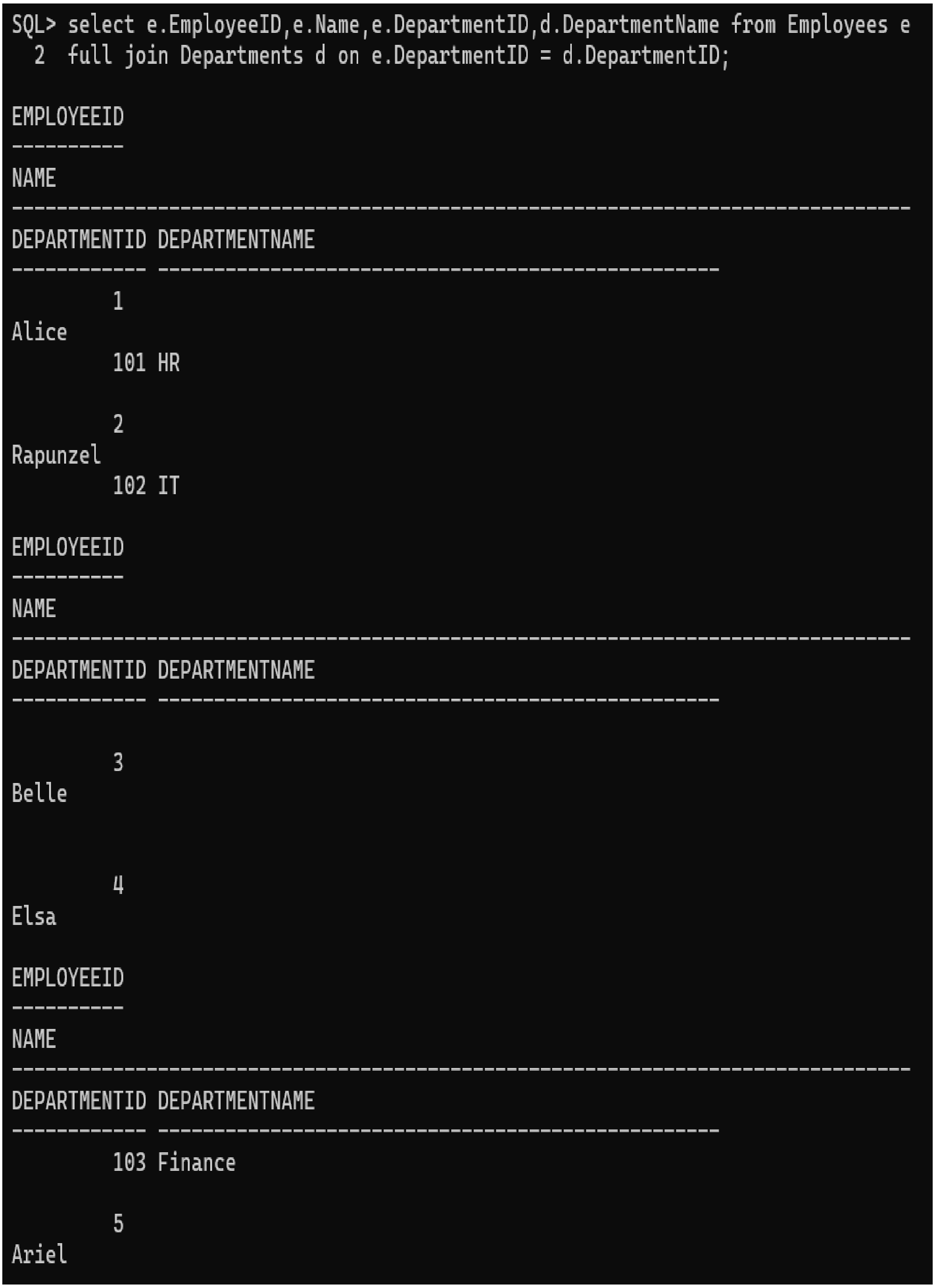
```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName from Employees e
  2  right join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         1
Alice
         101 HR

         2
Rapunzel
         102 IT

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------

         4
Elsa
         103 Finance

         5
Ariel

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         104 Marketing
```



```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName from Employees e
  2  inner join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         1
Alice
         101 HR

         2
Rapunzel
         102 IT

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------


         4
Elsa
         103 Finance

         5
Ariel

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         104 Marketing
```



```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName from Employees e
  2  left join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         1
Alice
         101 HR

         2
Rapunzel
         102 IT

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------

         4
Elsa
         103 Finance

         5
Ariel

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         104 Marketing

         3
Belle
```



```
SQL> select e.EmployeeID,e.Name,e.DepartmentID,d.DepartmentName from Employees e
  2  full join Departments d on e.DepartmentID = d.DepartmentID;

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         1
Alice
         101 HR

         2
Rapunzel
         102 IT

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------

         3
Belle


         4
Elsa

EMPLOYEEID
----------
NAME
--------------------------------------------------------------------------------
DEPARTMENTID DEPARTMENTNAME
------------ --------------------------------------------------
         103 Finance

         5
Ariel
```