1)SELECT \* FROM Student INNER JOIN Takes ON Student.Student\_ID=Takes.Student\_ID;

**Database University**

## Table structure for table Student

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| Student\_Name | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |

## Dumping data for table Student

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 | 2001 | 101 | 2023-03-01 | 2023-08-15 |
| 2001 | Sam | Computer | 4 | 2001 | 102 | 2023-03-03 | 2023-07-01 |
| 2002 | Mary | Civil | 3 | 2002 | 201 | 2022-07-31 | 2023-07-31 |
| 2003 | Judy | Electrical | 4 | 2003 | 301 | 2022-06-30 | 2024-09-24 |
| 2004 | Alice | Computer | 4 | 2004 | 101 | 2023-05-24 | 2023-08-20 |
| 2004 | Alice | Computer | 4 | 2004 | 102 | 2023-06-30 | 2024-06-30 |

2)SELECT \* FROM Student NATURAL JOIN Takes;

**Database University**

## Dumping data for table Student

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 |  | 101 | 2023-03-01 | 2023-08-15 |
| 2001 | Sam | Computer | 4 | 102 | 2023-03-03 | 2023-07-01 |
| 2002 | Mary | Civil | 3 | 201 | 2022-07-31 | 2023-07-31 |
| 2003 | Judy | Electrical | 4 | 301 | 2022-06-30 | 2024-09-24 |
| 2004 | Alice | Computer | 4 | 101 | 2023-05-24 | 2023-08-20 |
| 2004 | Alice | Computer | 4 | 102 | 2023-06-30 | 2024-06-30 |

3)SELECT \* FROM Student LEFT OUTER JOIN Takes ON Student.Student\_ID=Takes.Student\_ID;

**Database University**

## Table structure for table Student

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| Student\_Name | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |

## Dumping data for table Student

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 | 2001 | 101 | 2023-03-01 | 2023-08-15 |
| 2001 | Sam | Computer | 4 | 2001 | 102 | 2023-03-03 | 2023-07-01 |
| 2002 | Mary | Civil | 3 | 2002 | 201 | 2022-07-31 | 2023-07-31 |
| 2003 | Judy | Electrical | 4 | 2003 | 301 | 2022-06-30 | 2024-09-24 |
| 2004 | Alice | Computer | 4 | 2004 | 101 | 2023-05-24 | 2023-08-20 |
| 2004 | Alice | Computer | 4 | 2004 | 102 | 2023-06-30 | 2024-06-30 |

4)SELECT \* FROM Student RIGHT OUTER JOIN Takes ON Student.Student\_ID=Takes.Student\_ID;

**Database University**

## Table structure for table Student

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| Student\_Name | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |

## Dumping data for table Student

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 | 2001 | 101 | 2023-03-01 | 2023-08-15 |
| 2001 | Sam | Computer | 4 | 2001 | 102 | 2023-03-03 | 2023-07-01 |
| 2002 | Mary | Civil | 3 | 2002 | 201 | 2022-07-31 | 2023-07-31 |
| 2003 | Judy | Electrical | 4 | 2003 | 301 | 2022-06-30 | 2024-09-24 |
| 2004 | Alice | Computer | 4 | 2004 | 101 | 2023-05-24 | 2023-08-20 |
| 2004 | Alice | Computer | 4 | 2004 | 102 | 2023-06-30 | 2024-06-30 |

5)SELECT \* FROM Student LEFT OUTER JOIN Takes ON Student.Student\_ID = Takes.Student\_ID UNION ALL SELECT \* FROM Student RIGHT OUTER JOIN Takes ON Student.Student\_ID = Takes.Student\_ID WHERE Student.Student\_ID IS NULL;

**Database University**

## Table structure for table Student

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| Student\_Name | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |

## Dumping data for table Student

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2001 | Sam | Computer | 4 | 2001 | 101 | 2023-03-01 | 2023-08-15 |
| 2001 | Sam | Computer | 4 | 2001 | 102 | 2023-03-03 | 2023-07-01 |
| 2002 | Mary | Civil | 3 | 2002 | 201 | 2022-07-31 | 2023-07-31 |
| 2003 | Judy | Electrical | 4 | 2003 | 301 | 2022-06-30 | 2024-09-24 |
| 2004 | Alice | Computer | 4 | 2004 | 101 | 2023-05-24 | 2023-08-20 |
| 2004 | Alice | Computer | 4 | 2004 | 102 | 2023-06-30 | 2024-06-30 |

6)SELECT Student\_Name FROM Student WHERE Dept\_Name=’Computer’;

## Dumping data for table Student

|  |
| --- |
| Sam |
| Alice |

7)SELECT Student\_Name FROM Student JOIN Takes ON Student.Student\_ID=Takes.Student\_ID WHERE Takes.Course\_ID=101;

## Dumping data for table Student

|  |
| --- |
| Sam |
| Alice |

8)SELECT COUNT(\*) FROM Student JOIN Takes ON Student.Student\_ID=Takes.Student\_ID JOIN Course ON Takes.Course\_ID=Course.Course\_ID WHERE Course.Title='DBMQP';

**Database University**

## Table structure for table Student

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Student\_ID** | int(5) | No |  |
| Student\_Name | varchar(10) | Yes | NULL |
| Dept\_Name | varchar(10) | Yes | NULL |
| Total\_Credits | int(2) | Yes | NULL |

## Dumping data for table Student

|  |
| --- |
| 2 |

9)SELECT Student.Student\_Name,Course.Title FROM Student JOIN Takes ON Student.Student\_ID=Takes.Student\_ID JOIN Course ON Takes.Course\_ID=Course.Course\_ID WHERE Course.Course\_ID=102;

**Database University**

## Dumping data for table Student

|  |  |
| --- | --- |
| Sam | OS |
| Alice | OS |

10)SELECT COUNT(DISTINCT(Instructor.Instructor\_ID)) FROM Instructor JOIN Teaches ON Instructor.Instructor\_ID=Teaches.Instructor\_ID JOIN Takes ON Takes.Course\_ID=Teaches.Course\_ID JOIN Student ON Student.Student\_ID=Takes.Student\_ID WHERE Student.Student\_Name='Sam';

**Database University**

## Table structure for table Instructor

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Instructor\_ID** | int(5) | No |  |
| Instructor\_Name | varchar(10) | Yes | NULL |
| Department\_Name | varchar(10) | Yes | NULL |
| Salary | int(7) | Yes | NULL |

## Dumping data for table Instructor

|  |
| --- |
| 2 |

11)SELECT Course.Title FROM Course JOIN Teaches ON Course.Course\_ID=Teaches.Course\_ID JOIN Instructor ON Teaches.Instructor\_ID=Instructor.Instructor\_ID WHERE Instructor.Instructor\_Name='AAA';

## Dumping data for table Course

|  |
| --- |
| DBMQP |
| OS |

12)SELECT \* FROM Course JOIN Takes ON Course.Course\_ID=Takes.Course\_ID WHERE DATEDIFF(Takes.Date\_Out,Takes.Date\_In)>180;

**Database University**

## Table structure for table Course

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Course\_ID** | int(5) | No |  |
| Title | varchar(25) | Yes | NULL |
| Department\_Name | varchar(10) | Yes | NULL |
| Credits | int(2) | Yes | NULL |

## Dumping data for table Course

|  |
| --- |
| Mechanics |
| Signals and Systems |
| OS |

13)SELECT Instructor.Instructor\_Name FROM Instructor JOIN Teaches ON Instructor.Instructor\_ID=Teaches.Instructor\_ID WHERE Instructor.Salary>100000 AND Teaches.Course\_ID=103;

**Database University**

## Table structure for table Instructor

|  |  |  |  |
| --- | --- | --- | --- |
| Column | **Type** | **Null** | **Default** |
| **Instructor\_ID** | int(5) | No |  |
| Instructor\_Name | varchar(10) | Yes | NULL |
| Department\_Name | varchar(10) | Yes | NULL |
| Salary | int(7) | Yes | NULL |

## Dumping data for table Instructor

|  |
| --- |
|  |

14)SELECT Student\_Name,Dept\_Name,Total\_Credits FROM Student;

## Dumping data for table Student

|  |  |  |
| --- | --- | --- |
| Sam | Computer | 4 |
| Mary | Civil | 3 |
| Judy | Electrical | 4 |
| Alice | Computer | 4 |

15)SELECT Course.Title FROM Course WHERE Course.Credits>3;

## Dumping data for table Course

|  |
| --- |
| DBMQP |
| OS |
| Signals and Systems |

**Conclusion:**

SQL JOINS were studied and successfully implemented through queries.