Week 02: SQL Practice Tasks

Online IDE for practice: <http://www.sqlfiddle.com/>

Practice document: <https://github.com/NYU-DataScienceBootCamp/Week-2-SQL/blob/main/SQL_Practice.pdf>

|  |
| --- |
| **NOTE:** Make sure you answer the queries in the boxes given and paste screenshots in the output box.  **The solution queries will be posted on June 24th before the session** |

# Input Data

Use the database which was discussed during the session and feel free to change the attributes of the tables. Make sure that the following conditions are satisfied:

* There are three “tables”. One for storing Employee Details, One for Bonus, and One for Employee Title.
* There are at least 12 employees in the table which stores Employee Details.

NOTE: Make sure that you paste your input data in the box given below

|  |
| --- |
|  |

# Tasks

## SELECTing data

* Display the entire table containing the details of all the Employees  
    
  **QUERY:**

|  |
| --- |
| select \* FROM Employee; |

**OUTPUT:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 1 | Neville | Longbottom | 100000 | 2014-02-20 09:00:00 | HR | | 2 | Ronald | Weasley | 80000 | 2014-06-11 09:00:00 | Admin | | 3 | Hermoine | Granger | 300000 | 2014-02-20 09:00:00 | HR | | 4 | Harry | Potter | 500000 | 2014-02-20 09:00:00 | Admin | | 5 | Severus | Snape | 500000 | 2014-06-11 09:00:00 | Admin | | 6 | Luna | Lovegood | 200000 | 2014-06-11 09:00:00 | Account | | 7 | Draco | Malfoy | 75000 | 2014-01-20 09:00:00 | Account | | 8 | Minerva | Mcgonagall | 90000 | 2014-04-11 09:00:00 | Admin | |  |  |  |  |  |  | |

* Write a query to fetch “FIRST\_NAME” from the Employees table in the UPPER CASE  
    
  **QUERY:**

|  |
| --- |
| select Upper(FIRST\_NAME) from Employee; |

**OUTPUT:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | NEVILLE | | RONALD | | HERMOINE | | HARRY | | SEVERUS | | LUNA | | DRACO | | MINERVA | |

## GROUPing them together

* Write a query to fetch the number of Employees for each department in the descending order  
    
  **QUERY:**

|  |
| --- |
| * select DEPARTMENT, count(DEPARTMENT) * from Employee * group by DEPARTMENT * order by count(DEPARTMENT) DESC; |

**OUTPUT:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | Admin | 4 | | HR | 2 | | Account | 2 | |

## Using WHERE somewhere

* Write a query to fetch the names of the Employees with salaries >= 90000 and <= 200000  
    
  **QUERY:**

|  |
| --- |
| * select concat(FIRST\_NAME,' ',LAST\_NAME), SALARY * from Employee * where SALARY>=90000 and SALARY<=200000; |

**OUTPUT:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | Neville Longbottom | 100000 | | Luna Lovegood | 200000 | | Minerva Mcgonagall | 90000 | |

## JOINing the tables

* Write a query to print details of Employees who are also “Managers”  
    
  **QUERY:**

|  |
| --- |
| * select FIRST\_NAME,LAST\_NAME,SALARY,DEPARTMENT,JOINING\_DATE * from Employee AS e, Title as T * where e.EMPLOYEE\_ID = T.EMPLOYEE\_REF\_ID * and T.EMPLOYEE\_TITLE='Manager' ; |

**OUTPUT:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Neville | Longbottom | 100000 | HR | 2014-02-20 09:00:00 | | Severus | Snape | 500000 | Admin | 2014-06-11 09:00:00 | |

## COPYing

* Write an SQL query to clone a new table from another table  
    
  **QUERY:**

|  |
| --- |
| * create table NEW\_TABLE * AS SELECT \* FROM Employee; * select \* from NEW\_TABLE; |

**OUTPUT:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 1 | Neville | Longbottom | 100000 | 2014-02-20 09:00:00 | HR | | 2 | Ronald | Weasley | 80000 | 2014-06-11 09:00:00 | Admin | | 3 | Hermoine | Granger | 300000 | 2014-02-20 09:00:00 | HR | | 4 | Harry | Potter | 500000 | 2014-02-20 09:00:00 | Admin | | 5 | Severus | Snape | 500000 | 2014-06-11 09:00:00 | Admin | | 6 | Luna | Lovegood | 200000 | 2014-06-11 09:00:00 | Account | | 7 | Draco | Malfoy | 75000 | 2014-01-20 09:00:00 | Account | | 8 | Minerva | Mcgonagall | 90000 | 2014-04-11 09:00:00 | Admin | |

## Aliasing

* Find the average salary of employees in each department and name the AVG(SALARY) column as “AverageSalary”  
    
  **QUERY:**

|  |
| --- |
| * select DEPARTMENT, avg(SALARY) as AverageSalary * from Employee * group by DEPARTMENT; |

**OUTPUT:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| DEPARTMENT, AverageSalary   |  |  | | --- | --- | | HR | 200000.0000 | | Admin | 292500.0000 | | Account | 137500.0000 | |

## Some other stuff

* Write an SQL query to show the second-highest salary from a table  
    
  **QUERY:**

|  |
| --- |
| * SELECT MAX(SALARY) AS 2NDHIGHEST * FROM EMPLOYEE * WHERE SALARY<(SELECT MAX(SALARY) FROM EMPLOYEE); |

**OUTPUT:**

|  |
| --- |
| 300000 |

* Write an SQL query to show one row twice in results from a table

**QUERY:**

|  |
| --- |
| select \*  from EMPLOYEE cross join  (select 1 as n union all select 2) n ; |

**OUTPUT:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | 1 | Neville | Longbottom | 100000 | 2014-02-20 09:00:00 | HR | 2 | | 1 | Neville | Longbottom | 100000 | 2014-02-20 09:00:00 | HR | 1 | | 2 | Ronald | Weasley | 80000 | 2014-06-11 09:00:00 | Admin | 2 | | 2 | Ronald | Weasley | 80000 | 2014-06-11 09:00:00 | Admin | 1 | | 3 | Hermoine | Granger | 300000 | 2014-02-20 09:00:00 | HR | 2 | | 3 | Hermoine | Granger | 300000 | 2014-02-20 09:00:00 | HR | 1 | | 4 | Harry | Potter | 500000 | 2014-02-20 09:00:00 | Admin | 2 | | 4 | Harry | Potter | 500000 | 2014-02-20 09:00:00 | Admin | 1 | | 5 | Severus | Snape | 500000 | 2014-06-11 09:00:00 | Admin | 2 | | 5 | Severus | Snape | 500000 | 2014-06-11 09:00:00 | Admin | 1 | | 6 | Luna | Lovegood | 200000 | 2014-06-11 09:00:00 | Account | 2 | | 6 | Luna | Lovegood | 200000 | 2014-06-11 09:00:00 | Account | 1 | | 7 | Draco | Malfoy | 75000 | 2014-01-20 09:00:00 | Account | 2 | | 7 | Draco | Malfoy | 75000 | 2014-01-20 09:00:00 | Account | 1 | | 8 | Minerva | Mcgonagall | 90000 | 2014-04-11 09:00:00 | Admin | 2 | | 8 | Minerva | Mcgonagall | 90000 | 2014-04-11 09:00:00 | Admin | 1 | |

* Write an SQL query to fetch the departments that have less than five people in it  
    
  **QUERY:**

|  |
| --- |
| * SELECT DEPARTMENT, COUNT(EMPLOYEE\_ID) * FROM EMPLOYEE * GROUP BY DEPARTMENT HAVING COUNT(EMPLOYEE\_ID) < 5; |

**OUTPUT:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | HR | 2 | | Admin | 4 | | Account | 2 | |

* Write an SQL query to fetch the last five records from a table  
    
  **QUERY:**

|  |
| --- |
| SELECT \* FROM (SELECT \* FROM EMPLOYEE W order by W.EMPLOYEE\_ID DESC) AS W1 WHERE EMPLOYEE\_ID <=8 AND EMPLOYEE\_ID >=4; |

**OUTPUT:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | EMPLOYEE\_ID | FIRST\_NAME | LAST\_NAME | SALARY | JOINING\_DATE | DEPARTMENT | | | 8 | Minerva | Mcgonagall | 90000 | 4/11/2014 9:00 | Admin |  | | 7 | Draco | Malfoy | 75000 | 1/20/2014 9:00 | Account |  | | 6 | Luna | Lovegood | 200000 | 6/11/2014 9:00 | Account |  | | 5 | Severus | Snape | 500000 | 6/11/2014 9:00 | Admin |  | | 4 | Harry | Potter | 500000 | 2/20/2014 9:00 | Admin |  | |  |  |  |  |  |  |  | |