MY UNIVERSITY
STEP INTO TOMORROW

DepartmentofComputerScience

Spring-2024 DataBase Systems (CS-103)

Lab Task # 07

SQL-Joins

Instructors: Mr. Hamza Javed

Date: 4 June 2024

Important Instruction

1. No plagiarism allowed.
2. You will required to submit only soft copy via google classroom
3. Late submission not accepted
4. Rename submission file DB24-Name-RegNo. **like: DB24-hamza-1234**
5. You will required to submit single **pdf**

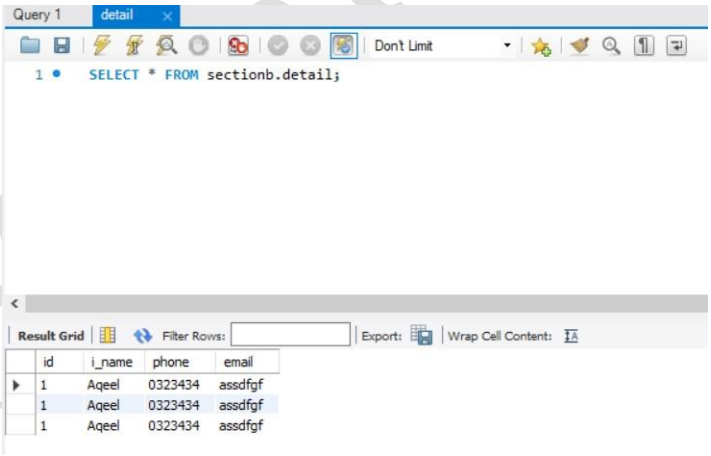
Submission Example

Question .

Write query to select all data from table:

Solution

SELECT * FROM db.detail;



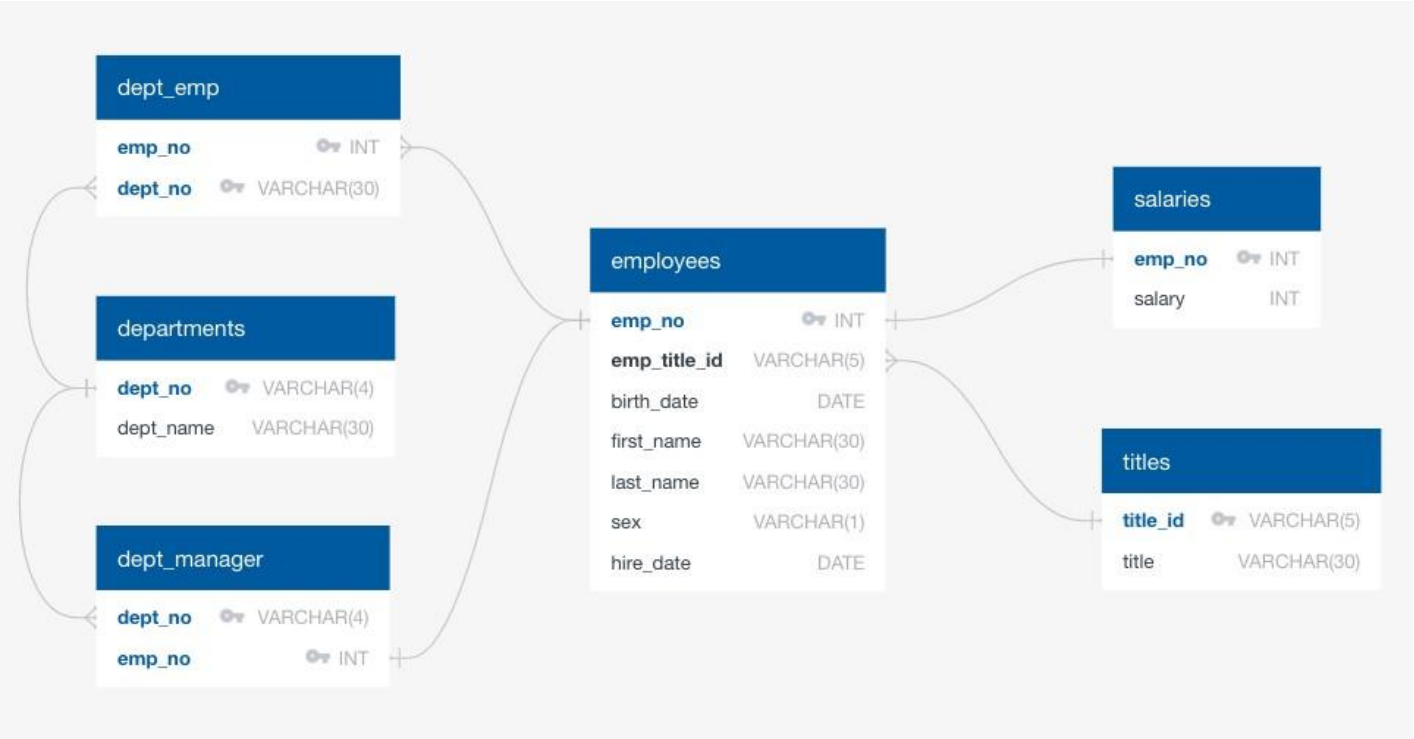
Employee Database

It is a beautiful summer day. you have been hired as a new database Engineering. In this lab task, you will design the tables and answer questions about the data.

1. The Entity relation diagram are shown below and you will required to create database according to that.

2. The dataset enclosed in .cvs file. you can get the data and insert maximum 7-10 rows in each table of yours own created database.

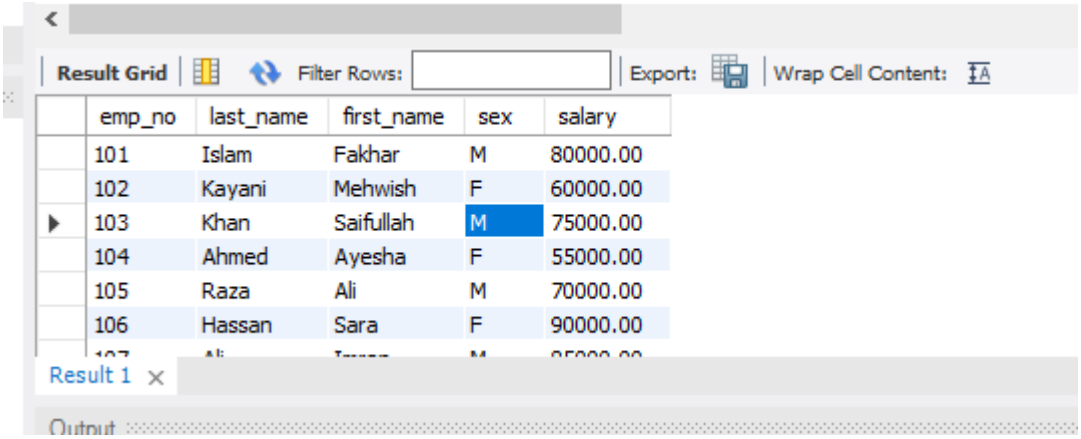
Date: 4 June 2024 – Lab Task # 07 2



Question 1

List the following details of each employee: employee number, last name, first name, sex, and salary.

```
SELECT
    e.emp_no,
    e.last_name,
    e.first_name,
    e.sex,
    s.salary
FROM
    employees e
JOIN
    salaries s ON e.emp_no = s.emp_no;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

emp_no	last_name	first_name	sex	salary
101	Islam	Fakhar	M	80000.00
102	Kayani	Mehwish	F	60000.00
103	Khan	Saifullah	M	75000.00
104	Ahmed	Ayesha	F	55000.00
105	Raza	Ali	M	70000.00
106	Hassan	Sara	F	90000.00

Result 1 | Output

Question 2

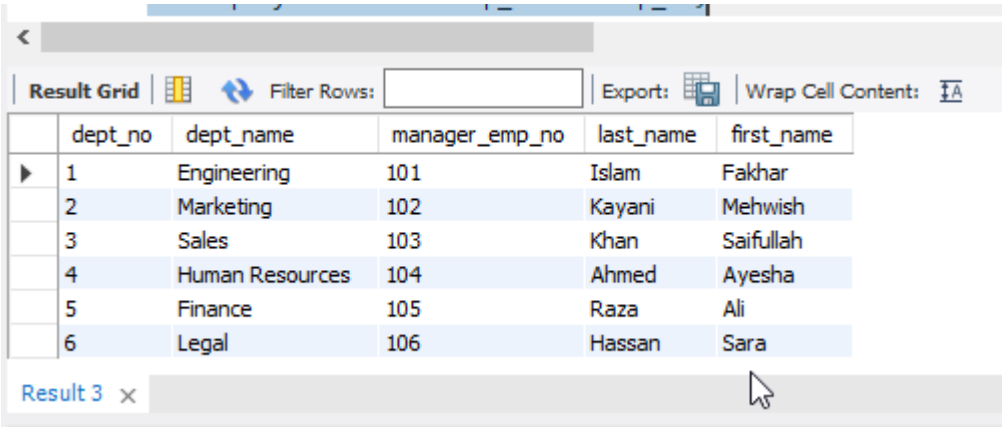
List first name, last name, and hire date for employees who were hired in 1986.

```
SELECT
   first_name,
   last_name,
   hire_date
FROM
   employees
WHERE
   YEAR(hire_date) = 1986;
```

Question 3

List the manager of each department with the following information: department number, department name, the manager's employee number, last name, first name.

```
SELECT
   d.dept_no,
   d.dept_name,
   dm.emp_no AS manager_emp_no,
   e.last_name,
   e.first_name
FROM
   departments d
JOIN
   dept_manager dm ON d.dept_no = dm.dept_no
JOIN
   employees e ON dm.emp_no = e.emp_no;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

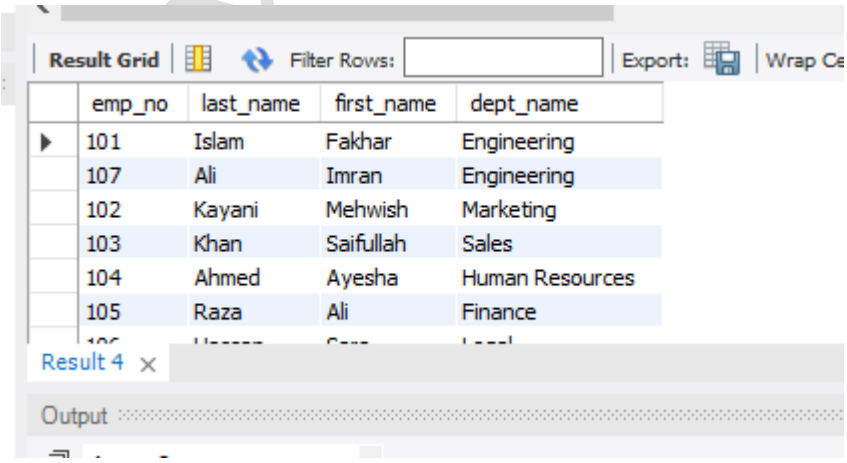
dept_no	dept_name	manager_emp_no	last_name	first_name
1	Engineering	101	Islam	Fakhar
2	Marketing	102	Kayani	Mehwish
3	Sales	103	Khan	Saifullah
4	Human Resources	104	Ahmed	Ayesha
5	Finance	105	Raza	Ali
6	Legal	106	Hassan	Sara

Result 3

Question 4

List the department of each employee with the following information: employee number, last name, first name, and department name.

```
SELECT
   e.emp_no,
   e.last_name,
   e.first_name,
   d.dept_name
FROM
   employees e
JOIN
   dept_emp de ON e.emp_no = de.emp_no
JOIN
   departments d ON de.dept_no = d.dept_no;
```



Result Grid | Filter Rows: | Export: | Wrap Ce

emp_no	last_name	first_name	dept_name
101	Islam	Fakhar	Engineering
107	Ali	Imran	Engineering
102	Kayani	Mehwish	Marketing
103	Khan	Saifullah	Sales
104	Ahmed	Ayesha	Human Resources
105	Raza	Ali	Finance

Result 4

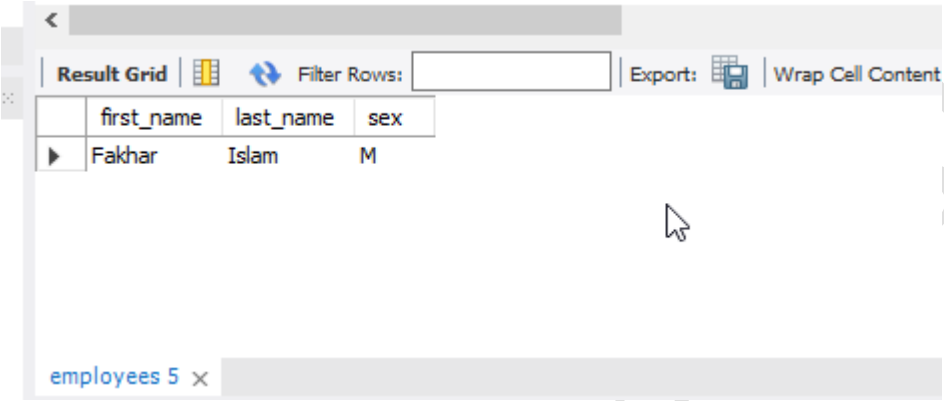
Output

Question 5

List first name, last name, and sex for employees whose first name is "Hercules.ªnd last names begin with "B."

```
SELECT
```

```
    first_name,
    last_name,
    sex
FROM
    employees
WHERE
    first_name = 'Fakhar'
    AND last_name LIKE 'I%';
```

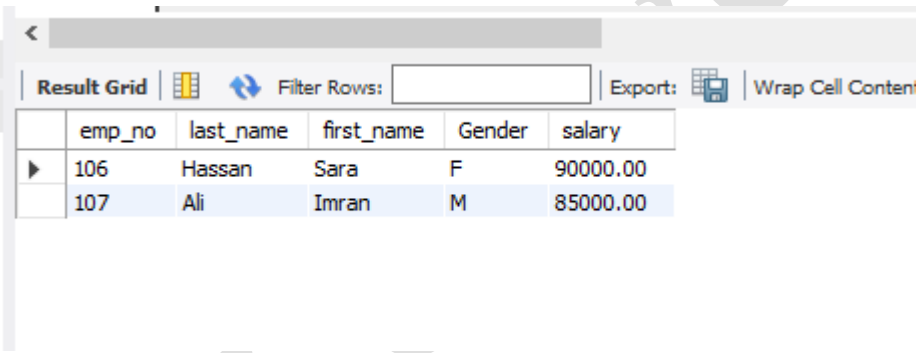


Question 6

List only single gender (Male/Female)employee which contain maximum salary. with the following information: employee number, last name, first name, Gender and salaries.

```
SELECT
    e.emp_no,
    e.last_name,
    e.first_name,
    e.sex AS Gender,
    s.salary
FROM
    employees e
JOIN
    salaries s ON e.emp_no = s.emp_no
WHERE
    s.salary = (
        SELECT
            MAX(salary)
```

```
    FROM
      salaries
    WHERE
      emp_no IN (
        SELECT
          emp_no
        FROM
          employees
        WHERE
          sex = e.sex
      )
  )
ORDER BY
  e.sex;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content

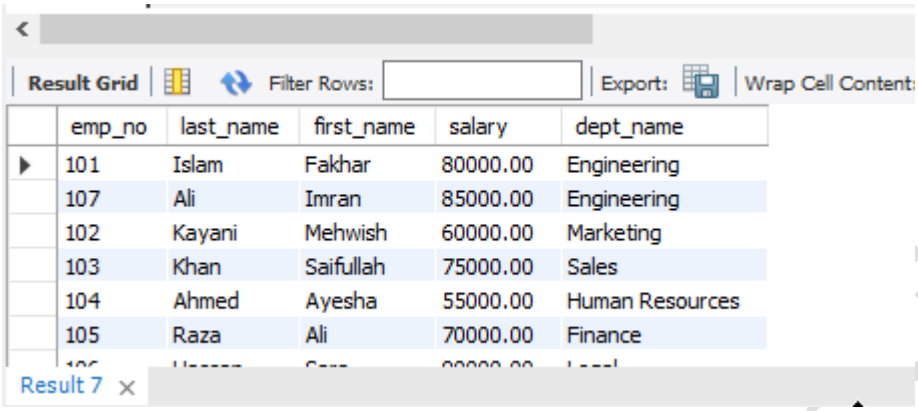
emp_no	last_name	first_name	Gender	salary
106	Hassan	Sara	F	90000.00
107	Ali	Imran	M	85000.00

Question 7

List the department and salary of each employee with the following information: employee number, last name, first name, salary and department name.

```
SELECT
  e.emp_no,
  e.last_name,
  e.first_name,
  s.salary,
  d.dept_name
FROM
  employees e
JOIN
```

```
    salaries s ON e.emp_no = s.emp_no
JOIN
    dept_emp de ON e.emp_no = de.emp_no
JOIN
    departments d ON de.dept_no = d.dept_no;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

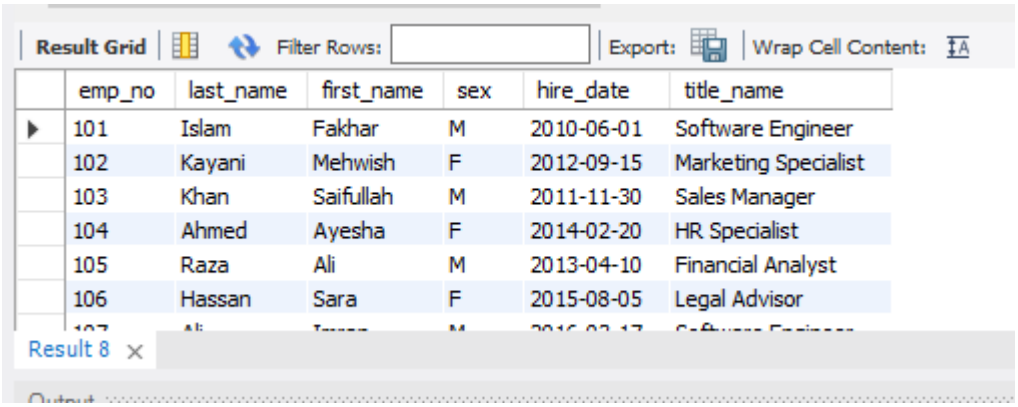
emp_no	last_name	first_name	salary	dept_name
101	Islam	Fakhar	80000.00	Engineering
107	Ali	Imran	85000.00	Engineering
102	Kayani	Mehwish	60000.00	Marketing
103	Khan	Saifullah	75000.00	Sales
104	Ahmed	Ayesha	55000.00	Human Resources
105	Raza	Ali	70000.00	Finance

Result 7

Question 8

Apply left join on employee table with titles

```
SELECT
    e.emp_no,
    e.last_name,
    e.first_name,
    e.sex,
    e.hire_date,
    t.title_name
FROM
    employees e
LEFT JOIN
    titles t ON e.emp_title_id = t.title_id;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

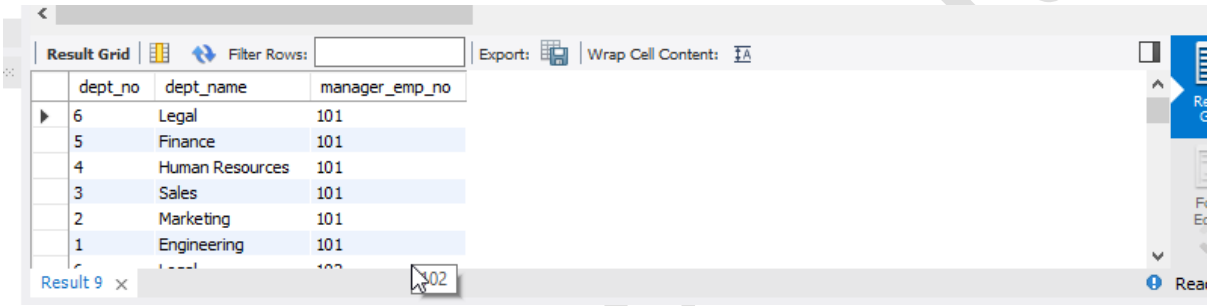
emp_no	last_name	first_name	sex	hire_date	title_name
101	Islam	Fakhar	M	2010-06-01	Software Engineer
102	Kayani	Mehwish	F	2012-09-15	Marketing Specialist
103	Khan	Saifullah	M	2011-11-30	Sales Manager
104	Ahmed	Ayesha	F	2014-02-20	HR Specialist
105	Raza	Ali	M	2013-04-10	Financial Analyst
106	Hassan	Sara	F	2015-08-05	Legal Advisor

Result 8

Question 9

Apply Cross join with department and dept manager.

```
SELECT
    d.dept_no,
    d.dept_name,
    dm.emp_no AS manager_emp_no
FROM
    departments d
CROSS JOIN
    dept_manager dm;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept_no	dept_name	manager_emp_no
6	Legal	101
5	Finance	101
4	Human Resources	101
3	Sales	101
2	Marketing	101
1	Engineering	101

Result 9

Question 10

Apply Right join on employee table with department

```
SELECT
    e.emp_no,
    e.last_name,
    e.first_name,
    e.sex,
    e.hire_date,
    d.dept_no,
    d.dept_name
FROM
    departments d
RIGHT JOIN
    employees e ON e.emp_no = d.emp_no;
```