BICT.Honours in Information & Communication Technology

ICT1222 (P) Database Management Systems Practicum

Level 1- Semester 2 | 2022

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Practical 4 Tutorial

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FACULTY OF TECHNOLOGY
UNIVERSITY OF RUHUNA

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Student No: **TG/2020/749**

Student Name: **H.P.G. Lahiru Prasad Jayathilake**

Exercise

```
mysql> CREATE DATABASE Practical_04_part02;
Query OK, 1 row affected (0.01 sec)

mysql>
mysql> SHOW DATABASES;
+----------------------+
| Database             |
+----------------------+
| information_schema   |
| lahiru01             |
| mysql                |
| performance_schema   |
| practical03          |
| practical_04         |
| practical_04_part02  |
| sakila               |
| sys                  |
| tg749                |
| world                |
+----------------------+
11 rows in set (0.01 sec)

mysql>
mysql> USE Practical_04_part02;
Database changed
mysql>
```

Exercise - 01

```
mysql> DROP TABLE Jobs;
Query OK, 0 rows affected (0.02 sec)

mysql> CREATE TABLE Jobs(
    -> JOB_ID VARCHAR(25) NOT NULL PRIMARY KEY,
    -> JOB_TITLE VARCHAR(35) NOT  NULL,
    -> MIN_SALARY DECIMAL(6,0) DEFAULT 8000,
    -> MAX_SALARY DECIMAL(6,0)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> DESC Jobs;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| JOB_ID     | varchar(25) | NO   | PRI | NULL    |       |
| JOB_TITLE  | varchar(35) | NO   |     | NULL    |       |
| MIN_SALARY | decimal(6,0)| YES  |     | 8000    |       |
| MAX_SALARY | decimal(6,0)| YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
```

```
mysql> INSERT INTO Jobs
    -> (JOB_ID,JOB_TITLE,MIN_SALARY,MAX_SALARY)
    -> VALUES
    -> ('AD_PRES','Doctor',110000,150000),
    -> ('AD_VP','Teacher',60000,80000),
    -> ('IT_PROG','SOF-Engeer',60000,80000)
    -> ;
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM Jobs;
+---------+------------+------------+------------+
| JOB_ID  | JOB_TITLE  | MIN_SALARY | MAX_SALARY |
+---------+------------+------------+------------+
| AD_PRES | Doctor     |     110000 |     150000 |
| AD_VP   | Teacher    |      60000 |      80000 |
| IT_PROG | SOF-Engeer |      60000 |      80000 |
+---------+------------+------------+------------+
3 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE employees(
    -> EMPLOYEE_ID DECIMAL(6,0) NOT NULL PRIMARY KEY,
    -> FIRST_NAME VARCHAR(20),
    -> LAST_NAME VARCHAR(25),
    -> EMAIL VARCHAR(25),
    -> PHONE_NUMBER VARCHAR(20) NOT NULL,
    -> HIRE_DATE DATE,
    -> JOB_ID VARCHAR(10) NOT NULL,
    -> SALARY DECIMAL(8,2),
    -> COMMISSION_PACT DECIMAL(2,2),
    -> MANAGER_ID DECIMAL(6,0),
    -> DEPARMENT_ID DECIMAL(6,0),
    -> FOREIGN KEY (JOB_ID) REFERENCES Jobs(JOB_ID)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> DESC employees;
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| EMPLOYEE_ID     | decimal(6,0) | NO   | PRI | NULL    |       |
| FIRST_NAME      | varchar(20)  | YES  |     | NULL    |       |
| LAST_NAME       | varchar(25)  | YES  |     | NULL    |       |
| EMAIL           | varchar(25)  | YES  |     | NULL    |       |
| PHONE_NUMBER    | varchar(20)  | NO   |     | NULL    |       |
| HIRE_DATE       | date         | YES  |     | NULL    |       |
| JOB_ID          | varchar(10)  | NO   | MUL | NULL    |       |
| SALARY          | decimal(8,2) | YES  |     | NULL    |       |
| COMMISSION_PACT | decimal(2,2) | YES  |     | NULL    |       |
| MANAGER_ID      | decimal(6,0) | YES  |     | NULL    |       |
| DEPARMENT_ID    | decimal(6,0) | YES  |     | NULL    |       |
+-----------------+--------------+------+-----+---------+-------+
11 rows in set (0.00 sec)
```

Exercise - 02

```
mysql> INSERT INTO employees
    -> (EMPLOYEE_ID,FIRST_NAME,LAST_NAME,EMAIL,PHONE_NUMBER,HIRE_DATE,JOB_ID,SALARY,COMMISSION_PACT,MANAGER_ID,DEPARMENT_ID)
    -> VALUES
    -> (100,'Steven','King','SKING','515.123.4567','1987-06-17','AD_PRES',24000.00,0.00,0,90),
    -> (101,'Neena','Kochhar','NKOCHHAR','515.123.4568','1987-06-18','AD_VP',17000.00,0.00,100,90),
    -> (102,'Lex','De Haan','LDEHAAN','515.123.4569','1987-06-19','AD_VP',17000.00,0.00,100,90),
    -> (103,'Alexander','Hunold','AHUNOLD','590.423.4567','1987-06-20','IT_PROG',9000.00,0.00,102,60),
    -> (104,'Bruce','Ernst','BERNST','590.423.4568','1987-06-21','IT_PROG',6000.00,0.00,103,60),
    -> (105,'David','Austin','DAUSTIN','590.423.4569','1987-06-22','IT_PROG',4800.00,0.00,103,60),
    -> (106,'Valli','Pataballa','VPATABAL','590.423.4560','1987-06-23','IT_PROG',4800.00,0.00,103,60)
    -> ;
Query OK, 7 rows affected (0.01 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql>
mysql> SELECT * FROM employees;
+-------------+------------+-----------+----------+--------------+------------+----------+----------+-----------------+------------+---------------+
| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL    | PHONE_NUMBER | HIRE_DATE  | JOB_ID   | SALARY   | COMMISSION_PACT | MANAGER_ID | DEPARMENT_ID |
+-------------+------------+-----------+----------+--------------+------------+----------+----------+-----------------+------------+---------------+
|         100 | Steven     | King      | SKING    | 515.123.4567 | 1987-06-17 | AD_PRES  | 24000.00 |            0.00 |          0 |            90 |
|         101 | Neena      | Kochhar   | NKOCHHAR | 515.123.4568 | 1987-06-18 | AD_VP    | 17000.00 |            0.00 |        100 |            90 |
|         102 | Lex        | De Haan   | LDEHAAN  | 515.123.4569 | 1987-06-19 | AD_VP    | 17000.00 |            0.00 |        100 |            90 |
|         103 | Alexander  | Hunold    | AHUNOLD  | 590.423.4567 | 1987-06-20 | IT_PROG  |  9000.00 |            0.00 |        102 |            60 |
|         104 | Bruce      | Ernst     | BERNST   | 590.423.4568 | 1987-06-21 | IT_PROG  |  6000.00 |            0.00 |        103 |            60 |
|         105 | David      | Austin    | DAUSTIN  | 590.423.4569 | 1987-06-22 | IT_PROG  |  4800.00 |            0.00 |        103 |            60 |
|         106 | Valli      | Pataballa | VPATABAL | 590.423.4560 | 1987-06-23 | IT_PROG  |  4800.00 |            0.00 |        103 |            60 |
+-------------+------------+-----------+----------+--------------+------------+----------+----------+-----------------+------------+---------------+
7 rows in set (0.00 sec)
```

Exercise - 03

```
mysql> SELECT COUNT(DISTINCT(JOB_ID)) AS Number_Of_Jobs FROM employees;
+---------------+
| Number_Of_Jobs |
+---------------+
|              3 |
+---------------+
1 row in set (0.01 sec)
```

Exercise - 04

```
mysql> SELECT SUM(SALARY) AS Total_Of_Salary FROM employees;
+-----------------+
| Total_Of_Salary |
+-----------------+
|        82600.00 |
+-----------------+
1 row in set (0.00 sec)
```

Exercise - 05

```
mysql> SELECT MIN(SALARY) AS Minimum_Of_Salary FROM employees;
+-------------------+
| Minimum_Of_Salary |
+-------------------+
|           4800.00 |
+-------------------+
1 row in set (0.01 sec)
```

Exercise - 06

```
mysql> SELECT MAX(SALARY) AS Maximum_Of_Salary
    -> FROM employees
    -> WHERE JOB_ID='IT_PROG';
+-------------------+
| Maximum_Of_Salary |
+-------------------+
|           9000.00 |
+-------------------+
1 row in set (0.00 sec)
```

Exercise - 07

```
mysql> SELECT AVG(SALARY),COUNT(EMPLOYEE_ID)  AS Average_Of_Salary
    -> FROM employees
    -> WHERE DEPARMENT_ID=90;
+--------------+-------------------+
| AVG(SALARY)  | Average_Of_Salary |
+--------------+-------------------+
| 19333.333333 |                 3 |
+--------------+-------------------+
1 row in set (0.00 sec)
```

Exercise - 08

```
mysql> SELECT MAX(SALARY) 'Maximum',
    -> MIN(SALARY) 'Minimum',
    -> SUM(SALARY) 'Sumertion',
    -> AVG(SALARY) 'Average'
    -> FROM employees;
+----------+---------+-----------+--------------+
| Maximum  | Minimum | Sumertion | Average      |
+----------+---------+-----------+--------------+
| 24000.00 | 4800.00 |  82600.00 | 11800.000000 |
+----------+---------+-----------+--------------+
1 row in set (0.00 sec)

mysql> _
```

Exercise - 09

```
mysql> SELECT JOB_ID, COUNT(*)
    -> FROM employees
    -> GROUP By JOB_ID
    -> ;
+---------+----------+
| JOB_ID  | COUNT(*) |
+---------+----------+
| AD_PRES |        1 |
| AD_VP   |        2 |
| IT_PROG |        4 |
+---------+----------+
3 rows in set (0.01 sec)
```

Exercise - 10

```
mysql> SELECT MAX(SALARY)-MIN(SALARY)
    -> FROM employees;
+--------------------------+
| MAX(SALARY)-MIN(SALARY) |
+--------------------------+
|                 19200.00 |
+--------------------------+
1 row in set (0.00 sec)
```

Exercise - 11

```
mysql> SELECT MANAGER_ID, MIN(SALARY)
    -> FROM employees
    -> WHERE MANAGER_ID IS NOT NULL
    -> GROUP BY MANAGER_ID
    -> ORDER BY MIN(salary)
    -> ;
+------------+-------------+
| MANAGER_ID | MIN(SALARY) |
+------------+-------------+
|        103 |     4800.00 |
|        102 |     9000.00 |
|        100 |    17000.00 |
|          0 |    24000.00 |
+------------+-------------+
4 rows in set (0.01 sec)
```

Exercise - 12

```
mysql> SELECT DEPARMENT_ID, SUM(SALARY)
    -> FROM employees
    -> GROUP BY DEPARMENT_ID
    -> ;
+--------------+-------------+
| DEPARMENT_ID | SUM(SALARY) |
+--------------+-------------+
|           90 |    58000.00 |
|           60 |    24600.00 |
+--------------+-------------+
2 rows in set (0.00 sec)
```

Exercise - 13

```
mysql> SELECT *
    -> FROM employees
    -> WHERE LENGTH (first_name) >= 8;
+-------------+------------+-----------+---------+--------------+------------+---------+---------+----------------+------------+---------------+
| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL   | PHONE_NUMBER | HIRE_DATE  | JOB_ID  | SALARY  | COMMISSION_PACT | MANAGER_ID | DEPARMENT_ID |
+-------------+------------+-----------+---------+--------------+------------+---------+---------+----------------+------------+---------------+
|         103 | Alexander  | Hunold    | AHUNOLD | 590.423.4567 | 1987-06-20 | IT_PROG | 9000.00 |           0.00 |        102 |            60 |
+-------------+------------+-----------+---------+--------------+------------+---------+---------+----------------+------------+---------------+
1 row in set (0.00 sec)
```

\\

Exercise - 14

```
mysql>
mysql> SELECT * FROM employees
    -> WHERE FIRST_NAME = BINARY UPPER(FIRST_NAME);
Empty set, 1 warning (0.01 sec)
```

Exercise - 15

```
mysql> SELECT * FROM employees
    -> WHERE FIRST_NAME = BINARY UPPER(FIRST_NAME);
Empty set, 1 warning (0.01 sec)

mysql> SELECT RIGHT(phone_number, 4) as 'Phone Number.' FROM employees;
+---------------+
| Phone Number. |
+---------------+
| 4567          |
| 4568          |
| 4569          |
| 4567          |
| 4568          |
| 4569          |
| 4560          |
+---------------+
7 rows in set (0.00 sec)
```

Exercise - 16

```
mysql> SELECT FIRST_NAME "First Name",  LAST_NAME "Last Name"
    -> FROM employees;
+------------+-----------+
| First Name | Last Name |
+------------+-----------+
| Steven     | King      |
| Neena      | Kochhar   |
| Lex        | De Haan   |
| Alexander  | Hunold    |
| Bruce      | Ernst     |
| David      | Austin    |
| Valli      | Pataballa |
+------------+-----------+
7 rows in set (0.00 sec)
```

Exercise - 17

```
mysql> SELECT DISTINCT DEPARMENT_ID
    -> FROM employees;
+--------------+
| DEPARMENT_ID |
+--------------+
|           90 |
|           60 |
+--------------+
2 rows in set (0.00 sec)
```

Exercise - 18

```
mysql> SELECT JOB_ID as "Employee-ID",
    -> CONCAT(FIRST_NAME,',',EMAIL) as"Basic-data"
    -> FROM employees;
+-------------+-------------------+
| Employee-ID | Basic-data        |
+-------------+-------------------+
| AD_PRES     | Steven,SKING      |
| AD_VP       | Neena,NKOCHHAR    |
| AD_VP       | Lex,LDEHAAN       |
| IT_PROG     | Alexander,AHUNOLD |
| IT_PROG     | Bruce,BERNST      |
| IT_PROG     | David,DAUSTIN     |
| IT_PROG     | Valli,VPATABAL    |
+-------------+-------------------+
7 rows in set (0.00 sec)
```

Exercise - 19

```
mysql> SELECT FIRST_NAME, LAST_NAME, SALARY , SALARY*.15 PF
    -> FROM employees;
+-------------+-----------+----------+-----------+
| FIRST_NAME  | LAST_NAME | SALARY   | PF        |
+-------------+-----------+----------+-----------+
| Steven      | King      | 24000.00 | 3600.0000 |
| Neena       | Kochhar   | 17000.00 | 2550.0000 |
| Lex         | De Haan   | 17000.00 | 2550.0000 |
| Alexander   | Hunold    |  9000.00 | 1350.0000 |
| Bruce       | Ernst     |  6000.00 |  900.0000 |
| David       | Austin    |  4800.00 |  720.0000 |
| Valli       | Pataballa |  4800.00 |  720.0000 |
+-------------+-----------+----------+-----------+
7 rows in set (0.00 sec)
```

Exercise - 20

```
mysql> SELECT DEPARMENT_ID, SUM(SALARY)
    -> FROM employees
    -> GROUP BY DEPARMENT_ID;
+--------------+-------------+
| DEPARMENT_ID | SUM(SALARY) |
+--------------+-------------+
|           90 |    58000.00 |
|           60 |    24600.00 |
+--------------+-------------+
2 rows in set (0.00 sec)
```

Exercise - 21

```
mysql> SELECT date(((PERIOD_ADD
    -> (EXTRACT(YEAR_MONTH
    -> FROM CURDATE()),-3)*100)+1));
+-----------------------------------------------------------------------+
| date(((PERIOD_ADD
(EXTRACT(YEAR_MONTH
FROM CURDATE()),-3)*100)+1)) |
+-----------------------------------------------------------------------+
| 2022-06-01                                                            |
+-----------------------------------------------------------------------+
1 row in set (0.01 sec)
```

Exercise - 22

```
mysql> SELECT date(((PERIOD_ADD
    -> (EXTRACT(YEAR_MONTH
    -> FROM CURDATE()),-3)*100)+30));
+-----------------------------------------------------------------------+
| date(((PERIOD_ADD
(EXTRACT(YEAR_MONTH
FROM CURDATE()),-3)*100)+30)) |
+-----------------------------------------------------------------------+
| 2022-06-30                                                            |
+-----------------------------------------------------------------------+
1 row in set (0.00 sec)
```

Exercise - 23

```
mysql> SELECT DISTINCT(STR_TO_DATE
    -> (CONCAT(YEARWEEK(hire_date),'1'),'%x%v%w'))
    -> FROM employees;
+-----------------------------------------------------------+
| (STR_TO_DATE
(CONCAT(YEARWEEK(hire_date),'1'),'%x%v%w')) |
+-----------------------------------------------------------+
| 1987-06-08                                                |
| 1987-06-15                                                |
+-----------------------------------------------------------+
2 rows in set (0.01 sec)
```

Exercise - 24

```
mysql> SELECT MAKEDATE(EXTRACT(YEAR FROM CURDATE()),1);
+-----------------------------------------+
| MAKEDATE(EXTRACT(YEAR FROM CURDATE()),1) |
+-----------------------------------------+
| 2022-01-01                              |
+-----------------------------------------+
1 row in set (0.01 sec)
```

Exercise - 25

```
mysql> SELECT STR_TO_DATE(CONCAT(12,31,
    -> EXTRACT(YEAR FROM CURDATE())), '%m%d%Y');
+-----------------------------------------------------------------+
| STR_TO_DATE(CONCAT(12,31,
EXTRACT(YEAR FROM CURDATE())), '%m%d%Y') |
+-----------------------------------------------------------------+
| 2022-12-31                                                      |
+-----------------------------------------------------------------+
1 row in set (0.00 sec)
```