BICT.Honours in Information & Communication Technology

ICT1222 (P) Database Management Systems Practicum

Level 1- Semester 2 | 2022

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Practical 02 Excercises

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FACULTY OF TECHNOLOGY
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Student No: **TG/2020/749**
Student Name: **H.P.G. Lahiru Prasad Jayathilake**

1. Create the database "mytestDB".

```
mysql> CREATE DATABASE mytestDB;
Query OK, 1 row affected (0.00 sec)

mysql>
```

2. Show the available databases.

```
mysql> SHOW databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| mytestdb           |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)
```

3. Use the above created database "mytestDB"..

```
mysql> USE mytestDB;
Database changed
mysql>
```

4. Create users for the "mytestDB" database as follows.

a) admin_ict with ALL privilages

b) Teacher with SELECT,INSERT,UPDATE,DELETE

c) Student with SELECT

d) Subject_user with All privileges.

```
mysql> CREATE user admin_ict@localhost identified by '1234';
Query OK, 0 rows affected (0.00 sec)

mysql> GRANT ALL PRIVILEGES ON * . * to admin_ict@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE user teacher@localhost identified by 't1234';
Query OK, 0 rows affected (0.00 sec)

mysql> GRANT DELETE,SELECT, INSERT,UPDATE ON * . * TO teacher@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE user student@localhost identified by 's1234';
Query OK, 0 rows affected (0.00 sec)

mysql> GRANT SELECT ON * . * TO student@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE user subject_user@localhost identified by 's1234567890';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL PRIVILEGES ON * . * TO subject_user@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

5. Show the privileges given to Teacher.

```
mysql> SHOW GRANTS for teacher@localhost;
+-----------------------------------------------------------------------+
| Grants for teacher@localhost                                          |
+-----------------------------------------------------------------------+
| GRANT SELECT, INSERT, UPDATE, DELETE ON *.* TO 'teacher'@'localhost' |
+-----------------------------------------------------------------------+
1 row in set (0.00 sec)
```

6. Show the privileges given to admin_ict.

```
mysql> SHOW GRANTS for admin_ict@localhost;
+-----------------------------------------------------------+
| Grants for admin_ict@localhost                            |
+-----------------------------------------------------------+
| GRANT ALL PRIVILEGES ON *.* TO 'admin_ict'@'localhost' |
+-----------------------------------------------------------+
1 row in set (0.00 sec)

mysql>
```

7. Delete the user Subject_user.

```
mysql> DROP USER subject_user@localhost;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

8. Create following tables in the above database..

```
mysql> CREATE TABLE Student(
    -> ID INT NOT NULL,
    -> fist_Name VARCHAR(45) NOT NULL,
    -> last_Name VARCHAR(45) NOT NULL,
    -> city VARCHAR(45) NOT NULL,
    -> age INT NOT NULL,
    -> PRIMARY KEY(ID)
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql>
mysql> CREATE TABLE Subject(
    -> subject_ID INT NOT NULL,
    -> subject_Name VARCHAR(45) NOT NULL,
    -> PRIMARY KEY(subject_ID)
    -> );
Query OK, 0 rows affected (0.00 sec)

mysql>
mysql> CREATE TABLE Teacher(
    -> ID VARCHAR(45) NOT NULL,
    -> tfirst_name VARCHAR(45) NOT NULL,
    -> tlast_name VARCHAR(45) NOT NULL,
    -> tCity VARCHAR(45) NOT NULL,
    -> age VARCHAR(45) NOT NULL,
    -> PRIMARY KEY(ID)
    -> );
Query OK, 0 rows affected (0.01 sec)

mysql>
```

9. 11. Show the table structures

```
mysql> DESCRIBE Student;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| ID        | int(11)     | NO   | PRI | NULL    |       |
| fist_Name | varchar(45) | NO   |     | NULL    |       |
| last_Name | varchar(45) | NO   |     | NULL    |       |
| city      | varchar(45) | NO   |     | NULL    |       |
| age       | int(11)     | NO   |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> DESCRIBE Subject;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| subject_ID   | int(11)     | NO   | PRI | NULL    |       |
| subject_Name | varchar(45) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> DESCRIBE Teacher;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| ID          | varchar(45) | NO   | PRI | NULL    |       |
| tfirst_name | varchar(45) | NO   |     | NULL    |       |
| tlast_name  | varchar(45) | NO   |     | NULL    |       |
| tCity       | varchar(45) | NO   |     | NULL    |       |
| age         | varchar(45) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql>
```

10. Insert following data into above created three tables..

```
mysql> INSERT INTO Student (ID,fist_Name,last_Name,city,age)
    -> VALUES
    -> (11,'Kasun','Sameera','Matara',18),
    -> (12,'Sanduni','Chandima','Tangalle',23),
    -> (13,'Samudi','Eshara','Kalutara',25),
    -> (14,'Supun','Liyanagama','Colombo',16),
    -> (15,'Bhagya','Lakmini','Galle',22),
    -> (16,'Nuwan','Pradeep','Kandy',20);
Query OK, 6 rows affected (0.00 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql>
mysql>
mysql>
mysql> INSERT INTO Subject ( subject_ID, subject_Name)
    -> VALUES (111,'Mathematics'),
    -> (222,'Science'),
    -> (333,'Java'),
    -> (444,'Database Management Systems'),
    -> (555,'Cloud Computing'),
    -> (666,'History');
Query OK, 6 rows affected (0.00 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql>
mysql>
mysql>
mysql> INSERT INTO Teacher(ID,tfirst_name,tlast_name,tCity,age)
    -> VALUES ('01A','Kalum','Prabhath','Kegalle','25'),
    -> ('02B','Dasuni','Sahani','Anuradhapura','30'),
    -> ('03C','Nethma','Samadhi','Madakalapuwa','33'),
    -> ('04D','Malshi','Pravindya','Trincomalee','45'),
    -> ('05E','Randunu','Prabash','Hambantota','50'),
    -> ('06F','Nerindu','Madushan','Nuwara Eliya','28');
Query OK, 6 rows affected (0.00 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql>
```

11.

12. Write a select statement to retrieve all the data from Student table
13. Write a select statement to retrieve all the data from Subject table
14. Write a query to retrieve ID and first name of the students

```
mysql> SELECT * FROM Student;
+----+-----------+------------+----------+-----+
| ID | fist_Name | last_Name  | city     | age |
+----+-----------+------------+----------+-----+
| 11 | Kasun     | Sameera    | Matara   |  18 |
| 12 | Sanduni   | Chandima   | Tangalle |  23 |
| 13 | Samudi    | Eshara     | Kalutara |  25 |
| 14 | Supun     | Liyanagama | Colombo  |  16 |
| 15 | Bhagya    | Lakmini    | Galle    |  22 |
| 16 | Nuwan     | Pradeep    | Kandy    |  20 |
+----+-----------+------------+----------+-----+
6 rows in set (0.00 sec)

mysql> SELECT * FROM Subject;
+------------+----------------------------+
| subject_ID | subject_Name               |
+------------+----------------------------+
|        111 | Mathematics                |
|        222 | Science                    |
|        333 | Java                       |
|        444 | Database Management Systems |
|        555 | Cloud Computing            |
|        666 | History                    |
+------------+----------------------------+
6 rows in set (0.00 sec)

mysql> SELECT * FROM Teacher;
+-----+-------------+------------+--------------+-----+
| ID  | tfirst_name | tlast_name | tCity        | age |
+-----+-------------+------------+--------------+-----+
| 01A | Kalum       | Prabhath   | Kegalle      | 25  |
| 02B | Dasuni      | Sahani     | Anuradhapura | 30  |
| 03C | Nethma      | Samadhi    | Madakalapuwa | 33  |
| 04D | Malshi      | Pravindya  | Trincomalee  | 45  |
| 05E | Randunu     | Prabash    | Hambantota   | 50  |
| 06F | Nerindu     | Madushan   | Nuwara Eliya | 28  |
+-----+-------------+------------+--------------+-----+
6 rows in set (0.00 sec)

mysql>
```

15. Write a query to retrieve ID and first name of the students

```
mysql> SELECT ID, fist_Name FROM Student;
+----+-----------+
| ID | fist_Name |
+----+-----------+
| 11 | Kasun     |
| 12 | Sanduni   |
| 13 | Samudi    |
| 14 | Supun     |
| 15 | Bhagya    |
| 16 | Nuwan     |
+----+-----------+
6 rows in set (0.00 sec)

mysql>
```

16. Write a query to retrieve ID, first name and city of teachers

```
mysql> SELECT ID, tfirst_name,tCity FROM Teacher;
+-----+-------------+--------------+
| ID  | tfirst_name | tCity        |
+-----+-------------+--------------+
| 01A | Kalum       | Kegalle      |
| 02B | Dasuni      | Anuradhapura |
| 03C | Nethma      | Madakalapuwa |
| 04D | Malshi      | Trincomalee  |
| 05E | Randunu     | Hambantota   |
| 06F | Nerindu     | Nuwara Eliya |
+-----+-------------+--------------+
6 rows in set (0.00 sec)

mysql>
```

17. Write a query to remove the table 'Teacher'

```
mysql> DROP table Teacher;
Query OK, 0 rows affected (0.02 sec)

mysql>
```

18. What is the use primary key?

- **A primary key** is essential if a table is to qualify as a relational table. It is made up of one or more columns whose data uniquely identifies each row in the table. For example, if the data in the rows contained house numbers, the primary key could be used to identify the streets on which the houses were situated. To qualify as a primary key, it is the data within each column that must be unique, not simply the column names themselves. At the same time, no value in the columns can be blank or NULL.

19. Name the primary keys of each created tables above. ?

- Student Table- ID.
- Subject Table- subject_ID.
- Teacher Table- ID.