COMP2350/6350 Database Systems

Practical – Week 4

Objectives:

- To get started with MySQL Database.
- To understand the DDL script which is used to create tables.
- To write and execute queries creating tables, inserting tuples into tables.
- To write and execute queries retrieving desired data from a single table using simple SELECT-FROM-WHERE clause.

Task Specifications:

Task 1: Getting Started with MySQL Database

- Create a database in the central MySQL server if you have not done so yet. Please refer to Section 4.1 of Getting Started document posted in iLearn for more details.
- Open MySQL Workbench and create a connection to the central MySQL server. Please refer to Section 4.2 of Getting Started document posted in iLearn for more details.
- Open the connection and connect to MySQL database. Please refer to Section 1 of Workbench Basics document posted in iLearn for more details.

Task 2: Understanding the DDL script of Notown Database

- You saved the SQL create script (DDL script) corresponding to the conceptual model of Notown database during last week's practical class. Open the script in the query interface of Workbench. To do that, click **File > Open SQL Script > Browse to the appropriate location > Open**.
- A new query tab containing the SQL script will appear in the query interface. Convince yourself that you have understood the statements in this script. Take help from tutors/demonstrators if needed.
  The Notown Database SQL script can be also downloaded from iLearn.

Task 3: Writing and Executing Simple Queries

- Keep opening the tab containing SQL script. To execute the script, click **Query > Execute (All or selection)**.
- This will execute the SQL script and therefore, tables will be created. You can see the result in the output interface.
- Open a new query tab by clicking **File > New Query Tab** or click the query tab Query 1. Now, write the following SQL command and execute it by clicking **Query > Execute Current Statement** or **press CTRL + ENTER**.
    - `show tables;`
    - This will display the name of the tables currently stored in the database.
- Write the following SQL command and execute it.
    - `describe <table_name>;` (e.g. `describe Album;`)
    - It will display the metadata, i.e. Field, Type etc. of a table.
- Insert a new tuple into Musician table by writing the following SQL command and execute it.
    - ```
      insert into Musician values
      ('1234567890','Alice','North Ryde','0404123456');
      ```
    - The general syntax of insert statement is:
      ```
      insert into <table_name> values (<value1>, <value2>,.,
      <valuen>);
      ```
    - ***For varchar and date type data, enclose the value within ' '.***
    - ***Table names are case sensitive.***
- Write and execute the following SQL command.
    - `select * from Musician;`
    - It will display all tuples in Musician table. This is simplest form of SELECT query which contains SELECT clause and FROM clause. There is an optional WHERE clause. The general syntax is:
      ```
      SELECT <list of attributes>
      FROM <table_name>
      WHERE <predicate>;
      ```
    - The symbol * represents all attributes. If you want to only display ssn and name of musicians write the following and execute it.
    - `select ssn, name from Musician;`
      ```

Task 4: Inserting Tuples into Tables

- Now, insert 3/4 tuples into each table by using the INSERT statement as explained above. Some sample data is given below.

Musician Table

SSN	Name	Address	Phone_no
1231231230	Charlie	Parramatta	0426802468
1234543210	David	North Ryde	0404123000
1234567890	Alice	North Ryde	0404123456
9876543210	Bob	Circular Quay	0404654321
NULL	NULL	NULL	NULL

Album Table

Album_Identifier	Album_title	Copyright_date	format	Musician_SSN
1001	Beat it	2017-01-01	cd	1234567890
1002	Purpose	2017-04-01	dvd	9876543210
1003	Run away	2016-01-01	cd	9876543210
1004	Summer of 69	2015-01-01	cd	1231231230
NULL	NULL	NULL	NULL	NULL

Instrument Table

InstrumentID	Instrument_Name	Musical_key
3001	Violin	C-Sharp
3002	Piano	D-Minor
3003	Guitar	B-Flat
NULL	NULL	NULL

Song Table

SongID	Song_title	Composer_name	Author_name	Album_Album_Identifier
2001	A song	Composer 1	Author 1	1001
2002	Some song	Composer 1	Author 2	1002
2003	Other song	Composer 2	Author 1	1002
2004	Another song	Composer 3	Author 2	1003
NULL	NULL	NULL	NULL	NULL

Plays Table

Musician_SSN	Instrument_InstrumentID	years_of_experience
1231231230	3001	8
1234567890	3002	2
9876543210	3001	10
9876543210	3003	20
NULL	NULL	NULL

Performs Table

Musician_SSN	Song_SongID
1234567890	2001
1231231230	2002
1234543210	2003
1234543210	2004
NULL	NULL

Task 5: Simple SELECT query using WHERE clause

- Find Musicians' SSN, name and phone number who live in North Ryde. (this one is done for you)

```
SELECT ssn, name, phone_no FROM Musician WHERE address =
'North Ryde';
```

- Find song identifier and song title composed by Composer 1.
- List instruments with musical key C-Sharp.
- List album titles which have cd format.
- (*) Find album identifier and album title which were released in 2017 (If necessary consult with tutor).