

CSE 5720

Fall 2021

Project 2 - Database Programming

In this project, you will learn how to write a program that can interact with a database. The project is due by 11:59PM, November 23 (Tuesday).

Deliverables

1. The source code of your program that can interact with MySQL.
2. The output of your program (text file and screenshot).

STEP 1 – Choose the programming language and install the library

In this project, we recommend you use Python to write your program. Before starting, you need to download the corresponding MySQL library. We provide sample templates for Python below.

You should use Python 3.7.0 to work with MySQL. Install mysql connector here: <https://dev.mysql.com/downloads/connector/python/>. A tutorial on how to install MySQL connector can be found on blackboard. Please watch carefully and follow the instructions step-by-step.

We also provide template codes for mysql interaction in Python:

Here is the example code, in the example codes, the program establishes the connection to the database.

```

import mysql.connector
from mysql.connector import Error

try:
    connection = mysql.connector.connect(host='localhost',
                                         database='Electronics',
                                         user='pynative',
                                         password='pynative@#29')

    if connection.is_connected():
        db_Info = connection.get_server_info()
        print("Connected to MySQL Server version ", db_Info)
        cursor = connection.cursor()
        cursor.execute("select database();")
        record = cursor.fetchone()
        print("You're connected to database: ", record)

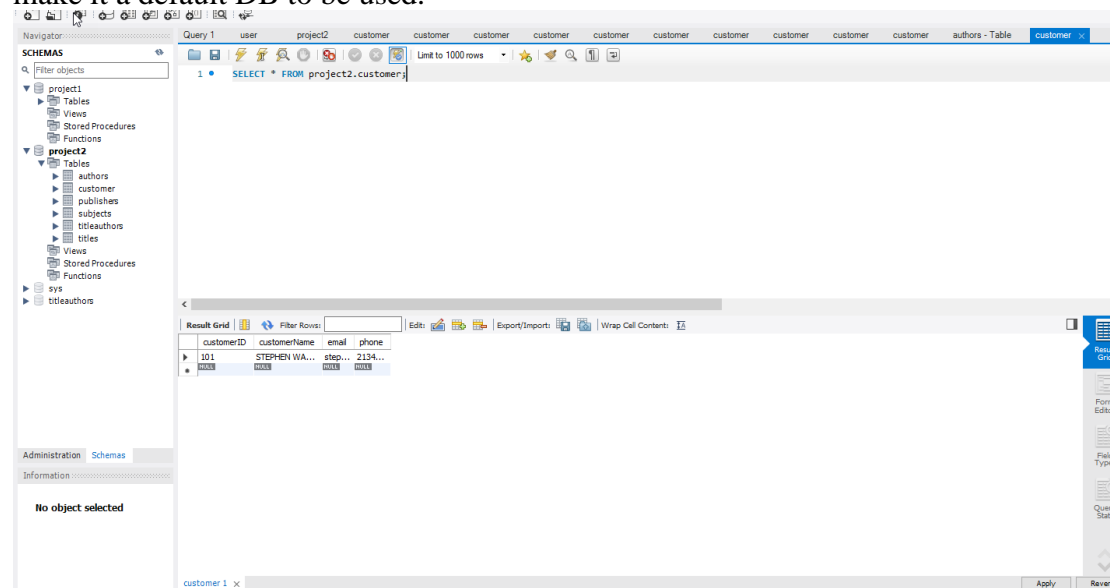
except Error as e:
    print("Error while connecting to MySQL", e)
finally:
    if (connection.is_connected()):
        cursor.close()
        connection.close()
        print("MySQL connection is closed")

```

STEP 2 – Write the program

Use your localhost in MySQL as the server.

Open your MySQL. In the schemas area, right click to create a schema name it anything you prefer (here we use ‘project2’), and then double click on “project2” to make it a default DB to be used.



Remember the database is called “project2” or anything you named it. Use username(root) and password you created to login. Modify the database name, user name and password in the code template.

There are five tables in the database “project2”:

publishers(pubID, pname, email, phone)

subjects(subID,sName)

authors(auID, aName, email, phone)

titles(titleID, title, pubID, subID, pubDate,cover,price)

titleauthors(titleID, auID, importance)

Create tables ‘publishers’, ‘subjects’, ‘authors’, ‘titles’ and ‘titleauthors.’ See below for attribute names and data types.

```
CREATE TABLE `project2`.`publishers` (  
  `pubID` INT(3) NOT NULL,  
  `pname` VARCHAR(30) NULL,  
  `email` VARCHAR(50) NULL,  
  `phone` VARCHAR(30) NULL,  
  PRIMARY KEY (`pubID`),  
  UNIQUE INDEX `email_UNIQUE` (`email` ASC) VISIBLE);  
CREATE TABLE `project2`.`subjects` (  
  `subID` VARCHAR(5) NOT NULL,  
  `sName` VARCHAR(30) NULL,  
  PRIMARY KEY (`subID`));  
CREATE TABLE `project2`.`authors` (  
  `auID` INT(5) NOT NULL,  
  `aName` VARCHAR(30) NULL,  
  `email` VARCHAR(50) NULL,  
  `phone` VARCHAR(30) NULL,  
  PRIMARY KEY (`auID`),  
  UNIQUE INDEX `email_UNIQUE` (`email` ASC) VISIBLE);
```

```

CREATE TABLE `project2`.`titles` (
  `titleID` INT(5) NOT NULL,
  `title` VARCHAR(30) NULL,
  `pubID` INT(3) NULL,
  `subID` VARCHAR(5) NULL,
  `pubDate` DATE NULL,
  `cover` VARCHAR(1) NULL,
  `price` INT(4) NULL,
  PRIMARY KEY (`titleID`),
  INDEX `pubid_idx` (`pubID` ASC) VISIBLE,
  INDEX `subid_idx` (`subID` ASC) VISIBLE,
  CONSTRAINT `pubid`
    FOREIGN KEY (`pubID`)
      REFERENCES `project2`.`publishers` (`pubID`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
  CONSTRAINT `subid`
    FOREIGN KEY (`subID`)
      REFERENCES `project2`.`subjects` (`subID`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION);
CREATE TABLE `project2`.`titleauthors` (
  `titleID` INT(5) NOT NULL,
  `auID` INT(5) NOT NULL,
  `importance` INT(2) NULL,
  PRIMARY KEY (`titleID`, `auID`),
  INDEX `auID_idx` (`auID` ASC) VISIBLE,
  CONSTRAINT `titleid`
    FOREIGN KEY (`titleID`)
      REFERENCES `project2`.`titles` (`titleID`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
  CONSTRAINT `auID`
    FOREIGN KEY (`auID`)
      REFERENCES `project2`.`authors` (`auID`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION);

```

Add the following data into your tables.

```

INSERT INTO SUBJECTS VALUES ('ORA','ORACLE DATABASE 10g');
INSERT INTO SUBJECTS VALUES ('JAVA','JAVA LANGUAGE');
INSERT INTO SUBJECTS VALUES ('JEE','JAVA ENTERPRISE EDITION');
INSERT INTO SUBJECTS VALUES ('VB','VISUAL BASIC.NET');
INSERT INTO SUBJECTS VALUES ('ASP','ASP.NET');

```

```

INSERT INTO PUBLISHERS VALUES (1,'WILEY','WDT@VSNL.NET','9112326087');
INSERT INTO PUBLISHERS VALUES (2,'WROX','INFO@WROX.COM',NULL);
INSERT INTO PUBLISHERS VALUES (3,'TATA MCGRAW-
HILL','FEEDBACK@TATAMCGRAWHILL.COM','9133333322');

```

```

INSERT INTO PUBLISHERS VALUES
(4,'TECHMEDIA','BOOKS@TECHMEDIA.COM','9133257660');

INSERT INTO AUTHORS VALUES (101, 'HERBERT SCHILD','HERBERT@YAHOO.COM',
'2137823450');
INSERT INTO AUTHORS VALUES (102, 'JAMES GOODWILL','GOODWILL@HOTMAIL.COM',
'9095871243');
INSERT INTO AUTHORS VALUES (103, 'DAVAID HUNTER','HUNTER@HOTMAIL.COM',
'9094235581');
INSERT INTO AUTHORS VALUES (104, 'STEPHEN WALTHER','WALTHER@GMAIL.COM',
'2138773902');
INSERT INTO AUTHORS VALUES (105, 'KEVIN LONEY','LONEY@ORACLE.COM',
'9493423410');
INSERT INTO AUTHORS VALUES (106, 'ED. ROMANS', 'ROMANS@THESERVERSIDE.COM',
'9495012201');

INSERT INTO TITLES VALUES (1001,'ASP.NET UNLEASHED',4,'ASP','2002-04-02','P',540);
INSERT INTO TITLES VALUES (1002,'ORACLE10G COMP. REF.',3,'ORA','2005-05-01','P',575);
INSERT INTO TITLES VALUES (1003,'MASTERING EJB',1,'JEE','2005-02-03','P',475);
INSERT INTO TITLES VALUES (1004,'JAVA COMP. REF',3,'JAVA','2005-04-03','P',499);
INSERT INTO TITLES VALUES (1005,'PRO. VB.NET',2,'VB','2005-06-15','P',450);

INSERT INTO TITLEAUTHORS VALUES (1001,104,1);
INSERT INTO TITLEAUTHORS VALUES (1002,105,1);
INSERT INTO TITLEAUTHORS VALUES (1003,106,1);
INSERT INTO TITLEAUTHORS VALUES (1004,101,1);
INSERT INTO TITLEAUTHORS VALUES (1005,103,1);
INSERT INTO TITLEAUTHORS VALUES (1005,102,2);

```

Write a program in python to run the following functions in order:

1. In table “publisher”, there is already some data: A list of publisher IDs, names, emails and phone numbers. Your program should print out all the data in this table. Example output:

Publisher:

```

1, WILEY, WDT@VSNL.NET, 9112326087
2, WROX, INFO@WROX.COM
3, TATA MCGRAW-HILL, FEEDBACK@TATAMCGRAWHILL.COM, 9133333322
4, TECHMEDIA, BOOKS@TECHMEDIA.COM, 9133257660

```

2. Create a table customer (custID, custName, zip, city, state).

3. Insert 5 customers ('STEPHEN WALTHER', ' JAMES GOODWILL ', 'CALVIN HARRIS', 'MARTIN GARRIX' and 'PAMELA REIF'.) into table “customer” with the custID, custName, zip, city and state. If you want to execute your program multiple times and don’t want to see errors of trying to insert duplicate entries, you may use “INSERT IGNORE INTO” statement, which will do nothing if there is already the same entry in the table.

4. Form a query to print the names of those who appear in both “author” and “customer.”

5. Form a query to find subjects in which the minimum price is \$400 and maximum price is \$550.

6. Form a query to change the price of title 1001 to the price of the most recently published book.

7. Form a query to find titles published by the publisher whose name contains ‘T’.

8. Insert a row into titleauthors for title ‘java.comp.ref’ and author 'DAVAID HUNTER.'

9. Form a query to find author names who have written any title with author

'HERBERT SCHILD.'

10. Form a query to decrease the price of all the books published before 2004 by 30% and decrease the price of all the books published after 2004 by 15%.

Save your outputs to a text file using the name “**output.txt**”, a screenshot of your output, and then archive with your source code (Use the name **project2.py**) to the file “**project2-xxxxxxxx.zip**”, xxxxxxxx being your student id, and turn it in on Blackboard under folder “**project2**”. **Note: Not submitting the file under the correct folder may cause a deduction in your credit.**