Bases de datos con MySQL (y Python)

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Descripción

Generar al menos 5 tablas con al menos 3 registros (los registros pueden ser ficticios) de la estructura de university

El código para tal es el siguiente:

```python
import mysql.connector
from mysql.connector import errorcode
def create_database(cursor):
    try:
        cursor.execute(
            "CREATE DATABASE {} DEFAULT CHARACTER SET 'utf8mb4'".format(DB_NAME))
    except mysql.connector.Error as err:
        print("Failed creating database: {}".format(err))
        exit(1)
config = {
  'user': 'root',
  'password': 'Cic1234*',
  'host': '127.0.0.1',
# 'database': 'university',
  'raise_on_warnings': True
}
cnx = mysql.connector.connect(**config)
cursor = cnx.cursor(buffered=True)
DB_NAME = 'university2'
TABLES = {}
TABLES['department'] = (
    "CREATE TABLE `department` ("
    "`dept_name` varchar(20) NOT NULL DEFAULT '',"
    "`building` varchar(15) DEFAULT NULL,"
    "`budget` decimal(12,2) DEFAULT NULL,"
    "PRIMARY KEY (`dept_name`)"
    ") ENGINE=InnoDB DEFAULT CHARSET=utf8;")
TABLES['student'] = (
"CREATE TABLE `student` ("
    "`ID` varchar(5) NOT NULL DEFAULT '',"
    "`name` varchar(20) NOT NULL,"
    "`dept_name` varchar(20) DEFAULT NULL,"
    "`tot_cred` decimal(3,0) DEFAULT NULL,"
    "PRIMARY KEY (`ID`),"
    "KEY `dept_name` (`dept_name`),"
    "CONSTRAINT `student_ibfk_1` FOREIGN KEY (`dept_name`) REFERENCES `department` (`dept_name`)"
    ") ENGINE=InnoDB DEFAULT CHARSET=utf8;")
TABLES['instructor'] = (
    "CREATE TABLE `instructor` ("
    "`ID` varchar(5) NOT NULL DEFAULT '',"
    "`name` varchar(20) NOT NULL,"
    "`dept_name` varchar(20) DEFAULT NULL,"
    "`salary` decimal(8,2) DEFAULT NULL,"
    "PRIMARY KEY (`ID`),"
    "KEY `dept_name` (`dept_name`),"
    "CONSTRAINT `instructor_ibfk_1` FOREIGN KEY (`dept_name`) REFERENCES `department` (`dept_name`)"
    ") ENGINE=InnoDB DEFAULT CHARSET=utf8;")
TABLES['advisor'] = (
```
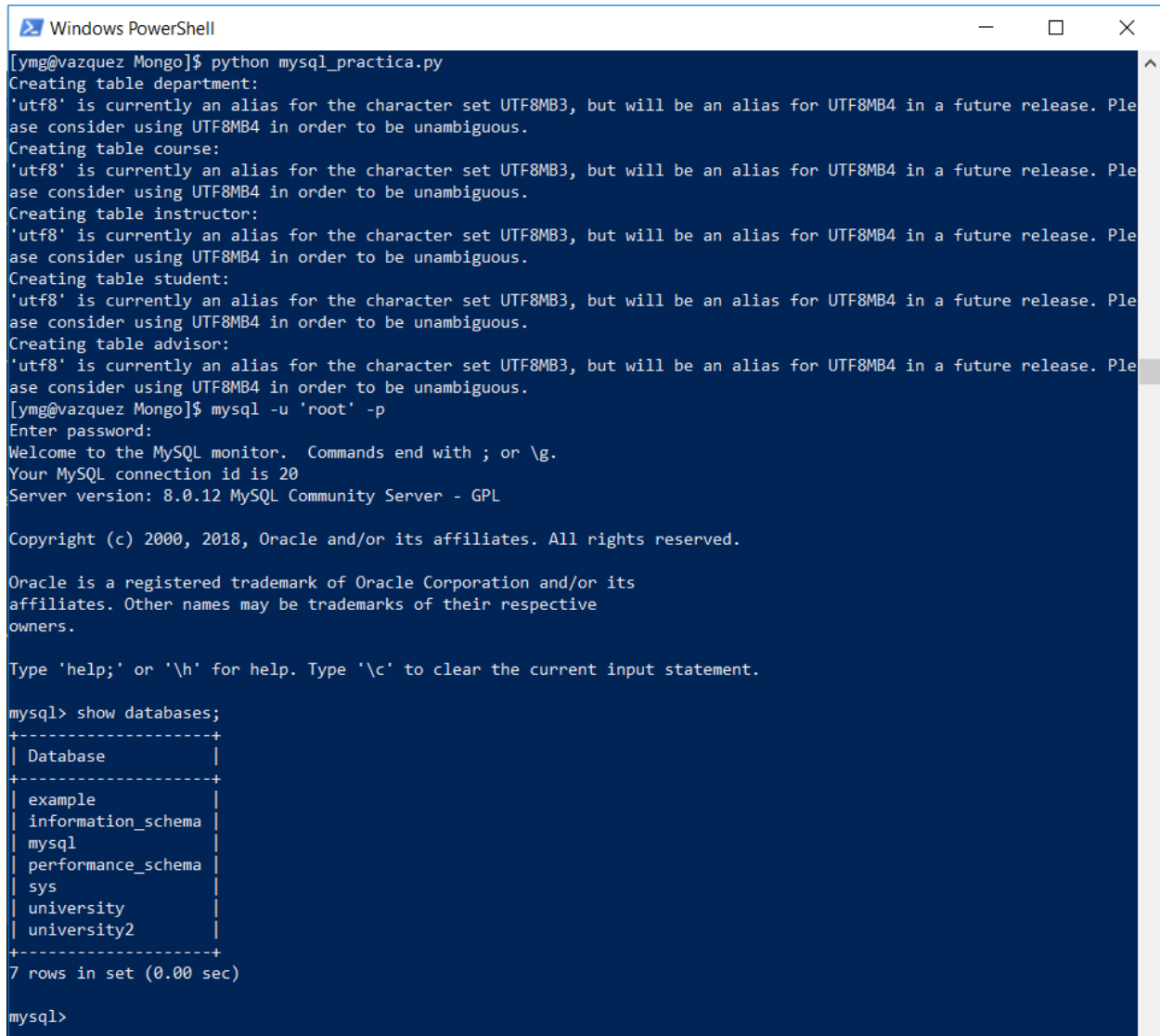
```python
    "CREATE TABLE `advisor` ("
  "`s_ID` varchar(5) NOT NULL DEFAULT '',"
  "`i_ID` varchar(5) DEFAULT NULL,"
  "PRIMARY KEY (`s_ID`),"
  "KEY `i_ID` (`i_ID`),"
  "CONSTRAINT `advisor_ibfk_1` FOREIGN KEY (`i_ID`) REFERENCES `instructor` (`ID`) ON DELETE SET NULL,"
  "CONSTRAINT `advisor_ibfk_2` FOREIGN KEY (`s_ID`) REFERENCES `student` (`ID`) ON DELETE CASCADE"
    ") ENGINE=InnoDB DEFAULT CHARSET=utf8;")
TABLES['course'] = (
"    CREATE TABLE `course` ("
  "`course_id` varchar(8) NOT NULL DEFAULT '',"
  "`title` varchar(50) DEFAULT NULL,"
  "`dept_name` varchar(20) DEFAULT NULL,"
  "`credits` decimal(2,0) DEFAULT NULL,"
  "PRIMARY KEY (`course_id`),"
  "KEY `dept_name` (`dept_name`),"
  "CONSTRAINT `course_ibfk_1` FOREIGN KEY (`dept_name`) REFERENCES `department` (`dept_name`)"
") ENGINE=InnoDB DEFAULT CHARSET=utf8;")
try:
    cnx.database = DB_NAME
except mysql.connector.Error as err:
    if err.errno == errorcode.ER_BAD_DB_ERROR:
        create_database(cursor)
        cnx.database = DB_NAME
    else:
        print(err)
        exit(1)
for name, ddl in TABLES.iteritems():
    try:
        print("Creating table {}: ".format(name))
        cursor.execute(ddl)
    except mysql.connector.Error as err:
        if err.errno == errorcode.ER_TABLE_EXISTS_ERROR:
            print("already exists.")
        else:
            print(err.msg)
    else:
        print("OK")
query = ("INSERT INTO `department` VALUES ('Accounting','Saucon',441840.92),('Astronomy','Taylor',617253
cursor.execute(query)
cnx.commit()
query = ("INSERT INTO `course` VALUES ('101','Diffusion and Phase Transformation','Accounting',3),('102
cursor.execute(query)
cnx.commit()
query = ("INSERT INTO `student` VALUES ('1000','Manber','Accounting',39),('10033','Zelty','Astronomy',60
cursor.execute(query)
cnx.commit()
query = ("INSERT INTO `instructor` VALUES ('14365','Lembr','Accounting',32241.56),('15347','Bawa','Astro
cursor.execute(query)
cnx.commit()
query = ("INSERT INTO `advisor` VALUES ('1000','14365'),('10033','15347'),('10076','16807');")
cursor.execute(query)
cnx.commit()
```

```
cursor.close()
cnx.close()
```

Nota: Se modificaron los datos para que no hubiera problemas de llaves referenciadas que no existen y por lo tanto algunos datos pueden no tener sentido.

Ejecución y chequeo de database:

Chequeo de tablas y contenido:

```
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use university2
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables
    -> ;
+----------------------+
| Tables_in_university2 |
+----------------------+
| advisor              |
| course               |
| department           |
| instructor           |
| student              |
+----------------------+
5 rows in set (0.00 sec)

mysql> select * from advisor
    -> ;
+-------+-------+
| s_ID  | i_ID  |
+-------+-------+
| 1000  | 14365 |
| 10033 | 15347 |
| 10076 | 16807 |
+-------+-------+
3 rows in set (0.00 sec)

mysql> select * from course
    -> ;
+-----------+--------------------------------+------------+---------+
| course_id | title                          | dept_name  | credits |
+-----------+--------------------------------+------------+---------+
| 101       | Diffusion and Phase Transformation | Accounting | 3 |
| 102       | Image Processing               | Astronomy  | 3       |
| 103       | Differential Equations         | Athletics  | 3       |
+-----------+--------------------------------+------------+---------+
3 rows in set (0.00 sec)

mysql> select * from department;
+------------+----------+-----------+
| dept_name  | building | budget    |
+------------+----------+-----------+
| Accounting | Saucon   | 441840.92 |
| Astronomy  | Taylor   | 617253.94 |
| Athletics  | Bronfman | 734550.70 |
+------------+----------+-----------+
3 rows in set (0.00 sec)

mysql>
```

5

```
| 102       | Image Processing       | Astronomy  |    3 |
| 103       | Differential Equations | Athletics  |    3 |
+-----------+------------------------+------------+------+
3 rows in set (0.00 sec)

mysql> select * from department;
+------------+----------+-----------+
| dept_name  | building | budget    |
+------------+----------+-----------+
| Accounting | Saucon   | 441840.92 |
| Astronomy  | Taylor   | 617253.94 |
| Athletics  | Bronfman | 734550.70 |
+------------+----------+-----------+
3 rows in set (0.00 sec)

mysql> select * from instructor
    -> ;
+-------+-------+------------+----------+
| ID    | name  | dept_name  | salary   |
+-------+-------+------------+----------+
| 14365 | Lembr | Accounting | 32241.56 |
| 15347 | Bawa  | Astronomy  | 72140.88 |
| 16807 | Yazdi | Athletics  | 98333.65 |
+-------+-------+------------+----------+
3 rows in set (0.00 sec)

mysql> select * from student;
+-------+--------+------------+----------+
| ID    | name   | dept_name  | tot_cred |
+-------+--------+------------+----------+
| 1000  | Manber | Accounting |       39 |
| 10033 | Zelty  | Astronomy  |       60 |
| 10076 | Duan   | Athletics  |      105 |
+-------+--------+------------+----------+
3 rows in set (0.00 sec)

mysql>
```