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1 Lab. Python Database Programming
2
3 1. MySQL / MariaDB
4 1)cmd as Administrator
5 -If you're used to using the "Run" box to open apps, you can use that to launch Command Prompt with admin privileges.
6 -Press Windows+R to open the "Run" box.
7 -Type "cmd" into the box and then press Ctrl+Shift+Enter to run the command as an administrator.
8
9 2)pip install PyMySQL
10
11 3)Create Database mycompany;
12
13 4)mariadb.py
14 import pymysql
15
16 # Open database connection
17 db = pymysql.connect(host='lab-db-instance.cx1hah81ocl3.ap-northeast-2.rds.amazonaws.com', port=3306, user='admin',
18 passwd='pythonmysql', db='m',charset='utf8',autocommit=True)
19
20 # prepare a cursor object using cursor() method
21 cursor = db.cursor()
22
23 # execute SQL query using execute() method.
24 cursor.execute("SELECT VERSION()")
25
26 # Fetch a single row using fetchone() method.
27 data = cursor.fetchone()
28 print ("Database version : %s " % data)
29
30 # disconnect from server
31 db.close()
32
33 5)use mycompany;
34
35 6)CREATE TABLE supermarket(
36 Itemno INT NULL,
37 Category CHAR(20) NULL,
38 FoodName CHAR(30) NULL,
39 Company CHAR(20) NULL,
40 Price INT NULL);
41
42 7)INSERT INTO supermarket VALUES(1, '과일', '자몽', '마트', 1500)
43 INSERT INTO supermarket VALUES(2, '음료수', '망고주스', '편의점', 1000)
44 INSERT INTO supermarket VALUES(3, '음료수', '식혜', '시장', 1000)
45 INSERT INTO supermarket VALUES(4, '과자', '머랭', '조각케익가게', 3000)
46
47 8)SELECT * FROM supermarket;
48
49 9)mariadb1.py
50 import pymysql
51
52 server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
53 port = 3306
54 user = 'root'
55 password = 'pythonmysql'
56 dbname = 'mycompany'
57
58 conn = pymysql.connect(host=server, port=port, user=user, passwd=password, db=dbname, charset='utf8')
59
60 cursor = conn.cursor()
61
62 cursor.execute('SELECT * FROM supermarket;')
63
64 row = cursor.fetchone()
65
66 while row:
67     print(str(row[0]) + " " + str(row[1]) + " " + str(row[2]) + " " + str(row[3]) + " " + str(row[4]))
68     row = cursor.fetchone()
69
70 conn.close()
71
72 10)mariadb2.py
73 import pymysql
74
75 server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
76 port = 3306
77 user = 'root'
78 password = 'pythonmysql'
79 dbname = 'mycompany'
80
81 # Open database connection
82 conn = pymysql.connect(host=server, port=port, user=user, passwd=password, db=dbname, charset='utf8')
83

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84     # prepare a cursor object using cursor() method
85     cursor = conn.cursor()
86
87     # Drop table if it already exist using execute() method.
88     cursor.execute("DROP TABLE IF EXISTS EMPLOYEE")
89
90     # Create table as per requirement
91     sql = """CREATE TABLE EMPLOYEE (
92         FIRST_NAME CHAR(20) NOT NULL,
93         LAST_NAME CHAR(20),
94         AGE INT,
95         SEX CHAR(1),
96         INCOME FLOAT )"""
97
98     cursor.execute(sql)
99
100    # disconnect from server
101    conn.close()
102
103
104    11)mariadb3.py
105    import pymysql
106
107    server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
108    port = 3306
109    user = 'root'
110    password = 'pythonmysql'
111    dbname = 'mycompany'
112
113    # Open database connection
114    conn = pymysql.connect(host=server, port=port, user=user, passwd=password, db=dbname, charset='utf8')
115
116    # prepare a cursor object using cursor() method
117    cursor = conn.cursor()
118
119    # Prepare SQL query to INSERT a record into the database.
120    sql = """INSERT INTO EMPLOYEE(FIRST_NAME,
121        LAST_NAME, AGE, SEX, INCOME)
122        VALUES ('Mac', 'Mohan', 20, 'M', 2000)"""
123    try:
124        # Execute the SQL command
125        cursor.execute(sql)
126        # Commit your changes in the database
127        conn.commit()
128    except:
129        # Rollback in case there is any error
130        conn.rollback()
131
132    # disconnect from server
133    conn.close()
134
135
136    12)mariadb4.py
137    import pymysql
138
139    server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
140    port = 3306
141    user = 'root'
142    password = 'pythonmysql'
143    dbname = 'mycompany'
144
145    # Open database connection
146    conn = pymysql.connect(host=server, port=port, user=user, passwd=password, db=dbname, charset='utf8')
147
148    # prepare a cursor object using cursor() method
149    cursor = conn.cursor()
150
151    # Prepare SQL query to INSERT a record into the database.
152    sql = "SELECT * FROM EMPLOYEE \
153        WHERE INCOME > '%d'" % (1000)
154    try:
155        # Execute the SQL command
156        cursor.execute(sql)
157        # Fetch all the rows in a list of lists.
158        results = cursor.fetchall()
159        for row in results:
160            fname = row[0]
161            lname = row[1]
162            age = row[2]
163            sex = row[3]
164            income = row[4]
165            # Now print fetched result
166            print ("fname = %s,lname = %s,age = %d,sex = %s,income = %d" % \
167                (fname, lname, age, sex, income ))

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168 except:
169     print ("Error: unable to fetch data")
170
171 # disconnect from server
172 conn.close()
173
174
175 13)mariadb5.py
176 import pymysql
177
178 server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
179 port = 3306
180 user = 'root'
181 password = 'pythonmysql'
182 dbname = 'mycompany'
183
184 # Open database connection
185 db = pymysql.connect(host=server, port=port, user=user, passwd=password, db=dbname, charset='utf8')
186
187 # prepare a cursor object using cursor() method
188 cursor = db.cursor()
189
190 # Prepare SQL query to UPDATE required records
191 sql = "UPDATE EMPLOYEE SET AGE = AGE + 1
192       WHERE SEX = '%c'" % ('M')
193
194 try:
195     # Execute the SQL command
196     cursor.execute(sql)
197     # Commit your changes in the database
198     db.commit()
199 except:
200     # Rollback in case there is any error
201     db.rollback()
202
203 # disconnect from server
204 db.close()
205
206 14)mariadb6.py
207 import pymysql
208
209 server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
210 port = 3306
211 user = 'root'
212 password = 'pythonmysql'
213 dbname = 'mycompany'
214
215 # Open database connection
216 db = pymysql.connect(host=server, port=port, user=user, passwd=password, db=dbname, charset='utf8')
217
218 # prepare a cursor object using cursor() method
219 cursor = db.cursor()
220
221 # Prepare SQL query to DELETE required records
222 sql = "DELETE FROM EMPLOYEE WHERE AGE > '%d'" % (20)
223
224 try:
225     # Execute the SQL command
226     cursor.execute(sql)
227     # Commit your changes in the database
228     db.commit()
229 except:
230     # Rollback in case there is any error
231     db.rollback()
232
233 # disconnect from server
234 db.close()
235
236
237 2. MySQL World database 이용하기
238 1)World database 다운로드하기
239 -https://dev.mysql.com/doc/index-other.html
240 -Example Databases에서 [World database] 'TGZ' link 클릭
241 -다운로드 후 Jupyter Notebook Upload
242
243 ~/PythonHome$ tar xvfz world-db.tar.gz
244
245 2)MySQL login한다.
246 $ mysql -h localhost -u root -p
247
248 3)world.sql 실행
249 mysql>source /home/ubuntu/PythonHome/world.sql
250
251 4)World database의 table을 확인한다.

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252     mysql> show tables;
253
254 5)mariadb.py
255     import pymysql
256
257     server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
258     port = 3306
259     user = 'root'
260     password = 'pythonmysql'
261     dbname = 'world'
262
263     # Open database connection
264     db = pymysql.connect(host=server, port=port, user=user, passwd=password, db=dbname, charset='utf8')
265
266     # prepare a cursor object using cursor() method
267     cursor = db.cursor()
268
269     sql = "SELECT ID, Name, CountryCode, District, Population FROM city WHERE CountryCode='KOR'"
270
271     try:
272         # Execute the SQL command
273         cursor.execute(sql)
274         # Fetch all the rows in a list of lists.
275         results = cursor.fetchall()
276         for row in results:
277             print('ID = %d, Name = %s, CountryCode = %s, District = %s, Popluation = %d' % (row[0], row[1], row[2],
278             row[3],row[4]))
279     except:
280         print ("Error: unable to fetch data")
281
282     # disconnect from server
283     db.close()

```