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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 conn = pymysql.connect(host='lab-db-instance.cxlhah81ocl3.ap-northeast-2.rds.amazonaws.com', port=3306,
18 user='admin', password='pythonmysql', database='mycompany', charset='utf8', autocommit=True)
19
20 # prepare a cursor object using cursor() method
21 cursor = conn.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 conn.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, password=password, database=dbname, charset='utf8')
59 cursor = conn.cursor()
60 cursor.execute('SELECT * FROM supermarket;')
61 row = cursor.fetchone()
62
63 while row:
64     print(str(row[0]) + " " + str(row[1]) + " " + str(row[2]) + " " + str(row[3]) + " " + str(row[4]))
65     row = cursor.fetchone()
66
67 conn.close()
68
69 10)mariadb2.py
70 import pymysql
71
72 server = 'ec2-3-38-162-157.ap-northeast-2.compute.amazonaws.com'
73 port = 3306
74 user = 'root'
75 password = 'pythonmysql'
76 dbname = 'mycompany'
77
78 # Open database connection
79 conn = pymysql.connect(host=server, port=port, user=user, password=password, database=dbname, charset='utf8')
80
81 # prepare a cursor object using cursor() method
82 cursor = conn.cursor()
83

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

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

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