

Database connectivity with python

DB API

- Set of standards for Python Database API
 - Import the API module
 - Acquire a connection with the database server
 - Issue sql commands or call stored procedures
 - Close the connection

pymysql (mysql)

→ Import the API module

```
* import pymysql
```

→ Acquire a connection with the database server

```
* db = pymysql.connect("localhost","root","None","sakila" )
```

→ Prepare a cursor object

```
* cursor = db.cursor()
```

→ Issue sql commands

```
* cursor.execute('show tables;')
```

→ Get results

```
* cursor.fetchone()
```

```
* cursor.fetchall()
```

→ Close the connection

```
* cursor.close()
```

psycopg2 (postgres)

→ Import the API module

```
* import psycopg2
* from psycopg2.extensions import
  ISOLATION_LEVEL_AUTOCOMMIT
```

→ Acquire a connection with the database server

```
* pcon = psycopg2.connect(dbname='postgres',
  user='postgres', host='localhost',
  password='')
```

→ Prepare a cursor object

```
* pcon.set_isolation_level(ISOLATION_LEVEL_AUTOCOMMIT)
* pcursor = pcon.cursor()
```

→ Issue sql commands

```
* pcursor.execute('Create database dvdrental')
```

→ Get results

```
* pcursor.fetchone()
* pcursor.fetchall()
```

→ Close the connection

```
* pcursor.close()
* pcon.close()
```

dvdrental (pagila) database

- Easiest to set it up using sql
 - Locate the folder where you unzipped the data
 - e.g., /Users/hardeepjohar/Downloads/dvdrental
 - Replace \$\$PATH\$\$ in restore.sql with the above path
 - Run psql
 - `psql -U postgres -d dvdrental -a -f restore.sql`
 - Create a new connection using psycopg2
 - `pcon =`
`psycopg2.connect(dbname='dvdrental',`
`user='postgres', host='localhost',`
`password='')`
 - `pcursor = pcon.cursor()`
 - Check if tables exist
 - `pcursor.execute("""SELECT table_name FROM`
`information_schema.tables WHERE`
`table_schema = 'public'""")`
 - `pcursor.fetchall()`

SQL Practice

- Get the length of every film in hours rounded to two decimal places
- Find a film with the highest running time using the output of the previous query

SQL Practice

- Write a query to get the set of longest length films

Try this

→ How many films for each rating level?

Try this

- List all the cities from Mexico
 - use the city and the country tables