

The background features a dark blue gradient with faint, light blue concentric circles and degree markings (40, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260) on the left side, suggesting a technical or scientific theme.

DATABASE SYSTEM LABS

- PROJECT I:

FILESYSTEM TO DATABASE II (MIDDLE)

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OBJECTIVES

- Store the info of file system to relational database
 - The structure information of file system
 - Get the structure information of file system
 - Store the info of file system to DB
 - Retrieve the tree info of file system from DB
 - Do some operations on filesystem over DB

THE STRUCTURE INFORMATION OF FILE SYSTEM

```
tea
├── aclocal.m4
├── configure
├── configure.ac
├── doc
│   └── sqlite3.n
├── generic
│   └── tclsqlite3.c
├── license.terms
├── Makefile.in
├── pkgIndex.tcl.in
├── README
├── tclconfig
│   ├── install-sh
│   └── tcl.m4
└── win
    ├── makefile.vc
    ├── nmakehlp.c
    └── rules.vc

4 directories, 14 files
```

GET THE STRUCTURE INFORMATION OF FILE SYSTEM USING PYTHON

```
import os

rootDir='/etc/network'

for (dirName, dirs, files) in os.walk(rootDir):
    for fileName in files:
        filePath = os.path.join(dirName, fileName)
        parentFileName=os.path.basename(dirName)
        print(fileName,':',parentFileName,':',os.path.getsize(filePath))

    for dir in dirs:
        print(dir)

print('exit')
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```


TEST CASE

- Sqlite

- <http://www.sqlite.org/2018/sqlite-autoconf-3230100.tar.gz>
- tar xvzf sqlite-autoconf-3230100.tar.gz

```
/etc/network
|---interfaces : 82
|---interfaces.d:0
|       |---ethtool : 344
|       |---wpasupplicant : 4696
|       |---wireless-tools : 3839
|---if-pre-up.d:3
|       |---upstart : 1483
|       |---ethtool : 1685
|       |---avahi-autoipd : 923
|       |---wpasupplicant : 4696
|       |---avahi-daemon : 484
|       |---000resolvconf : 817
|---if-up.d:6
|       |---upstart : 332
|       |---avahi-autoipd : 1015
|       |---wpasupplicant : 4696
|       |---resolvconf : 256
|---if-down.d:4
|       |---wpasupplicant : 4696
|       |---avahi-daemon : 484
|       |---wireless-tools : 1070
|---if-post-down.d:3
Total Dirs:5      Total Files:17
```

GET THE STRUCTURE INFORMATION OF FILE SYSTEM USING PYTHON

```
import os

rootDir='/etc/network'

for (dirName, dirs, files) in os.walk(rootDir):
    for fileName in files:
        filePath = os.path.join(dirName, fileName)
        parentFileName=os.path.basename(dirName)
        print(fileName,':',parentFileName,':',os.path.getsize(filePath))

    for dir in dirs:
        print(dir)

print('exit')
```

©LXD

TEST CASE

- Sqlite

- <http://www.sqlite.org/2018/sqlite-autoconf-3230100.tar.gz>
- tar xvzf sqlite-autoconf-3230100.tar.gz

```
---README.txt : 3558
---Replace.cs : 7272
---Makefile.am : 828
---sqlite3.1 : 8928
    |---pkgIndex.tcl.in : 167
    |---license.terms : 257
    |---configure.ac : 8308
    |---Makefile.in : 15902
    |---configure : 280772
    |---README : 1338
    |---aclocal.m4 : 147
        |---tclsqlite3.c : 117731
    |---generic:1
        |---sqlite3.n : 494
    |---doc:1
        |---rules.vc : 18743
        |---nmakehlp.c : 17368
        |---makefile.vc : 13830
    |---win:3
        |---tcl.m4 : 134055
        |---install-sh : 13868
    |---tclconfig:2
---tea:18
Total Dirs:5    Total Files:37
```

```
#!/usr/bin/python
import sys
import mysql.connector
#mysql config
config = {
    'host': 'localhost',
    'user': 'myuser',
    'password': 'mypwd',
    'port': 3306,
    'database': 'dbsclab2018',
    'charset': 'utf8'
}
```

STORE THE INFO OF FILE SYSTEM TO DB 1/2

```
try:
    cnn = mysql.connector.connect(**config)
except mysql.connector.Error as e:
    cnn = None
    print('connect fails!{}'.format(e))
if None==cnn:
    sys.exit()
```



```
cursor = cnn.cursor()
sql= 'SELECT name,dept_name,salary from instructor'
try:
    cursor.execute(sql)
    # display the result
    for name,dept_name,salary in cursor:
        print(name.decode('utf-8'),' ',dept_name,salary)
except mysql.connector.Error as e:
    print('query error!{}'.format(e))
finally:
    cursor.close()
    cnn.close()
©LXD
```

STORE THE INFO OF
FILE SYSTEM TO DB
2/2

RETRIEVE THE TREE INFO OF FILE SYSTEM FROM DB

- Display the structure of tables
- Display the tree of specified directory
 - File size
 - Subdir count

```
/etc/network
|---interfaces : 82
|---interfaces.d:0
|       |---ethtool : 344
|       |---wpasupplicant : 4696
|       |---wireless-tools : 3839
|---if-pre-up.d:3
|       |---upstart : 1483
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|       |---resolvconf : 256
|---if-down.d:4
|       |---wpasupplicant : 4696
|       |---avahi-daemon : 484
|       |---wireless-tools : 1070
|---if-post-down.d:3
Total Dirs:5      Total Files:17
```

LAB(1):

DO SOME OPERATIONS ON FILESYSTEM OVER DB

- 1. rename file /tea/win/makefile.vc to /tea/win/mymakefile.vc
- 2. move /tea/win to /tea/doc
- 3. get the dir name which contains at least 2 files
- 4. delete /tea

LAB(2):

DO SOME OPERATIONS ON FILESYSTEM OVER DB

- 1. copy file /tea/Makefile.in to /tea/doc/Makefile.in
- 2. move /tea/doc and /tea/win to /tea/tclconfig
- 3. get the dir name which contains at most 2 files
- 4. delete /tea



THANKS!

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