1 《Python程序设计与算法基础》第16章例题1-20

2 例题1

2-1 题目1

文本文件的写入示例(textwrite.py)

2-2 答案1

```
# 16.1.py

with open(r'./file.txt','w') as f:
    f.write('This is a write operation\n')
    f.write('abc\n')
    f.writelines(['456\n','def\n'])

# file.txt

This is a write operation
abc
456
def

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/16.1.py
```

3 例题2

3-1 题目2

文本文件的读取示例(textread.py)

3-2 答案2

```
# textread.py

with open(r'./file.txt','r') as f:
    for s in f.readlines():
        print(s,end="")

# file.txt

This is a write operation
abc
456
def

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/textread.py
This is a write operation
abc
456
def
```

4 例题3

4-1 题目3

二进制文件的写入示例(binarywrite.py)

4-2 答案3

```
# binarywrite.py
with open(r'./file.txt','wb') as f:
    f.write(b'123')
    f.write(b'abc')
# file.txt
123abc
```

5 例题4

5-1 题目4

二进制文件的读取示例(binaryread.py)

5-2 答案4

```
with open(r'./file.txt') as f:
    b = f.read()
    print(b)

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/binaryread.py
123abc
```

6 例题5

6-1 题目5

随机文件的读写示例(randomfile.py)

6-2 答案5

```python
import os
f = open('./data.dat','w+b')
f.seek(0)      #定位到开始的位置
f.write(b'Hello')
f.write(b'World')
f.seek(-5,os.SEEK_END)    #定位到结束位置的倒数第五个位置
b = f.read(5)
print(b)

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/randomfile.py
b'World'
```

7 例题6

7-1 题目6

内存文本文件的读写示例（siofile.py）

7-2 答案6

```python
from io import StringIO
f = StringIO('Hello!\nHi!\nGoodbye!')
for s in f:
    print(s.strip())

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/siofile.py
Hello!
Hi!
Goodbye!
```

8 例题7

8-1 题目7

内存二进制文件的读写示例(biofile.py)

8-2 答案7

```python
from io import BytesIO
f = BytesIO()
f.write('中午'.encode('utf-8'))
f.seek(0)
b = f.read()
print(b)
print(f.getvalue())

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/biofile.py
b'\xe4\xb8\xad\xe5\x8d\x88'
b'\xe4\xb8\xad\xe5\x8d\x88'
```

9 例题8

9-1 题目8

使用gzip模块压缩和解压缩文件的示例(gzipfile.py)

9-2 答案8

```python
import sys, gzip
filename = sys.argv[0]
filenamezip = filename + '.gz'
# compress
with gzip.open(filenamezip, 'wt') as f:
    for s in open(filename, 'r'):
        f.write(s)
# uncompress
for s in gzip.open(filenamezip, 'r'):
    print(s)

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/gzipfile.py
b'import sys, gzip\n'
b'filename = sys.argv[0]\n'
b"filenamezip = filename + '.gz'\n"
b'# compress\n'
b"with gzip.open(filenamezip, 'wt') as f:\n"
b"    for s in open(filename, 'r'):\n"
b'        f.write(s)\n'
b'# uncompress\n'
b"for s in gzip.open(filenamezip, 'r'):\n"
b'    print(s)'
```

10 例题9

10-1 题目9

使用csv.reader对象读取CSV文件(csv_reader1.py)

10-2 答案9

```python
import csv
def readcsv1(csvfilepath):
    with open(csvfilepath, newline='') as f:
        f_csv = csv.reader(f)
        headers = next(f_csv)
        print(headers)
        for row in f_csv:
            print(row)

if __name__ == '__main__':
    readcsv1(r'./scores.csv')
```

11 例题10

11-1 题目10

使用csv.writer对象写入CSV文件(csv_writer1.py)

11-2 答案10

```python
import csv
def writecsv1(csvfilepath):
    headers = ['学号', '姓名', '班级', '语文', '数字', '英语']
    rows = [('101511', '林德松', '男', '一班', '72', '85', '82'),
            ('101513', '张三', '男', '一班', '75', '82', '51')]
    with open(csvfilepath, 'w', newline='') as f:
        f_csv = csv.writer(f)
        f_csv.writerow(headers)
        f_csv.writerows(rows)

if __name__ == '__main__':
    writecsv1(r'./scores.csv')

# scores.csv

学号,姓名,班级,语文,数字,英语
101511,林德松,男,一班,72,85,82
101513,张三,男,一班,75,82,51
```

12 例题11

12-1 题目11

使用csv.DictReader对象读取CSV文件(csv_reader2.py)

12-2 答案11

```python
import csv
def readcsv2(csvfilepath):
    with open(csvfilepath, newline='') as f:
        f_csv = csv.reader(f)
        headers = next(f_csv)
        print(headers)
        for row in f_csv:
            print(row)

if __name__ == '__main__':
    readcsv2(r'./scores.csv')

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/csv_reader2.py
['学号', '姓名', '班级', '语文', '数字', '英语']
['101511', '林德松', '男', '一班', '72', '85', '82']
['101513', '张三', '男', '一班', '75', '82', '51']
```

13 例题12

13-1 题目12

使用csv.DictWriter对象写入CSV文件(csv_writer2.py)

13-2 答案12

```python
import csv
def writecsv2(csvfilepath):
    headers = ['学号', '姓名', '语文', '数学', '英语']
    rows = [{'学号': '101511', '姓名': '林德松', '语文': '72', '数学': '85', '英语':
'82'},
            {'学号': '101513', '姓名': '李四', '语文': '75', '数学': '80', '英语':
'81'}]
    with open(csvfilepath, 'w', newline='') as f:
        f_csv = csv.DictWriter(f, headers)
        f_csv.writeheader()
        f_csv.writerows(rows)
if __name__ == '__main__':
    writecsv2(r'scores2.csv')

# score2.csv

学号,姓名,语文,数学,英语
101511,林德松,72,85,82
101513,李四,75,80,81
```

14 例题13

14-1 题目13

CSV文件格式化参数示例(csv_writer3.py)

14-2 答案13

```python
import csv
def writecsv1(csvfilepath):
    headers = ['学号', '姓名', '性别', '班级', '语文', '数字', '英语']
    rows = [('101511', '林德松', '男', '一班', '72', '85', '82'),
            ('101513', '张三', '男', '一班', '75', '82', '51')]
    with open(csvfilepath, 'w', newline='') as f:
        f_csv = csv.writer(f, delimiter=':', quoting=csv.QUOTE_ALL)
        f_csv.writerow(headers)
        f_csv.writerows(rows)

if __name__ == '__main__':
    writecsv1(r'./scores3.csv')

# score3.csv

"学号":"姓名":"性别":"班级":"语文":"数字":"英语"
"101511":"林德松":"男":"一班":"72":"85":"82"
"101513":"张三":"男":"一班":"75":"82":"51"
```

15 例题**14**

15-1 题目**14**

Dialect对象示例(csv_writer4.py)

15-2 答案**14**

```python
import csv
def writecsv1(csvfilepath):
    csv.register_dialect('mydialect', delimiter=':',quoting=csv.QUOTE_NONE)
    headers = ['学号', '姓名', '性别', '班级', '语文', '数字', '英语']
    rows = [('101511', '林德松', '男', '一班', '72', '85', '82'),
            ('101513', '张三', '男', '一班', '75', '82', '51')]
    with open(csvfilepath, 'w', newline='') as f:
        f_csv = csv.writer(f, 'mydialect')
        f_csv.writerow(headers)
        f_csv.writerows(rows)

if __name__ == '__main__':
    writecsv1(r'./scores4.csv')

# score4.csv

学号:姓名:性别:班级:语文:数字:英语
101511:林德松:男:一班:72:85:82
101513:张三:男:一班:75:82:51
```

16 例题**15**

16-1 题目**15**

fileinput示例(fileinput_1.py)

16-2 答案15

```python
import fileinput, glob
def main():
    txtfiles = glob.glob(r'./*.txt')
    with fileinput.input(files=txtfiles) as f:
        for line in f:
            print(f.filename(), f.lineno(), line, end='')
if __name__ == '__main__':
    main()

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作业/第九次作业/fileinput_1.py
./file.txt 1 123abc
```

17 例题16

17-1 题目16

使用fileinput实现输入重定向(fileinput_2.py)

17-2 答案16

```python
import fileinput
def main():
    with fileinput.input() as f:
        for line in f:
            print(f.filename(), f.lineno(), line, end='')
if __name__ == '__main__':
    main()
```

18 例题17

18-1 题目17

对象序列化示例(pickledump.py)

18-2 答案17

```python
import pickle
with open(r'./data.dat','wb') as f:
    s1 = 'Hello!'
    c1 = 1 + 2
    t1 = (1,2,3)
    d1 = dict(name = 'Mary', age = 19)
    pickle.dump(s1, f)
    pickle.dump(c1, f)
    pickle.dump(t1, f)
    pickle.dump(d1, f)
```

19 例题18

19-1 题目18

对象反序列化示例(pickleload.py)

19-2 答案18

```python
import pickle
with open(r'./data.dat', 'rb') as f:
    o1 = pickle.load(f)
    o2 = pickle.load(f)
    o3 = pickle.load(f)
    o4 = pickle.load(f)
    print(type(o1), str(o1))
    print(type(o2), str(o2))
    print(type(o3), str(o3))
    print(type(o4), str(o4))
```

20 例题19

20-1 题目19

对象JSON格式序列化示例(json_dump.py)

20-2 答案19

```python
import json
urls = {'baidu': 'http://www.baidu.com/',
        'sina': 'http://www.sina.com.cn/',
        'tencent': 'http://www.qq.com/',
        'taobao': 'http://www.taobao.com/'}
with open(r'./data.json', 'w') as f:
    json.dump(urls, f)
```

21 例题20

21-1 题目20

对象JSON格式反序列化示例(json_load.py)

21-2 答案20

```python
import json
with open(r'./data.json', 'r') as f:
    urls = json.load(f)
    print(urls)

# shell

mikeshinoda@Mikes-Air ~/G/3/P/P/第九次作业 (main)> /usr/bin/python3
/Users/mikeshinoda/Github/3.codes/Python/Python程序设计作
业/第九次作业/json_load.py
{'baidu': 'http://www.baidu.com/', 'sina': 'http://www.sina.com.cn/', 'tencent':
'http://www.qq.com/', 'taobao': 'http://www.taobao.com/'}
```