Viviyan Richards W

2   205229133

Lab6. Python File Processing

Question6. Write a program to read and write CSV files

1).File Creation: Create MS Excel file ("student_marks.csv") with 5 rows of student name, mark1, mark2, mark3, mark4. Use comma to separate each value in a row.

2).File Display: Now, open your CSV file and display the file contents row by row (More information at: https://docs.python.org/3/library/csv.html (https://docs.python.org/3/library/csv.html)).

3).File Writing: Now, open ("student_marks.csv") for writing. Ask user to enter name followed by 4 marks for one new student and write them onto the file.

In [18]:

```python
from csv import writer
def append_list_as_row(file_name, list_of_elem):

    with open('student_marks.csv', 'a+', newline='') as write_obj:

        csv_writer = writer(write_obj)

        csv_writer.writerow(list_of_elem)

row_contents = ['Suresh',68,78,89,87,90]
row_contents1 = ['ganesh',68,78,89,87,90]
row_contents2 = ['Harish',68,78,89,87,90]
row_contents3 = ['Rajesh',68,78,89,87,90]
append_list_as_row('student_marks.csv', row_contents)
append_list_as_row('student_marks.csv', row_contents1)
append_list_as_row('student_marks.csv', row_contents2)
append_list_as_row('student_marks.csv', row_contents3)
```

In [19]:

```python
import csv
with open('student_marks.csv', newline ='') as csvfile:
    reader = csv.reader(csvfile, delimiter =' ', quotechar ='|')
    for row in reader:
        print(', '.join(row))
```

```
student, name,mark1,mark2,mark3,mark4,mark5
Johnson,78,56,72,95,77
Tom,89,69,74,90,88
Josephine,90,89,93,78,70
Jerry,89,78,70,88,90
David,90,98,87,89,86
Sam,68,78,89,87,90
Ram,68,78,89,87,90
Ramkumar,68,78,89,87,90
Suresh,68,78,89,87,90
ganesh,68,78,89,87,90
Harish,68,78,89,87,90
Rajesh,68,78,89,87,90
```

Lab7. Dictionaries in Python

Question1. Write a program for Fruit Inventory Management.

1. Create a dictionary fruits with fruit name as key and quantity available as values. There are 20 apples, 50 bananas, 100 oranges. Then, print outputs for the following queries.
2. Show the entire dictionary fruits (Print output as apples -> 20, bananas -> 50, etc)
3. How many bananas are there?
4. How many items in the dictionary?
5. Does graphs available in the dictionary?
6. Does pears exists in the dictionary?. If so, return its quantity, otherwise, add 10 pears to dictionary.
7. Show all fruit names in ascending order (Iterate using for loop)
8. Show all fruits in descending order of quantities
9. Remove pears from the dictionary.
10. Develop a function show() that displays fruit name and quantity (Use .format() for pretty printing)
11. Develop a function add_fruit(name, quantity) that receives fruit name and quantity as input and increases the quantity of the fruit. Then, display the current inventory by calling show().
12. Now, add 40 apples to inventory by calling add_fruit(name, quantity)
13. Now, add 100 bananas to inventory, by calling add_fruit(name, quantity)
14. Now, show the current inventory, by calling show()
15. Write the inventory fruits onto a file. (Use Pickle for file writing and reading)
16. Now, open Pickle file and display the inventory.

1. Create a dictionary fruits with fruit name as key and quantity available as values. There are 20 apples, 50 bananas, 100 oranges. Then, print outputs for the following queries.

In [1]:

```python
fruits={"apples":20,"bananas":50,"oranges":100}
```

2

2. Show the entire dictionary fruits

In [2]:

```python
print(fruits)
```

```
{'apples': 20, 'bananas': 50, 'oranges': 100}
```

3. How many bananas are there?

In [3]:

```python
print(fruits.get('bananas'))
```

```
50
```

4. How many items in the dictionary?

In [4]:

```python
len(fruits)
```

Out[4]:

```
3
```

5. Does graphs available in the dictionary?

In [5]:

```python
if "grapes" in fruits:
    print("yes")
else:
    print("No")
```

```
No
```

7. Show all fruit names in ascending order (Iterate using for loop)

6. Does pears exists in the dictionary?. If so, return its quantity, otherwise, add 10 pears to dictionary.

In [6]:

```python
if "pears" in fruits.keys():
    print(fruits.get('pears'))
else:
    fruits["pears"]=10
print(fruits)
```

{'apples': 20, 'bananas': 50, 'oranges': 100, 'pears': 10}

In [7]:

```python
for keys in fruits:
    print(sorted(fruits.keys()))
```

['apples', 'bananas', 'oranges', 'pears']
['apples', 'bananas', 'oranges', 'pears']
['apples', 'bananas', 'oranges', 'pears']
['apples', 'bananas', 'oranges', 'pears']

8. Show all fruits in descending order of quantities

In [8]:

```python
print(sorted(fruits.keys(),reverse=True))
```

['pears', 'oranges', 'bananas', 'apples']

9. Remove pears from the dictionary.

In [9]:

```python
del fruits['pears']
print(fruits)
```

{'apples': 20, 'bananas': 50, 'oranges': 100}

10. Develop a function show() that displays fruit name and quantity (Use .format() for pretty printing)

In [10]:

```python
def show():
    print("{} {} {}".format(*fruits.items()))
show()
```

('apples', 20) ('bananas', 50) ('oranges', 100)

11. Develop a function add_fruit(name, quantity) that receives fruit name and quantity as input and increases the quantity of the fruit. Then, display the current inventory by calling show().

In [11]:

```python
def add_fruit(fruits,name,quantity):
    fruits[name]=fruits.get(name,0)+quantity
```

12. Now, add 40 apples to inventory by calling add_fruit(name, quantity)

In [12]:

```python
fruits={"apples":20,"bananas":50,"oranges":100}
add_fruit(fruits,'apples',40)
print(fruits)
```

{'apples': 60, 'bananas': 50, 'oranges': 100}

13. Now, add 100 bananas to inventory, by calling add_fruit(name, quantity)

In [13]:

```python
fruits={"apples":20,"bananas":50,"oranges":100}
add_fruit(fruits,"bananas",100)
print(fruits)
```

{'apples': 20, 'bananas': 150, 'oranges': 100}

Question 2. Write a program for Telephone Directory Management

14. Now, show the current inventory, by calling show()

In [14]:

```
show()
```

```
('apples', 20) ('bananas', 150) ('oranges', 100)
```

15. Write the inventory fruits onto a file. (Use Pickle for file writing and reading)

In [15]:

```python
import pickle
new_inventory={"apple":300,"mango":87,"banana":320}
# Write the dictionary to the pickle file
file = open("fruits_inventory.p", "wb")
pickle.dump(new_inventory, file)
print(new_inventory)
```

```
{'apple': 300, 'mango': 87, 'banana': 320}
```

16. Now, open Pickle file and display the inventory.

In [16]:

```python
file = open("fruits_inventory.p","rb")
dict2 = pickle.load(file)
file.close()
print(new_inventory)
```

```
{'apple': 300, 'mango': 87, 'banana': 320}
```

1. Create an empty dictionary called customers, where name is a key and contacts is a list of contacts such as phoneno and email ID for each customer.

2. Ask user to enter name and his contacts for N customers. Add them to dictionary customers. Stop reading when user types "done"

In [15]:

```python
customer = {}
while(True):
    row = input("Enter the name and number: ")
    info = row.split()
    if(info[0] == "done"):
        break
    name = info[0]
    phone = info[1]
    email = info[2]
    contacts=[phone,email]
    customer[name] = contacts
print("\nPrinting Contacts:")
for name, phone in customer.items():
    print(name, ":", phone)
```

```
Enter the name and number: abc 5667789659 abc@gmail.com
Enter the name and number: def 9887765904 def@gmail.com
Enter the name and number: ghi 9090907889 ghi@gmail.com
Enter the name and number: done

Printing Contacts:
abc : ['5667789659', 'abc@gmail.com']
def : ['9887765904', 'def@gmail.com']
ghi : ['9090907889', 'ghi@gmail.com']
```

3.Show the contacts for customer "rex". If not exists, print message "Contacts not exists.."

In [17]:

```python
if 'rex' in customer:
    print("rex in present")
else:
    print("There is no such contact")
```

There is no such contact

4.Add a new customer with name "rex", phone number 9942002764 and email id yourname@bhc.edu (mailto:yourname@bhc.edu)

In [18]:

```python
customer['rex']=['9942002764','jonny@bhc.edu']
```

5.Show all customers both name and contacts. (Use items() method, unpack it and print inside for loop)

In [19]:

```python
for name, contacts in customer.items():
    print(name,contacts)
```

```
abc ['5667789659', 'abc@gmail.com']
def ['9887765904', 'def@gmail.com']
ghi ['9090907889', 'ghi@gmail.com']
rex ['9942002764', 'jonny@bhc.edu']
```

6.Show all customer contacts (Iterate using for loop)

In [20]:

```python
for name in customer:
    print(customer[name])
```

```
['5667789659', 'abc@gmail.com']
['9887765904', 'def@gmail.com']
['9090907889', 'ghi@gmail.com']
['9942002764', 'jonny@bhc.edu']
```

7.Show all customer names in alphabetical order

In [21]:

```
sorted(customer.keys())
```

Out[21]:

```
['abc', 'def', 'ghi', 'rex']
```

8.How many customers are there in your dictionary?

In [22]:

```
len(customer.items())
```

Out[22]:

```
4
```

9.Remove customer "rex" from dictionary customers

In [23]:

```
del customer['rex']
```

In [24]:

```
customer
```

Out[24]:

```
{'abc': ['5667789659', 'abc@gmail.com'],
 'def': ['9887765904', 'def@gmail.com'],
 'ghi': ['9090907889', 'ghi@gmail.com']}
```

Question6. Write a program to read and write CSV files
- File Creation: Create MS Excel file (**"student_marks.csv"**) with 5 rows of student name, mark1, mark2, mark3, mark4. Use comma to separate each value in a row.
- File Display: Now, open your CSV file and display the file contents row by row (More information at: https://docs.python.org/3/library/csv.html).
- File Writing: Now, open (**"student_marks.csv"**) for writing. Ask user to enter name followed by 4 marks for one new student and write them onto the file.

```
from csv import writer
def append_list_as_row (file_name, list_of_elem):

    with open ('student_marks.csv', 'a+', newline = ' ').as write_obj:

        csv_writer = writer( write_obj)

        csv_writer = writerow (list_of_elem)

row_contents = ['Suresh', 68,78,89,87,90]
row_contents 1 = ['ganesh', 68, 78, 89,87,90]
row_contents 2 = ['Harish', 68, 78, 89,87,90]
row_contents 3 = ['Rajesh', 68, 78, 89,87,90]
append_list_as_row ('student_marks.csv', row_contents)
append_list_as_row ('student_marks.csv', row_contents 1)
append_list_as_row ('student_marks.csv', row_contents 2)
append_list_as_row ('student_marks.csv', row_contents 3)

import csv
with open ('student_marks.csv', newline = ' ').as csvfile:
    reader = csv.reader(csvfile, delimiter = ' ', quotechar = '|')
    for row in reader:
        print ('|'.join(row))
```

Problem Solving Using Python and R Lab
Lab7. Dictionaries in Python

Question1. Write a program for Fruit Inventory Management.

1. Create a dictionary **fruits** with fruit name as key and quantity available as values. There are 20 apples, 50 bananas, 100 oranges. Then, print outputs for the following queries.
2. Show the entire dictionary fruits (Print output as apples -> 20, bananas -> 50, etc)
3. How many bananas are there?
4. How many items in the dictionary?
5. Does graphs available in the dictionary?
6. Does pears exists in the dictionary?. If so, return its quantity, otherwise, add 10 pears to dictionary.
7. Show all fruit names in ascending order (Iterate using for loop)
8. Show all fruits in descending order of quantities
9. Remove pears from the dictionary.
10. Develop a function **show()** that displays fruit name and quantity (Use .format() for pretty printing)
11. Develop a function **add_fruit(name, quantity)** that receives fruit name and quantity as input and increases the quantity of the fruit. Then, display the current inventory by calling show().
12. Now, add 40 apples to inventory by calling **add_fruit(name, quantity)**
13. Now, add 100 bananas to inventory, by calling **add_fruit(name, quantity)**
14. Now, show the current inventory, by calling **show()**
15. Write the inventory fruits onto a file. (Use **Pickle** for file writing and reading)
16. Now, open Pickle file and display the inventory.

```
16) file - open"fruits_
                inventory.p"{'rb'}
    dict2 = pickle.load(file)
    file.close()
    print(new_inventory)
```

```
(1) fruits = {"apples" : 20, "bananas" : 50, "oranges" : 100}.

(2) print(fruits)

(3) print(fruits.get('bananas'))

(4) len(fruits)

(5) if "grapes". in fruits:
        print("yes")
    else:
        print("No")

(6) if "pears". in fruits.key():
        print(fruits.get('pears'))
    else:
        fruits["pears"] = 100
        print(fruits)

(7) for keys in fruits:
        print(sorted(fruits.keys()))

(8) print(sorted(fruits.keys(), reverse = True))

(9) del fruits["pears"]
    print(fruits)

(10) def show():
        print("{} -> {}".format(fruits.items()))
     show()

(11) def add_fruits(fruits, name, quantity):
        fruits[name] = fruits.get(name, 0) + quantity

(12) fruits = {"apples" : 20, "bananas" : 50, "oranges" : 100}
     add_fruit(fruits, "apples", 40)
     print(fruits)

(13) fruits = {"apples" : 20, "bananas" : 50,
                "oranges" : 100}
     add_fruit(fruits, "bananas", 100)
     print(fruits)

(14) show()
     import pickle

(15) new_inventory: {"apple" : 200,
                "mango" : 81, "bananas" : 32}

(16) file = open("fruits_inventory.p", "wb")
     pickle.dump(new_inventory, file)
     print(new_inventory)
```

Question2. Write a program for Telephone Directory Management

1. Create an empty dictionary called **customers**, where name is a key and contacts is a list of contacts such as phoneno and email ID for each customer.
2. Ask user to enter name and his contacts for N customers. Add them to dictionary **customers**. Stop reading when user types "done".
3. Show the contacts for customer "rex". If not exists, print message "Contacts not exists.."
4. Add a new customer with name "rex", phone number 9942002764 and email id rajkumar@bhc.edu
5. Show all customers both name and contacts. (Use items() method, unpack it and print inside **for** loop)
6. Show all customer contacts (Iterate using for loop)
7. Show all customer names in alphabetical order
8. How many customers are there in your dictionary?
9. Remove customer "rex" from dictionary customers

```
customer = { }
while (True):
    row = input ("Enter the name and number: ")
    info = row.split()
    if (info[0] == "done"):
        break
    name = info[0]
    phone = info[1]
    email = info[2]
    contacts = [phone, email]
    customer[name] = contacts
print ("In Printing contacts:")
for name, phone in customer.items():
    print (name, ":", phone)

1) if 'rex' in customer:
      print ("rex in present")
   else:
      print ("There is no such contact")

2) customer ['rex'] = [9942002764, 'sorry@bhc.edu']

3) for name, contacts in customer.items():
          print (name, contacts)

4) for name in customer:
          print (customer[name])

(5) sorted (customer.keys())

(6) len (customer.items())

(7) del customer['rex']
        customer
```