Python Lab Assignment-2

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Objective:

The main objective for this lab assignment is to know the working of sets, dictionaries and ability to create back end web applications in python. By using the above methods we met the following objectives,

- To find the desired information in the given range using dictionaries
- Able to update and lookup dictionaries
- Usage of classes and OOPS concepts in python
- Using numpy library to find the most frequent item in the list

Features:

The code snippets are executed and debugged for purpose of software environment. The code snippets are written in such way that they won't affect the performance of the system when they are executed in multiple envirmonents.

Configuration:

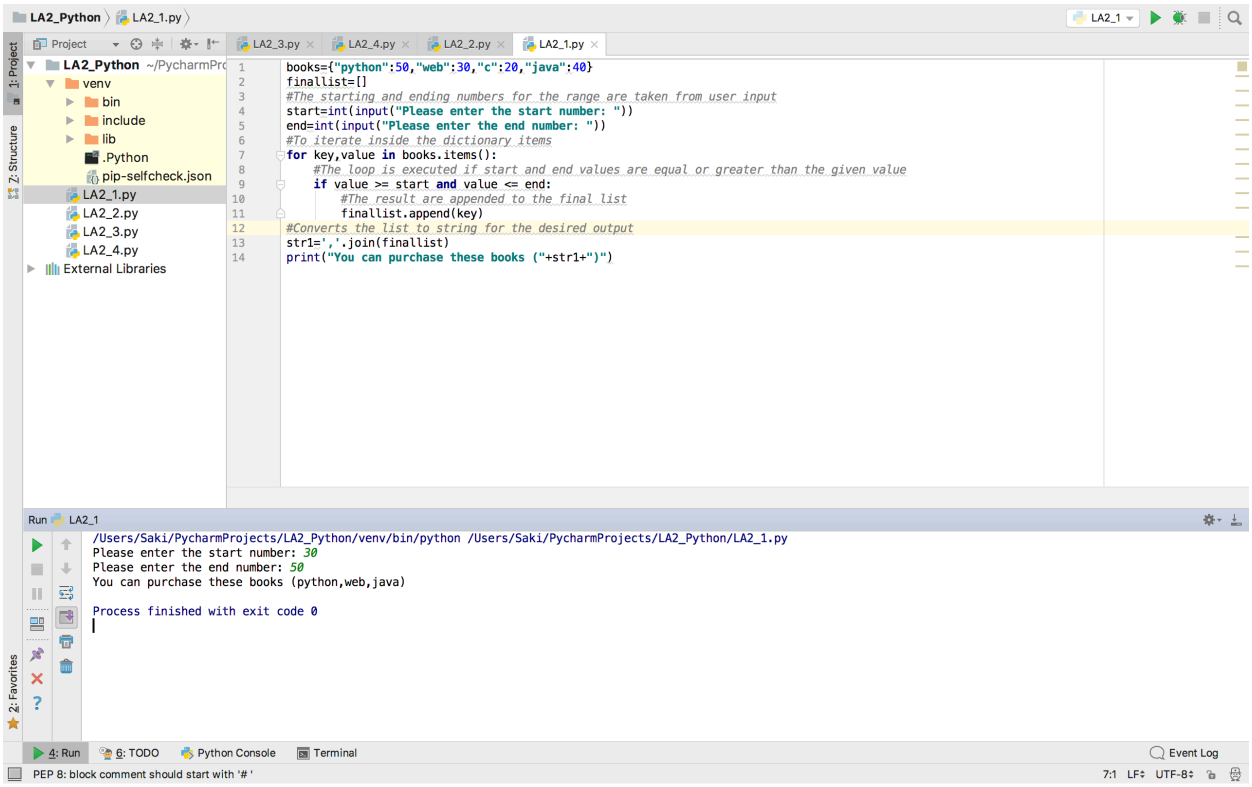
- PyCharm IDE
- Python 3.6.4

Screenshots:

1) To find the books in the range given by the user

Output:

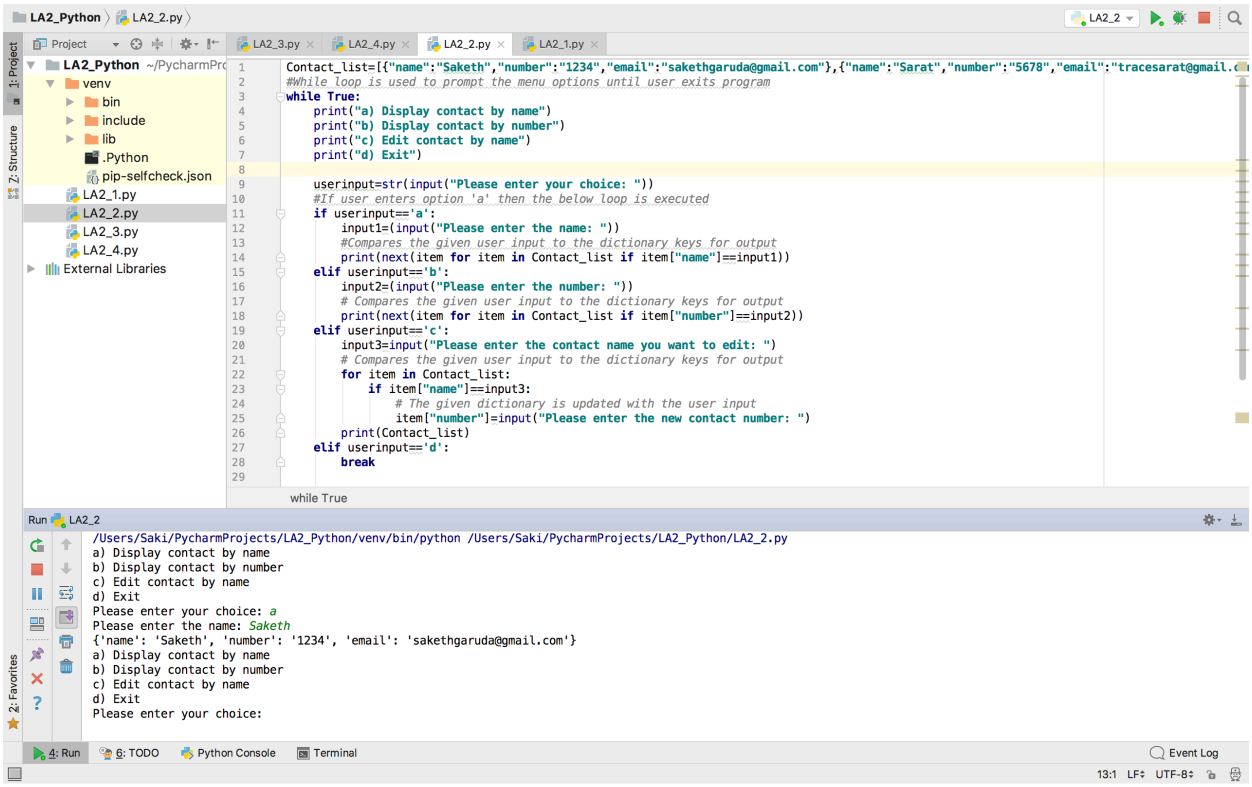
- Books which are in the range are printed accordingly,



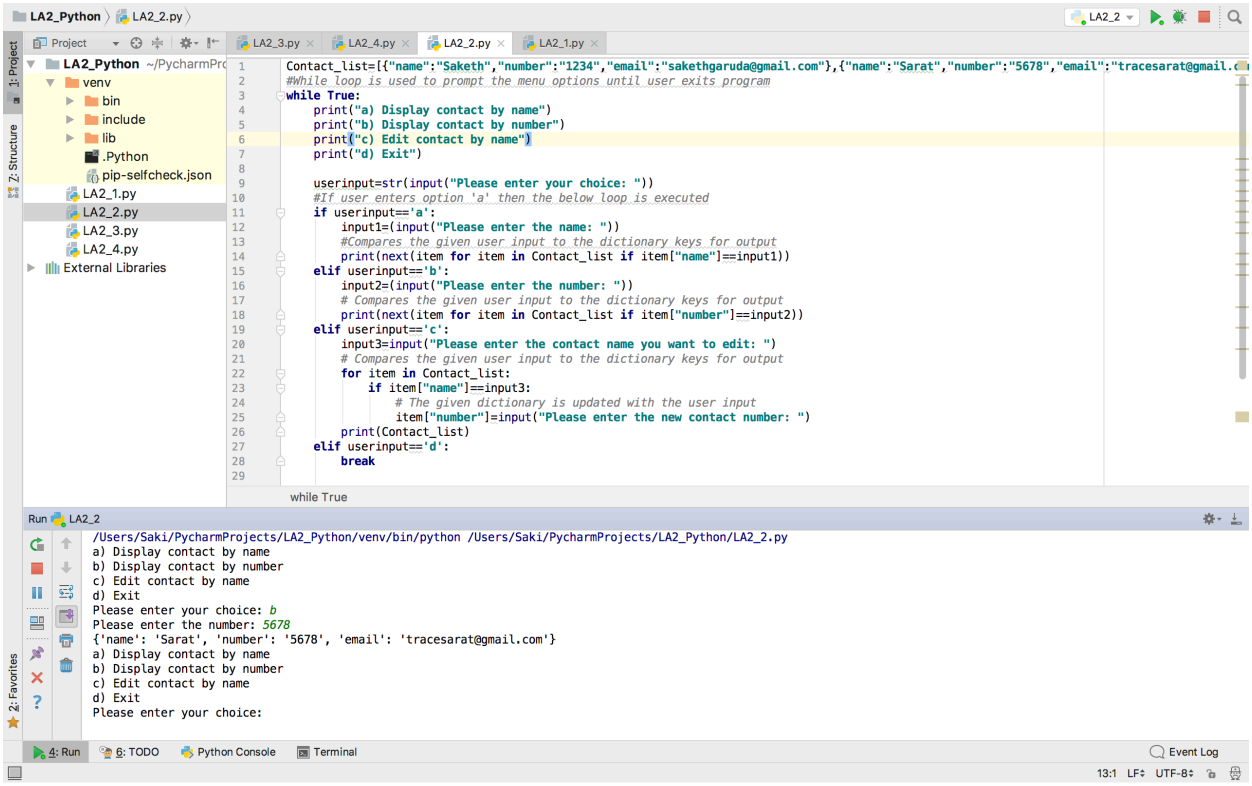
2) Create a list of contacts and prompt the user for following,
a) Display contact by name
b) Display contact by number
c) Edit contact by name
d) Exit

Output:

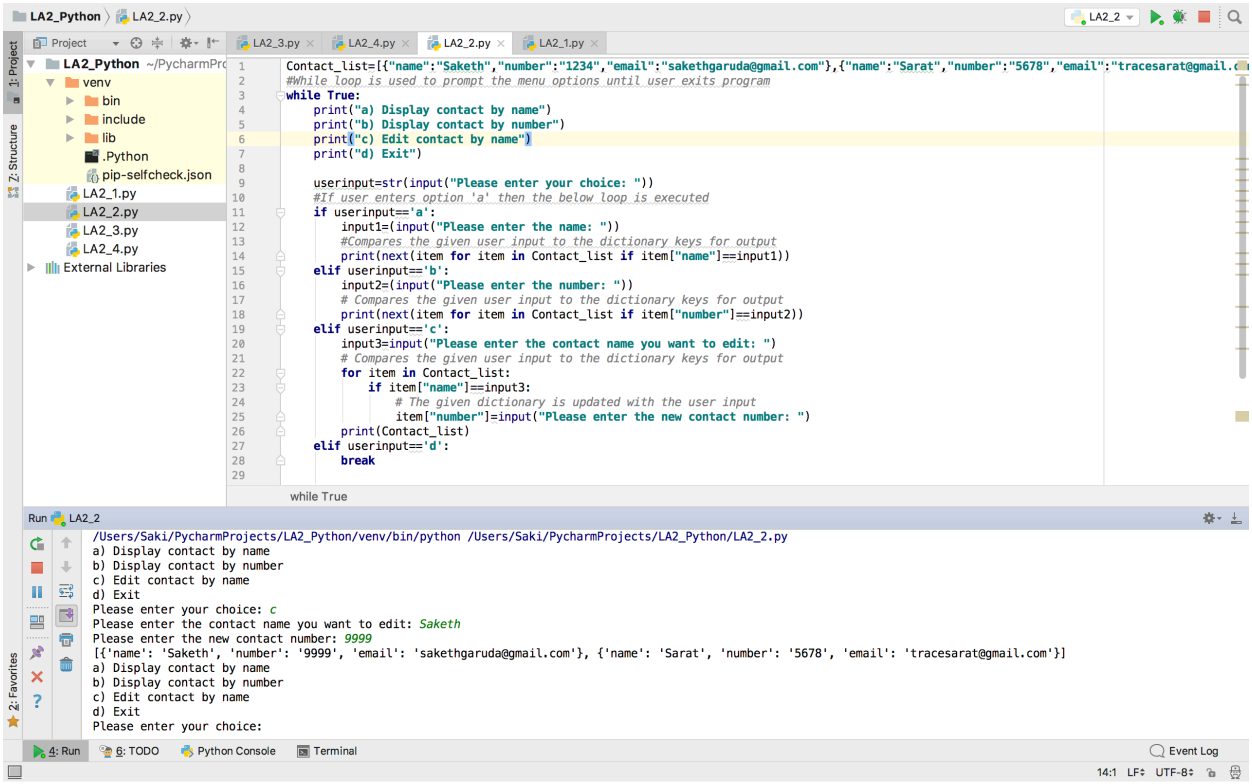
- When option ‘a’ is entered the contacts by name are displayed,



- When option ‘b’ is entered the contacts by numbers are displayed,



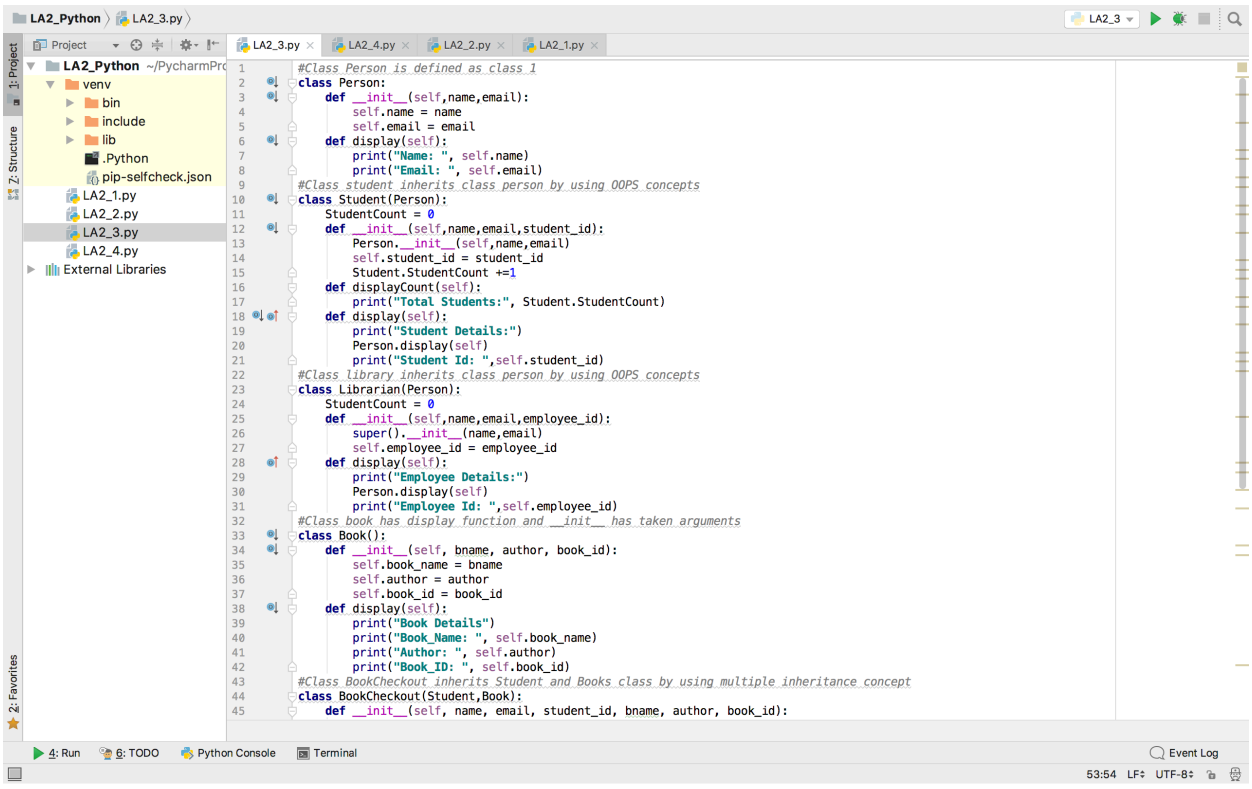
- When option ‘c’ is entered the user is prompted for contact name and to enter the new number for desired contact

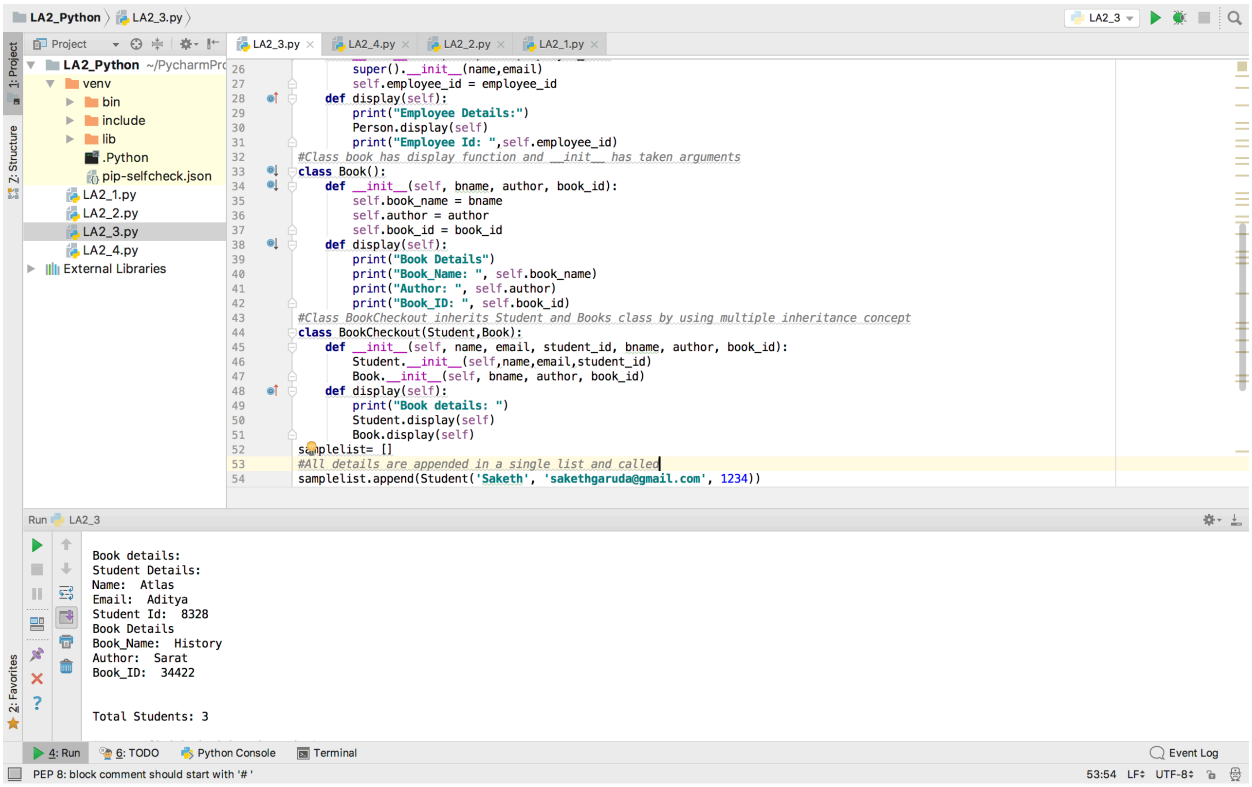


3) Write a python program to create any one of the following management systems. You can also pick one of your own.
a.Library Management System (should have classes for Person, Student, Librarian, Book etc.)
b.Airline Booking Reservation System (classes for Flight,Person,Employee,Passenger etc.)
c.Hotel Reservation System (classes for Room,Occupants,Employee etc.)
d.Student Enrollment System (classes for Student,System,Grades etc.)
e.Expense Tracker System (classes for Expense, Transaction Category etc.)

Output:

- Library Management system is implemented.

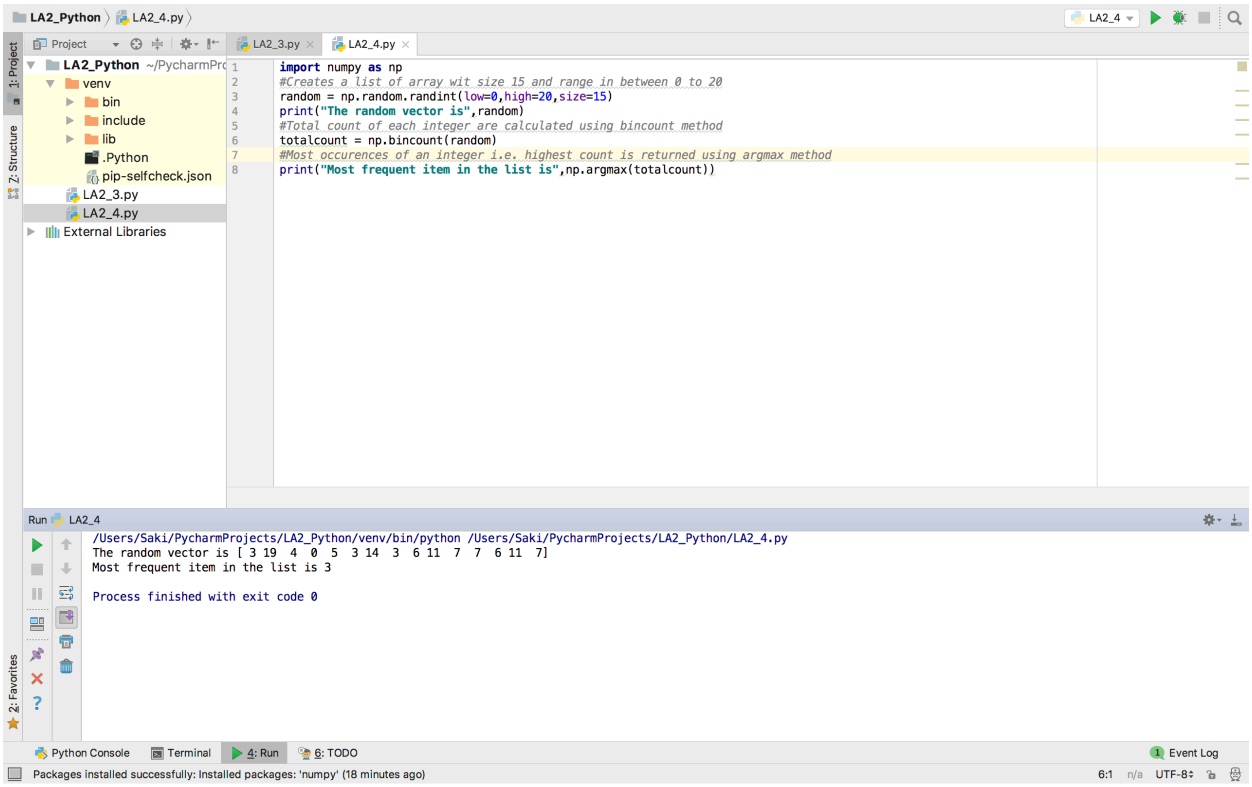




4) Using Numpy create random vector of size 15 having only Integers in the range 0 -20. Write a program to find the most frequent item/value in the vector list.

Output:

- The most frequent item in the vector list is printed using argmax method.


LA2_Python
LA2_4.py
LA2_4
Project
LA2_3.py
LA2_4.py
LA2_Python ~/PycharmPro
venv
bin
include
lib
.Python
pip-selfcheck.json
LA2_3.py
LA2_4.py
External Libraries
1: Project
Z: Structure
2: Favorites
import numpy as np
#Creates a list of array wit size 15 and range in between 0 to 20
random = np.random.randint(low=0,high=20,size=15)
print("The random vector is",random)
#Total count of each integer are calculated using bincount method
totalcount = np.bincount(random)
#Most occurences of an integer i.e. highest count is returned using argmax method
print("Most frequent item in the list is",np.argmax(totalcount))
Run LA2_4
/Users/Saki/PycharmProjects/LA2_Python/venv/bin/python /Users/Saki/PycharmProjects/LA2_Python/LA2_4.py
The random vector is [3 19 4 0 5 3 14 3 6 11 7 7 6 11 7]
Most frequent item in the list is 3
Process finished with exit code 0
Python Console
Terminal
4: Run
6: TODO
1 Event Log
Packages installed successfully: Installed packages: 'numpy' (18 minutes ago)
6:1
n/a
UTF-8

Code Snippets:

Code Snippet 1:

```
books={"python":50,"web":30,"c":20,"java":40}
finallist=[]
#The starting and ending numbers for the range are taken from user input
start=int(input("Please enter the start number: "))
end=int(input("Please enter the end number: "))
#To iterate inside the dictionary items
for key,value in books.items():
    #The loop is executed if start and end values are equal or greater than the given value
    if value >= start and value <= end:
        #The result are appended to the final list
        finallist.append(key)
#Converts the list to string for the desired output
str1=','.join(finallist)
print("You can purchase these books ("+str1+")")
```

Code Snippet 2:

```
Contact_list=[{"name":"Saketh","number":"1234","email":"sakethgaruda@gmail.com"},{"name":"Sarat","number":
"5678","email":"tracesarat@gmail.com"}]
#While loop is used to prompt the menu options until user exits program
while True:
    print("a) Display contact by name")
    print("b) Display contact by number")
    print("c) Edit contact by name")
    print("d) Exit")

    userinput=str(input("Please enter your choice: "))
    #If user enters option 'a' then the below loop is executed
    if userinput=='a':
        input1=(input("Please enter the name: "))
        #Compares the given user input to the dictionary keys for output
        print(next(item for item in Contact_list if item["name"]==input1))
    elif userinput=='b':
        input2=(input("Please enter the number: "))
        # Compares the given user input to the dictionary keys for output
        print(next(item for item in Contact_list if item["number"]==input2))
    elif userinput=='c':
        input3=input("Please enter the contact name you want to edit: ")
        # Compares the given user input to the dictionary keys for output
        for item in Contact_list:
            if item["name"]==input3:
                # The given dictionary is updated with the user input
                item["number"]=input("Please enter the new contact number: ")
        print(Contact_list)
    elif userinput=='d':
        break
```

Code Snippet 3:

Code Snippet 4:

```
import numpy as np
#Creates a list of array wit size 15 and range in between 0 to 20
random = np.random.randint(low=0,high=20,size=15)
print("The random vector is",random)
#Total count of each integer are calculated using bincount method
totalcount = np.bincount(random)
#Most occurences of an integer i.e. highest count is returned using argmax method
print("Most frequent item in the list is",np.argmax(totalcount))
```

Deployment:

The code snippets are written using Python IDE and executed with the help of python 3.6.4 interpreter. Outputs are shown in the Python IDE console.

Limitations:

The given code snippets doesn't have any limitations as they have met all rules and conditions.

References:

- https://docs.scipy.org/doc/numpy/reference/generated/numpy.random.randint.html
- https://stackoverflow.com/questions/26823451/prompt-user-for-positive-number-and-continues-to-prompt-the-user-until-they-ent
- https://stackoverflow.com/questions/743164/emulate-a-do-while-loop-in-python
- https://wiki.python.org/moin/SortingListsOfDictionaries