**LAB-2(**turnitin**)**

|  |  |
| --- | --- |
|  | **NAME :** PABOLU SANDEEP |
|  | **ID :** 16230088 |
|  | **CLASS ID:** 35 |

* **Objective:**

The main goal of this lab assignment is to get familiar with python coding. It has various tasks relating to the basic concepts of python dealing with sets, dictionaries, web scraping, classes, instances, pre-defined functions, inheritance, polymorphism, numpy package.

* **Tasks**

This assignment is basically included of 4 different tasks.

**Task 1:** Consider a shop UMKC with dictionary of all book items with their prices. Write a program to find the books from the dictionary in the range given by user.

**Task 2:** With any given number n, in any mobile, there is contact list. Create a list of contacts and then prompt the user to do the following:

* Display contact by name
* Display contact by number
* Edit contact by name
* Exit

**Task 3:** Program to create any one of the following management systems picking up one of your own.

* Library Management System (should have classes for Person, Student, Librarian, Book etc.)
* Airline Booking Reservation System (classes for Flight, Person, Employee, Passenger etc.)
* Hotel Reservation System (classes for Room, Occupants, Employee etc.)
* Student Enrollment System (classes for Student, System, Grades etc.)
* Expense Tracker System (classes for Expense, Transaction Category etc.)

**Task 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.

* **Configuration**

The python version used for this lab assignment is 3.5.2

The coding has been done in python in the pyCharm environment.

* **Input/output (screenshots) along with code snippets**

**Task 1:**

**Code with output:**

![A screenshot of text

Description generated with very high confidence]()

Output:

![A screenshot of a social media post

Description generated with very high confidence]()

**Task 2:**

**Code with output:**

![A screenshot of a cell phone

Description generated with very high confidence]()

Output:

![A screenshot of a social media post

Description generated with very high confidence]()

**Task 3:**

**Code with Output:**

![A screenshot of text

Description generated with very high confidence]()

![A screenshot of a social media post

Description generated with very high confidence]()

Output:

A screenshot of a social media post

Description generated with very high confidence

**Task 4:**

**Code with output:**

![A screenshot of a cell phone

Description generated with very high confidence]()

Output:

![A screenshot of a social media post

Description generated with very high confidence]()

* **Explain the implementation including code snippet**

Each and every code is explained with the comments beside every line in the images below :

The codes with their explanation are:

**Task 1**:

In the code below, I have predefined a small dictionary and the key value pair are set up beforehand. Basically, it gives the books which fall within the range given by the user.

The for loop within the code selects the price ranges from all the books and print only those which fall within the range. The variables x and y are used to take the limits from the user.

![A screenshot of text

Description generated with very high confidence]()

**Task 2:**

**It**s an if else if loop where all the conditions are checked one after another and user can actually browse through all the options.

Within each if conditions I have stated the related task that needs to be performed.

**![A screenshot of a cell phone

Description generated with very high confidence]()**

The last is the break statement so as to get out of the loop and prevent the loop from entering a never-ending state.

**Task 3**: **THE PREREQUISITES:**

* **The 5 classes:**

**1.**

**![A screenshot of a cell phone

Description generated with very high confidence]()**

**2.**

**![A screenshot of a cell phone

Description generated with high confidence]()**

**3.**

**![A screenshot of a cell phone

Description generated with high confidence]()**

**4.**

**5.![A screenshot of a social media post

Description generated with very high confidence]()**

**![A screenshot of a cell phone

Description generated with very high confidence]()**

* The init constructor is present in all the classes indicated in the comments
* The super call is present in the passenger class
* Self is used in most of the definitions
* Private data member count is used in the person class
* Multiple instances are present in the code.

**Task 4:**

np.random.random(20)

*this part of the code is used for creating the random generation of the values using the NumPy package.*

np.random.randint(20, size = 10)

*this part of the code is used to generate the values within the range of 20 and 10 in number*

np.bincount(z)

*this part in the code calculates the frequency of the values on the array.*

* **Explain about the deployment**

The basic deployment is the code is written in python. It is deployed in pyCharm environment. The version of python installed is 3.5.2 . The pyCharm used is of community edition.

* **Limitation**

Task 1:

* This works for any size of the data but the operation time is very high.
* The input is predefined can be taken from the user too

Task 2:

* Cant work with switch case which is much more better and faster operation.

Task 3:

* It’s a simple code satisfying all the requirements in the question.

Task 4:

* It’s a simple code satisfying the question conditions.
* **References**
* https://www.geeksforgeeks.org
* [https://stackoverflow.com](https://stackoverflow.com/)
* <https://www.youtube.com/watch?v=4NpYAe-JXr0>
* https://docs.python.org/3/library/index.html