Programming Fundamentals LAB – BSDSF23

(Both Morning and Afternoon)

Lab 07 – 25-10-2023

Note: YOU may USE Command Prompt or ***Mu Editor*** to interpret and execute all the PYTHON programs. Use of any IDE, except ***Mu Editor*** is not allowed for this LAB, despite you are expert. Unless and until you convinced me of it personally.

Also note, if the computer systems are not equipped with python interpreter, you may use online compiler at the following URL highlighted in yellow. And in case it is also difficult to use for any reason, you need to do the paperwork within the LAB time for all tasks, as discussed in the class sessions. Thanks

https://www.programiz.com/python-programming/online-compiler/

Tasks set 1 (10 each)

1. Type the following function to convert miles to kilometers and then test it using a number of test cases (call to the function from main logic). How can we make this code better, according to good programming practices.

```
def mile2km(miles):
    return miles * 1.60934
```

2. Create two arrays named **cities** and **distance** from Lahore. Enter the cities names Kasur, Multan, Karachi, Sialkot, Quetta, and their corresponding distances in miles from Lahore as 8, 57, 279, 18, 325 in their respective arrays. You may create arrays through any method. Later, print names of cities and distances in kilometers, one city per line. You must use the function created in task 1 to convert miles to kilometers.

3. Create a function to compute and return the sum of array passed as its parameter, the other parameter is the length of the array. Test your code for a couple of test cases.

4. Create a function to search and return the minimum value of array of numbers passed as its parameter, the other parameter is the length of the array. Test your code for a couple of test cases.

5. Create a function to search a desired friend name in an array of names of friends and return True if name of the friend is in array, otherwise return False. Note that for this task the array is an array of string type objects. Test your code for a couple of test cases.

Tasks set 2 (25 each)

6. Create a function to search a desired friend name in a subarray of an array of names of friends and return the index of that location where name is located. *Test your code for a couple of test cases*. Note: the heading of the function should be as specified as follows, where x is the name to be searched, a is name of the array, start is the starting point from where search should begin, and end is the last index up to which search operation should be proceeded. Bothe the start and end indices are inclusive in search criteria.

```
def search(x, a, start, end):
```

7. Write code, using good programming practices as much as you can, to create an array of size 25,00,00,000. Later, fill the array with random positive integer values between 25021 and 289820. The compute the mean value (average) of the numbers in array, minimum and maximum values in array, and count values above mean and print all these statistics.

Thanks, for your **patience**

If you got time, solve some pending tasks from previous labs