Python Experiment List

Experiment 1

A) Mention and explain all the functions with example for following data structures:

· LISTS

· TUPLES

· SETS

· DICTIONARIES

B)

Write a Python function histogram(l) that takes as input a list of integers with repetitions and returns a list of pairs as follows:.

· for each number n that appears in l, there should be exactly one pair (n,r) in the list returned by the function, where r is the number of repetitions of n in l.

· the final list should be sorted in ascending order by r, the number of repetitions. For numbers that occur with the same number of repetitions, arrange the pairs in ascending order of the value of the number.

For instance:

· >>> histogram([13,12,11,13,14,13,7,7,13,14,12])

[(11, 1), (7, 2), (12, 2), (14, 2), (13, 4)]

· >>> histogram([7,12,11,13,7,11,13,14,12])

[(14, 1), (7, 2), (11, 2), (12, 2), (13, 2)]

· >>> histogram([13,7,12,7,11,13,14,13,7,11,13,14,12,14,14,7])

[(11, 2), (12, 2), (7, 4), (13, 4), (14, 4)]

C)

A positive integer n is said to be perfect if the sum of the factors of n, other than n itself, add up to n. For instance 6 is perfect since the factors of 6 are {1,2,3,6} and 1+2+3=6. Likewise, 28 is perfect because the factors of 28 are {1,2,4,7,14,28} and 1+2+4+7+14=28.

Write a Python function perfect(n) that takes a positive integer argument and returns True if the integer is perfect, and False otherwise.

Experiment 2

• Implement a recursive function to solve tower of Hanoi Problem

• Implement lambda function to find greater of the 2 input numbers

• Using map function perfom element wise additon of elements of two lists.

• Using map and filter find the cube of all the odd numbers from the given input lis

Experiment 3:

Classes: Employee, Developer, Tester, Manager

Developer, tester, Manager inherit Employee

Manager handles Developer, tester

Manager class : implement functions to add Developer/Tester and Remove Developer/ Tester

Display .. to see the list of employees he manages

Experiment 4

Display and handle atleast 5 inbuild exceptions: (Value error, Arithmetic Error)

Create a user defined exception handling mechanism

Experiment 5

Take 10 numbers from the user. Add it to a file (lets say T1.txt). Read the contents of the file and sort the data. Put the sorted data in a different file (t2.txt)

Experiment 6

`Txt File:`

```
Mr. Anderson
Ms. Thareja
Mrs. Morris
Mr. Roy
Ms. Gandhi
Mrs. Modi

https://www.google.com
http://www.udemy.com
www.udacity.com
https://www.stackoverflow.com
http://www.djsce.ac.in
https://plus.google.com

rishit.grover@gmail.com
kapeesh.grover@yahoo.co.in
abhishek.shah@gmail.com
shahp98@gmail.com
demo_user@gmail.com
rolflmoa@yahoo.co.in

27777647
233*333*88
455-78-888
022-240-93836
02642*221*381
```

Use regular expression for the above text to find:

- Names of the User.
- Website name exclusing http/s
- Identify email ids
- Identify Phone numbers

Experiment 7

Implement the following queries using menu driven approach :

- Create Table
- Insert values
- Delete a row based on values
- Display the rows of the table
- Update the values of a specific row
- Search whether a particular record is present in the table or not

Experiment 8

Implement a client server communication application based on socket Programming

Experiment 9

Design a GUI application to show input and output operations using Tkinter

Experiment 10

Using pandas:

- Show various operations using dataframe to read data , clean data and analyse data.
- Create series, create own dataframe
- Readcsv
- Delete NA values from the dataframe(all NA and NA values of specific columns)
- Fill NA values with random values, mean, median)
- display statistical information of the data frame
- Establish relationship between the columns of the data frame

using matplotlib

- plot follwoing graphs
- Barchart
- piechart
- Scatter plot
- Histogram

Note:

Use own dataset. However your dataset should be useful for operating most of the operations above.