TELECOM SOFTWARE LAB

ELP 718

Assignment No.7 Report

Submitted By:-

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TABLE OF CONTENTS

List of Figures

1 Introduction:

PYTHON

Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language. It was created by Guido van Rossum during 1985- 1990. Like Perl, Python source code is also available under the GNU General Public License (GPL). This tutorial gives enough understanding on Python programming language.

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- **Python is Interpreted:** Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive:** You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented:** Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language:** Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

Python Features

- **Easy to learn:** Python has few keywords, simple structure, and a clearly defined syntax. This allows the student to pick up the language quickly.
- **Easy to Read:** Python code is more clearly defined and visible to the eyes.
- **Easy to maintain:** Python's source code is fairly easy-to-maintain.
- **A braosd standard library:** Python's bulk of the library is very portable and cross-platform compatible on UNIX, Windows, and Macintosh.
- **Interactive Mode:** Python has support for an interactive mode which allows interactive testing and debugging of snippets of code.
- **Portable:** Python can run on a wide variety of hardware platforms and has the same interface on all platforms.
- **Extendable:** You can add low-level modules to the Python interpreter. These modules enable programmers to add to or customize their tools to be more efficient.
- **Databases:** Python provides interfaces to all major commercial databases.
- **GUI Programming:** Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems, such as Windows MFC, Macintosh, and the X Window system of Unix.
- **Scalable:** Python provides a better structure and support for large programs than shell scripting.

2 Problem Statement

2.1 Problem Statement 1

Write a Python program that can take a big string (with spaces) as input from the command line and count number of times a word occurs in the string and also print the top 3 words in terms of their frequency of count. Also print the next permutation of each word appearing in the string

- ***INPUT TO BE GIVEN***
  any string iit delhi delhi iit delhi nit nit tjdfjgvnjsd
- ***REQUIRED OUTPUT***
  delhi iit nit

  diehl

2.2 Problem Statement 2

You are designing a Graphical user Interface (GUI) to depict the location of a mobile user in a square whose corner points are (1,1) (-1,1) (1,-1)(-1,-1). In real life, the users location would come from a database available with the MSC. For the moment, generate the user location using the random function generator function in Python to generate a number between [0,1).

- ***INPUT TO BE GIVEN***
  no. of users in the rectangle is to be taken as input from user
- ***REQUIRED OUTPUT***
  percentage of users in the range is to be given as output

3 Problem Statement 3

You have to design an addressing code for a shipping company that works all around India. The address given by the customer is split into fields of

- Name
- City
- District
- State/Union Territory

Let's suppose at the intake the employer enters all the above data into the computer, now the coding machine has to build two codes out of the data.

- ***INPUT TO BE GIVEN***
  type of operation one wants to perform is taken from user
- ***REQUIRED OUTPUT***
  collection centre no is given as the output

4 Assumptions

4.1 *Assumption for Problem statement 1*

no such assumption is taken

4.2 *Assumption for Problem statement 2*

users on the boundary of the circle will be included in the range and the no of users are not beyond the capacity of the function range

4.3 *Assumption for Problem statement 2*

all the entries are required to be done in capital letters

5 Implementation

5.1 Problem 1

- Sub program Name:
  Counting the no. of times a word appear and printing the top 3 words and generating the permutation of each word appearing in the string
- Name and types of parameters
  Parameters used are :
  'a' for storing the command line arguments 'l' for storing the no. from 1 to len(a)
- Input
  A string is taken from user as input
- Ouput
  1.Counting the no. of times a word appear
  2.printing the top 3 words
  3. generating the permutation of each word appearing in the string
- Algorithm

  In this problem we have to enter a string to which we will convert it into list because processing list in python is much easier than strings.

  using standard function for list we will find the most occuring letter in the string.

5.2 Problem 2

- Sub program Name:
  Finding the percentage of users in the range
- Input
  No. of users in the rectangle is to be taken from the user
- Ouput
  percentage of users in the range
- Algorithm
  - take the no of users in the rectangle from user
  - generate the user coordinates using random function
  - calculate their distance from origin
  - if d¡=1 then increment the count and display the percentage finally

5.3 Problem 3

- Sub program Name:
  Generating the Collection Center no and to create the editable database
- Name and types of parameters
  Parameters used are :
  various parameters are used to store the data taken from the user.
- Input
  data as operation wants to perform ,state, district,city etc are taken from the user as input
- Ouput
  collection center no: CC NO = 100100001 like this is output

6 Test Description and Results

- **Problem Statement 1**
  - **Input**

    string is taken from user as input
  - **Output**

    no of times word appear is given as output and the permutation of the word is also given as output.
- **Problem Statement 2**
  - **Input**

    no. of users in rectangle is taken fromthe user
  - **Output**

    percentage of users in range
- **Problem Statement 3**
  - **Input**

    operation one wants to perform and the reqd. data is taken from the user.
  - **Output**

    collection center no is given as output in case of query.

The results obtained can be seen from the screenshots taken.

7 Screenshots

Figure 1: Screenshot of Problem Statement 1

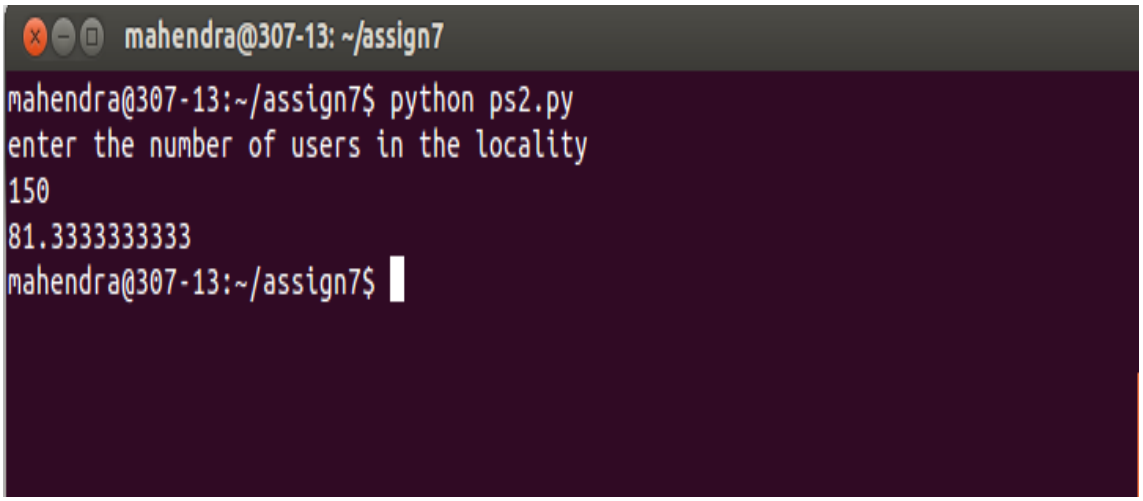

Figure 2: Screenshot of Problem Statement 2

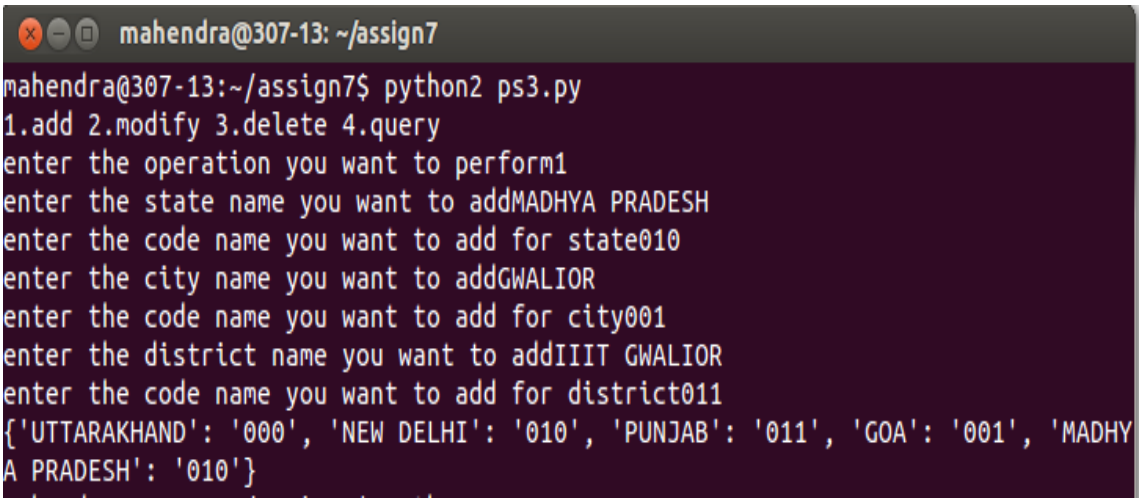

Figure 3: Screenshot of Problem Statement 3.1

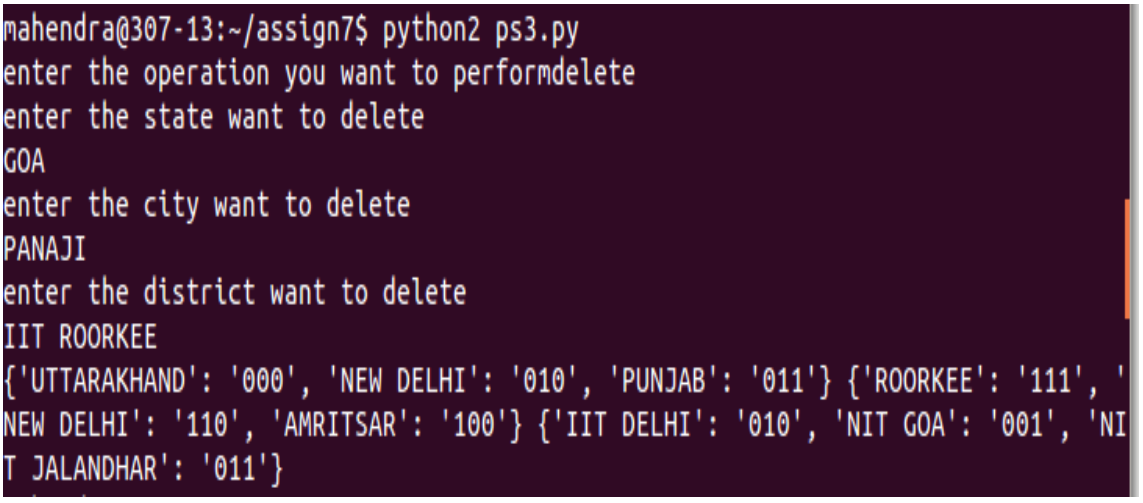

Figure 4: Screenshot of Problem Statement 3.2

References

[1] latex
`https://www.sharelatex.com`

[2] Python Tutorials
Tutorials Point

[3] Black Hat Python: Python Programming for Hackers and Pentesters
Justin Seitz

[4] Python documentation
`https://docs.python.org/2/reference/index.html`

8 Epilogue

1. Learnt about the basics of python programming.
2. Learnt to use the Vim Editor.
3. Learnt to use github and how to synchronize our system with the online account of github.