# Telecommunication Software Lab

# ELP 718

***Assignment No.7 Report***


**M.TECH**

**BHARTI SCHOOL OF TELECOM TECHNOLOGY AND MANAGEMENT**

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# 1 Introduction

## 1.1 Python

Python is a dynamic, interpreted (bytecode-compiled) language. There are no type declarations of variables, parameters, functions, or methods in source code. This makes the code short and flexible, and you lose the compile-time type checking of the source code. Python tracks the types of all values at runtime and flags code that does not make sense as it runs.

An excellent way to see how Python code works is to run the Python interpreter and type code right into it. If you ever have a question like, "What happens if I add an int to a list?" Just typing it into the Python interpreter is a fast and likely the best way to see what happens

```
$ python        ## Run the Python interpreter
Python 2.7.9 (default, Dec 30 2014, 03:41:42)
[GCC 4.1.2 20080704 (Red Hat 4.1.2-55)] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> a = 6       ## set a variable in this interpreter session
>>> a           ## entering an expression prints its value
6
>>> a + 2
8
>>> a = 'hi'    ## 'a' can hold a string just as well
>>> a
'hi'
>>> len(a)      ## call the len() function on a string
2
>>> a + len(a)  ## try something that doesn't work
Traceback (most recent call last):
  File "", line 1, in
TypeError: cannot concatenate 'str' and 'int' objects
>>> a + str(len(a))  ## probably what you really wanted
'hi2'
>>> foo         ## try something else that doesn't work
Traceback (most recent call last):
  File "", line 1, in
NameError: name 'foo' is not defined
>>> ^D          ## type CTRL-d to exit (CTRL-z in Windows/DOS terminal)
```

Figure 1: **Pyhton Interpreter**

Python source files use the ".py" extension and are called "modules."

## 1.2 Github

Git is a source code version control system, which a series of "commits" or snapshots of your code. You make the commits manually.

GitHub is a website (github.com) where you can publish your Git repositories for public download and possible collaboration.

Specific steps to do this are:

- Install git and create a GitHub account
- Create a local git repository
- Add a new file to the repo
- Add a file to the staging environment
- Create a commit
- Create a new branch
- Create a new repository on GitHub
- Push a branch to GitHub
- Create a Pull Request (PR)
- Merge a PR
- Get changes on GitHub back to your computer
- Bask in your git glory

# 2 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.

Usage-

## 2.1 Input Format

- ./ps1.py < *string* > =>

## 2.2 Output Format

- => strings with frequency

# 3 STRUCTURE CHART

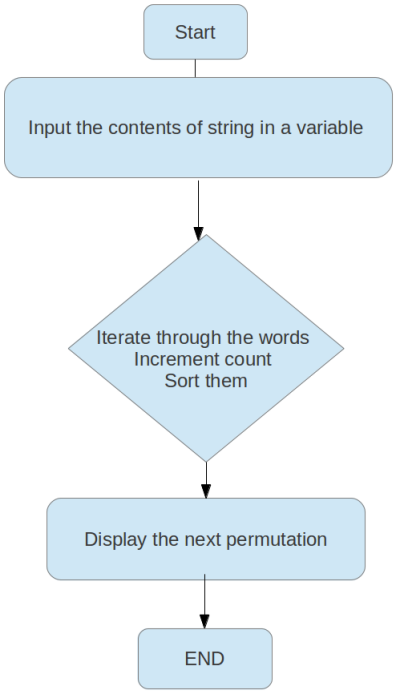


Figure 2: Flow Diagram-1

# 4 SCREENSHOTS

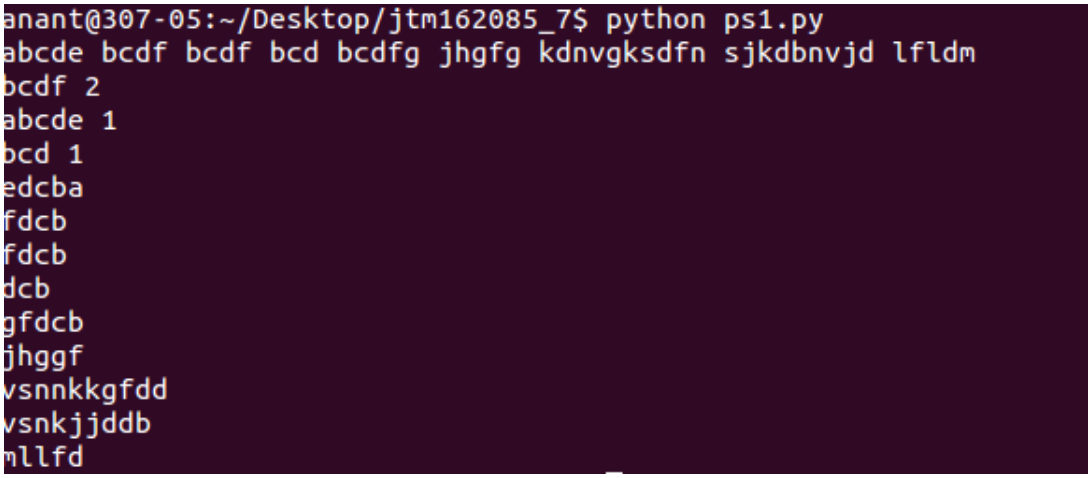


Figure 3: Sample program Run - 1


Figure 4: Sample program Run - 1

# 5 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).

Using following code generate points inside this 2D shape.(import random)

(X,Y)=(random.random()*2- 1, random.random()*2-1)

Here, each point in above shape has an equal chance of being generated. Finally calculate number of points that lie inside unit radius circle in terms of percentage.

# 6 STRUCTURE CHART -PART 1

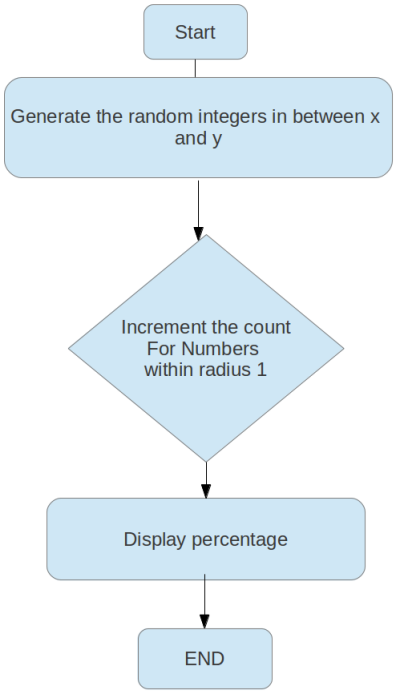


Figure 5: Flow Diagram-2

# 7 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, House No/colony/landmark
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.

First is machine readable like barcodes, in the form 1s and 0s as:
IT Roorkee = 001
Roorkee = 010
Uttarakhand = 100
. Second is human readable, build by combination of first three letters of a place.
For example :
Prof. Ram Mishra
D - 15, North Enclave
IIT Roorkee, Roorkee
Uttarakhand.

- Create a database with some default addresses.
- The database should be editable(Add, delete, modify).
- Also notify any discrepancy in data to the employee if the address is invalid or do not exist in the database.

# 8 STRUCTURE CHART -PART 1

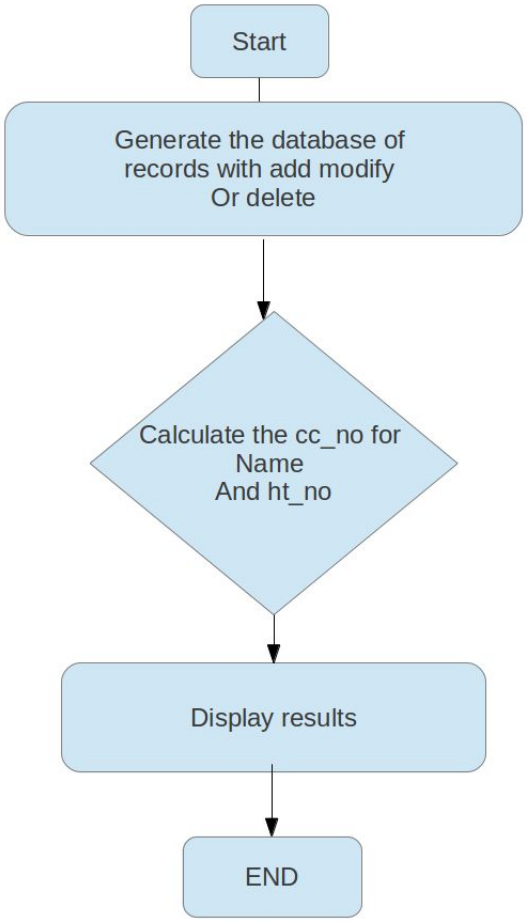


Figure 6: Flow Diagram-2

# 9 SCREENSHOTS

```
anant@307-05:~/Desktop/jtm162085_7$ python ps3.py
1. Add
2. Delete
3. modify
4. show
5. Exit
1
enter value of choice
1
enter name
anant
City:  agra
District: agra
State :  uttar pradesh
```

Figure 7: Sample program Run - 1

```
enter value of choice
4
anant
agra
agra
uttar pradesh
```

Figure 8: Sample program Run - 2

```
enter value of choice
5
enter name for which to generate collection center no.
anant
agra  =  110
agra  =  1001
uttar pradesh  =  100
CC_NO 100100
```

Figure 9: Sample program Run - 3

```
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
80.0
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
76.7
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
78.0
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
77.7
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
78.2
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
79.4
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
77.5
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
76.4
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
76.2
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
77.6
anant@307-05:~/Desktop/jtm162085_7$ python ps2.py
74.7
```

Figure 10: Sample program Run - PART 2

```
enter name for which to generate collection center no.
anant
agra  =  110
agra  =  1001
uttar pradesh  =  100
CC_NO 100100
enter name for which to generate collection center no.
anant
H_CC_NO =  AGR_AGR_UTT_100100
```

Figure 11: Sample program Run - PART 3

# References


[1] Hacker Rank: Python,
`https://www.hackerrank.com/domains/python/py-introduction`

[2] Tutorials point: Pyhton,
`http://www.tutorialspoint.com/python/`

[3] Google Developers: Python,
`https://developers.google.com/edu/python/`

[4] Udacity: Git and Github,
`https://www.udacity.com/course/how-to-use-git-and-github--ud775`

# EPILOGUE

The assignment was very good in terms of learning the essence of logical thinking is required here.And the learning in that way that i learn about how to write the programs from the algorithm, taking the variables names.What caused me the grief is that while solving the problem which method i should use or i can say assumptions needs to be fulfilled or they can be removed so that it leads to a best program.