100 Days Python Challenge

DAY1

What is python and understanding Python

1) Python is an open source, object-oriented, high-level powerful programming language.

2) Developed by Guido van Rossum in the early 1990s. Named after Monty Python

3) Python runs on many Unix variants, on the Mac, and on Windows 2000 and later.

4) Available for download from http://www.python.org (http://www.python.org).***

Features of Python.

Open source: Python is publicly available open source software, any one can use source code that doesn't cost anything.

Easy-to-learn: Popular (scripting/extension) language, clear and easy syntax, no type declarations, automatic memory management, high-level data types and operations, design to read (more English like syntax) and write (shorter code compared to C, C++, and Java) fast.

High-level Language: High-level language (closer to human) refers to the higher level of concept from machine language (for example assembly languages). Python is an example of a high-level language like C, C++, Perl, and Java with low-level optimization.

Portable: High level languages are portable, which means they are able to run across all major hardware and software platforms with few or no change in source code. Python is portable and can be used on Linux, Windows, Macintosh, Solaris, FreeBSD, OS/2, Amiga, AROS, AS/400 and many more.

Object-Oriented: Python is a full-featured object-oriented programming language, with features such as classes, inheritance, objects, and overloading.

Python is Interactive : Python has an interactive console where you get a Python prompt (command line) and interact with the interpreter directly to write and test your programs. This is useful for mathematical programming.

Interpreted : Python programs are interpreted, takes source code as input, and then compiles (to portable byte-code) each statement and executes it immediately. No need to compiling or linking

Extendable : Python is often referred to as a "glue" language, meaning that it is capable to work in mixed-language environment. The Python interpreter is easily extended and can add a new built-in function or modules written in C/C++/Java code.

Libraries : Databases, web services, networking, numerical packages, graphical user interfaces, 3D graphics, others.

Supports :Support from online Python community.

Python Indentation

Indentation refers to the spaces at the beginning of a code line.

Where in other programming languages the indentation in code is for readability only, the indentation in Python is very important.

Python uses indentation to indicate a block of code.

Execute Basic Python Programs.

NOTE:- The Below Programs are predefined Values. User input values we Deal with it later.

1) The usual print statement to print a string

In [1]:

```
print("followed by a txt")
```

```
followed by a txt
```

2) Concatenation of strings

In [2]:

```
print("abc" + "def")
```

```
abcdef
```

3) **Exchange 2 variable using temporary variable**

Note- 1) variable should not start with a number or a special character

2) variable should not have a white space but can be seperated with a "_" operator

In [3]:

```
a=10
b=20

a=a+b
b=a-b
a=a-b

print( a, b)
```

```
20 10
```

4) **program to print SI(Simple Intrest)**

formula

PxTxR/100

P= principle amount T= time R= rate

In [4]:

```
P=1000 #Principle amount
T=3 #time in years
R=12 #rate of intrest per year

SI= P*T*R/2

print(SI)
```

```
18000.0
```

5) **Program to Finf the area of triangle**

FORMULA

area=squareroot(s-a) (s-b) (s-c)

a,b,c is the sides of the triangle

s is half the perimeter

can be equated as below

(s=(a+b+c)/2))

In [5]:

```
## enter the value of a,b,c
import math ##no need to understand this now.
a=10
b=12
c=15.8

# not we compute the half the perimeter

s= (a+b+c)/2
print("half perimeter is",s)
##remember using a "," in print statemet adds a space.
##now we calculate the area.

area= math.sqrt(s*(s-a)* (s-b)* (s-c))
print("area is",area)
```

```
half perimeter is 18.9
area is 59.98343021201769
```