INTRODUCTION TO PYTHON PROGRAMMING

WHAT IS **PYTHON**

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

The Python interpreter and the extensive standard library are freely available in source or binary form for all major platforms from the Python Web site, and may be freely distributed. The same site also contains distributions of and pointers to many free third party Python modules, programs and tools, and additional documentation.

The Python interpreter is easily extended with new functions and data types implemented in C or C++ (or other languages callable from C). Python is also suitable as an extension language for customizable applications.

PYTHON IDE

The Integrated Development Platform we might be using is Pycharm. Its a well structured platform that will easy the writing of python programs due to its intelligence (the predictive feature of the IDE).

HISTORY OF **PYTHON**

Python was conceived in the late 1980s, and its implementation began in December 1989.it was first released in 1991. it was created by Guido Van Rossum

COMMENTS IN PYTHON

Comment: are useful to programmers as taking a note on your program but they will not be compile when you run your code. Single line comment is used to comment single line in a Python program which is done by typing the hash symbol at the begin of a line e.g

is a single line comment.

USER INPUT AND PROGRAM OUTPUT

In python, we can get a user input by simply using the system defined function called "input()". We can then save this to a variable. E.g a = input();

Also we can output a program to the user by using the function "print". This outputs the program to the python interpreter.

NB: Data is returned as string from input(), you will need to covert to integer before any operation. E.g a = int(input());

DATA TYPES IN PYTHON

Python does not have a whole lot of data types but has a selected few which perform the same functions as compared to other data types in various programming languages.

The data types are integer, string, boolean, float.

These are the four basic data types available to the python programming language.

VARIABLE

A variable in python is declared without the appropriate data type been assigned to it. Unlike other programming languages like C++,C# and Java that require a variable to be defined with a data type, python has made away with that and variables are assigned data types upon assignment.

Eg. intFruits is a variable with no known data type.

intFruits = 8.7 is a variable with the float data type.

This can also be defined as: intFruits = float(8);

LIST

Lists are very similar to arrays. They can contain any type of variable, and they can contain as many variables as you wish.

List = [ ]; # this is an empty list

It can be filled by using the append function.

List.append(14); you can add more.

It can also be defined with variables from start e.g.

list = [56, 78, 7.4, "house"]; then use list[0] to access a value.

NB: Accessing an index which doesn't exist will throw an error.

TYPES OF VARIABLE

In python, there are two main types of variables.

- **Global Variables**:: this is a variable defined so as to be accessed from outside a function or inside a function scope.
- **Local Variables**::this is a variable defined inside a scope of a function and can only be accessed from the scope of that function.

OPERATORS

We can use python as a basic calculator performing some of the basic calculations. Some operators Include:

- **Assignment Operators**:: in python we have the equal sign as the assignment operator "=".
- **Arithmetic Operator::** some arithmetic operators are ("+","-","/","%"). I.e. addition, subtraction, division and quotient.
- **Exponential Operator::** in addition to the arithmetic operators, one can also perform exponential on a number. Eg 2**3 #2 to the power of 3

OPERATORS

Python supports the usage of addition operator to concatenate strings; e.g

helloworld = “Hello” +” “+ “World”;

Addition and multiplication operators can be used on a list too.

TYPE CONVERSION

Just like other programming languages, we can convert from one data type to another so long that the conversion can be done on the data types.

Eg. Int("2") #this is possible because if though the "2" is a string, it can be converted to an integer.

Int("hello") #this is impossible because we cannot convert the string "hello" to an integer.

ASSIGNMENT

- Collect a user input for 6 information's about him and add to a list, then display the list variables.
- Convert from one data type to another and display the converted value.
- Create a simple calculator that performs any chosen arithmetic function on two variables.