Assignment - 2

1) what are the data types in python? Explain

a) Data types are the classification or categorization of data items. Data types represent a kind of value which determines what operations can be performed on that data. Numeric, Non-numeric and Boolean data are the most used data types. However, each programming language has its own classification largely reflecting its programming philosophy.

Python has the following standard or built-in data types:

Numeric

A numeric value is any representation of data which has a numeric value. Python identifies three types of numbers:

Integer: Positive or negative whole numbers (without a fractional part)

Float: Any real number with a floating point representation in which a fractional component is denoted by a decimal symbol or scientific notation

Complex number: A number with a real and imaginary component represented as $x+yj$. x and y are floats and j is -1. (Square root of -1 called an imaginary number)

Boolean

Data with one of two built-in values True or False. Notice that 'T' and 'F' are capital. true and false are not valid booleans and Python will throw an error for them.

Sequence type

A Sequence is an ordered collection of similar or different data types. Python has the following built-in sequence data types:

String: A string value is a collection of one or more characters put in single, double or triple quotes.

List: A list object is an ordered collection of one or more data items, not necessarily of the same type, put in square brackets.

Tuple: A Tuple object is an ordered collection of one or more data items not necessarily of the same type, put in parentheses.

type() function

Python has an in-built function type() to ascertain the data type of a certain value. For example enter type(1234) in python shell and it will return <class 'int'>, which means 1234 is an integer value.

2) Briefly explain history of python?

A) Python is a widely used general-purpose, high-level programming language. It was initially designed by Guido Van Rossum in 1991 and developed by python Software Foundation. It was mainly developed for emphasis on code readability and its syntax allows programmers to express concepts, in fewer lines of code.

In the late 1980's, history was about to be written. It was that time when working on python started. Soon after that, Guido Van Rossum began doing its application based o work in December of 1989 by at centrum Wiskunde & Informatica (CWI) which is situated in Netherland. It was started firstly as a hobby project because he was looking for an interesting project to keep him occupied during christmas. He had taken the syntax of ABC, and some of its good features. The inspiration for the name came from BBC's TV show - 'Monty Python's flying circus', as he was a big fan of TV show and also he wanted a short, unique name for his invention. Hence he named it python.

3) Explain all the operators in python?

A) (i) Arithmetic operators:

Arithmetic operators are used to perform mathematical operations like addition, subtraction, multiplication and devision.

(ii) Relational operators:

Relational operators Compare the values. It either returns True or False according to the condition.

(iii) Logical operators:

Logical operators perform logical AND, logical OR and logical NOT operations.

(iv) Bitwise operators:

Bitwise operators acts on bits and perform bit by bit operation.

(v) Assignment operators:

Assignment operators are used to assign values to the variables.

(vi) Special operators: There are some special type of operators like.

Identity operators-

Two variables that are equal does not simply that they are identical.

4.) Explain the features of python.

A) There are many features in python, some of which are discussed below-

1) Easy to code:

Python is high level programming language. Python is very easy to learn language as compared to other language like c, c#, java script, jave. It is very easy to code in python language.

2) Free and open source:

Python language is freely available at official website and you can download it easily.

3.) object-oriented language:

one of the key features of python is object-oriented programming. Python supports object oriented language and concepts of classes, objects etc.

4.) High-level language:

Python is a high-level language. When we write programs in python, we donot need to remember the system architecture.

5) Python is Integrated language:

Python is also an Integrated language because we can easily integrated python with each other language like c, c++ etc.

6.) Interpreted language:

Python is an interpreted language because python code is executed line by line at a time like other language c, c++, java etc..

5) justify why python is interactive and Interpreted language?

Interpreted:

A) Unlike C/C++ etc, python is an Interpreted object-oriented programming language. By interpreted it is meant that each time a program is run the interpreter checks through the code for errors and then interprets the Instructions into machine-readable bytecode. Unlike C language, which is a Compiled programming language.

Interactive

Python is interactive. When a python statement is entered, and is followed by the Return key, if appropriate, the result will be printed on the screen, immediatly, in the next line. This is particularly advantageous in the debugging process. In interactive mode of operation, python is used in a similar way as the unix command line or the terminal.