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CSE-B6

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Python Assignment - 2

1. What are the data types in python? Explain

A. Datatype, defines the type of variable, whether it is an integer variable, string variable, tuple, dictionary, list etc.

Python data types are divided into two types.

1. Immutable data types.
   (a) Numeric
   (b) String
   (c) Tuple
2. Mutable data types.
   (a) List
   (b) Dictionary
   (c) Set

(a) Numeric Datatype:

Integer: There is no upper bound on the integer number. we can have the value as large as our system memory allows.

Long: Long data type is deprecated in python 3 because there is no need for it, since the integer has no upper limit, there is no point in having a datatype that allows upperlimit than integers.

Float: values with decimal points are the float values, there is no need to specify the data type in python.

fnum is a float data type.

Complex number : Numbers with real and imaginary parts are known as complex numbers.

Binary, octal and Hexadecimal : We can print decimal equivalent of binary, octal and hexadecimal numbers using the prefixes.

(b) String :

String is a sequence of characters in python. The data type of string in python is called "str".

Strings in python are enclosed with single quotes or double quotes.

(c) Tuple :

Tuple is immutable data-type which means it cannot be changed. It is an ordered collection of elements enclosed in round brackets and separated by commas.

Mutable :

(a) List :

List is similar to tuple, it is also an ordered collection of elements, however list is a mutable data type which means it can be changed unlike tuple which is an immutable datatype.

(b) Dictionary :

Dictionary is a collection of key and value pairs. It is an ordered, indexed and mutable collection of elements.

(c) Set :

A set is a unordered and unindexed collection of items. This means when we print the elements of a set they will appear in the random order and we cannot access the elements of set based on indexes, because it is unindexed.

2. Briefly explain history of python.

A. In the late 1980's, history was about to be written. It was that time when working at python started. Soon after that, Guido van Rossum began doing its application based work in december of 1989 by at Centrum Wiskunde which is situated in Netherland.

The programming language which python is said to have succeeded is ABC programming language, which had the interfacing with the Amoeba operating system and had the feature of exception handling. It came with a lot of complaints too, so he fixed those issues completely and had created a good scripting language which had

removed all the flaws.

The inspiration for the name came from BBC's TV show. for quite some time he used to work for google but currently, he is working at Dropbox. The language was finally released in 1991.

when it was released it had more than enough capability to provide classes with inheritance, several core data types exception handling and functions.

3. Explain all the operators in python.

A. we have to set a special symbols that perform various kinds of operations such as logical operations, mathematical operations, and more.

(a) Arithmetic operators
(b) Relational operators
(c) Assignment operators
(d) Logical operators
(e) membership operators
(f) Bitwise operators
(g) Identity operators

(a) Arithmetic operators are used to perform various mathematical operations such as add, sub etc.

(b) Relational operators are also known as comparison operators because they compare the values on both sides of operator

(c) Assignment operators are used to assign values to python variables.

(d) Logical operators are mainly used for conditional statements. There are namely AND, OR and NOT.

(e) Membership operators are used to test if a value is available in a sequence or not.

(f) Bitwise operators performs bit-by-bit operations. they are binary values.

(g) Identity operators are used to compare the memory addresses of 2 different objects. They are two types they are is and is not.

4. Explain the features of python.

A. 1. Easy to learn and use : It is developer friendly and high level programming language.

2. Expressive language : It is more expressive means that it is more understandable and readable.

3. Interpreted language : Interpreter executes the code line at a time. This makes debugging easy and thus suitable for begineers.

4. Cross-platform language: It is used different platforms as windows, Linux, Unix and macintosh etc.

5. Free and open source: It is freely available at official web address. source-code is also available.

6. Object-oriented language: supports object oriented language and concepts of classes and objects come into existence.

7. Extensible: It implies that other languages such as c/c++ can be used to compile the code and thus it can be used further in python code.

8. Large standard library: Python has a large and broad library and provides rich set of module and functions for rapid application development.

9. GUI programming support: Graphical user interfaces can be developed using python.

10. Integrated: It can be easily integrated with languages like c, c++, Java etc.

5. Justify why python is interrupted and interactive language.

A. Python is a interepreted 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 instruction into machine readable bytecode.

The compiler translates the whole code in one-go rather than line by line. This is the reason why in C language, all the errors are listed during compilation only. When a python statement is entered and is followed by the return key, if appropriate, the result will be printed.