**Questions**

1. **Hex-clan**

1.1 What is a dynamically typed Language?

It doesn’t know about the type of the variable until the code is run. So declaration is of no use. What it does is, It stores that value at some memory location and then binds that variable name to that memory container. And makes the contents of the container accessible through that variable name. So the data type does not matter. As it will get to know the type of the value at run-time.

1.2 Can tuple be used as a dictionary key in python? (True or False)

1.3 Difference b/w list and tuple?

1.4 What is type casting in Python??

1.5 What is the difference between list and tuples in Python?

1.6 How to comment multiple lines in python?

‘’’

....

statements

....

‘’’

1.7 What does len() do? Finds length of list

1.8 What are the built-in types of python?

1.9 The condition x <= y <= z is allowed in Python?(True or False) TRUE

1.10 What Control statement does in Python Program?

1.11 What signifies the end of a statement block or suite in Python?

1.12 Which data type is not a core data type in python?

1.13 Which function converts a string to a float in python? float()

1.14 What data type is this? A = [1, 23, ‘hello’, 1] list

1.15 What is the output of the following code? 5 // 2

1. **Crazy-devops**

2.1 What is used python language?

# Python Applications

Python is known for its general-purpose nature that makes it applicable in almost every domain of software development. Python makes its presence in every emerging field. It is the fastest-growing programming language and can develop any application.

Here, we are specifying application areas where Python can be applied.

### 1) Web Applications

We can use Python to develop web applications. It provides libraries to handle internet protocols such as HTML and XML, JSON, Email processing, request, beautifulSoup, Feedparser, etc. One of Python web-framework named Django is used on Instagram. Python provides many useful frameworks, and these are given below:

* Django and Pyramid framework(Use for heavy applications)
* Flask and Bottle (Micro-framework)
* Plone and Django CMS (Advance Content management)

### 2) Desktop GUI Applications

The GUI stands for the Graphical User Interface, which provides a smooth interaction to any application. Python provides a Tk GUI library to develop a user interface. Some popular GUI libraries are given below.

* Tkinter or Tk
* wxWidgetM
* Kivy (used for writing multitouch applications )
* PyQt or Pyside

### 3) Console-based Application

Console-based applications run from the command-line or shell. These applications are computer program which are used commands to execute. This kind of application was more popular in the old generation of computers. Python can develop this kind of application very effectively. It is famous for having REPL, which means the Read-Eval-Print Loop that makes it the most suitable language for the command-line applications.

Python provides many free library or module which helps to build the command-line apps. The necessary IO libraries are used to read and write. It helps to parse argument and create console help text out-of-the-box. There are also advance libraries that can develop independent console apps.

### 4) Software Development

Python is useful for the software development process. It works as a support language and can be used to build control and management, testing, etc.

* SCons is used to build control.
* Buildbot and Apache Gumps are used for automated continuous compilation and testing.
* Round or Trac for bug tracking and project management.

### 5) Scientific and Numeric

This is the era of Artificial intelligence where the machine can perform the task the same as the human. Python language is the most suitable language for Artificial intelligence or machine learning. It consists of many scientific and mathematical libraries, which makes easy to solve complex calculations.

Implementing machine learning algorithms require complex mathematical calculation. Python has many libraries for scientific and numeric such as Numpy, Pandas, Scipy, Scikit-learn, etc. If you have some basic knowledge of Python, you need to import libraries on the top of the code. Few popular frameworks of machine libraries are given below.

* SciPy
* Scikit-learn
* NumPy
* Pandas
* Matplotlib

### 6) Business Applications

Business Applications differ from standard applications. E-commerce and ERP are an example of a business application. This kind of application requires extensively, scalability and readability, and Python provides all these features.

Oddo is an example of the all-in-one Python-based application which offers a range of business applications. Python provides a Tryton platform which is used to develop the business application.

### 7) Audio or Video-based Applications

Python is flexible to perform multiple tasks and can be used to create multimedia applications. Some multimedia applications which are made by using Python are TimPlayer, cplay, etc. The few multimedia libraries are given below.

* Gstreamer
* Pyglet
* QT Phonon

### 8) 3D CAD Applications

The CAD (Computer-aided design) is used to design engineering related architecture. It is used to develop the 3D representation of a part of a system. Python can create a 3D CAD application by using the following functionalities.

* Fandango (Popular )
* CAMVOX
* HeeksCNC
* AnyCAD
* RCAM

### 9) Enterprise Applications

Python can be used to create applications that can be used within an Enterprise or an Organization. Some real-time applications are OpenERP, Tryton, Picalo, etc.

### 10) Image Processing Application

Python contains many libraries that are used to work with the image. The image can be manipulated according to our requirements. Some libraries of image processing are given below.

* OpenCV
* Pillow
* SimpleITK

In this topic, we have described all types of applications where Python plays an essential role in the development of these applications. In the next tutorial, we will learn more concepts about Python.

2.2 What are the key features of python language ?

2.3 which of these not a core data type

A.lists b.dictionary c.tuples d.clas

2.4 What function python has for taking user input

input()

2.5 what are the four main data types?

2.6 what is type() in python? Define datatype

2.7 what are local variables and global variables in python?

Local variable declare inside function scope is local i.e within fun only we can access and global var declares outside function scope is global i.eany where from we can access it

2.8 What do we use to define a block of code in Python language? indentation

2.9 What is the sequence of a string ?

2.10 what are the applications of python?

2.11what are the advantages of python?

2.12 Which character is used in Python to make a single line comment? #

2.13 what is tuple in python?

2.14 select all the valid string creation in python

1. Str1 = “str1” b.str1 = ‘str1’ c.str1 = “‘str1”’ d.str1 = str(“str1”)

2.15 What is short hand if in python? Give example.

2.16 what is SDLC?

1. **Cloud-amigos**

3.1 What is the difference between list and tuples in Python?

| R.NO. | LIST | TUPLE |
| --- | --- | --- |
| 1 | Lists are mutable | Tuple are immutable |
| 2 | Implication of iterations is Time-consuming | Implication of iterations is comparatively Faster |
| 3 | The list is better for performing operations, such as insertion and deletion. | Tuple data type is appropriate for accessing the elements |
| 4 | Lists consume more memory | Tuple consume less memory as compared to the list |
| 5 | Lists have several built-in methods | Tuple does no have must built-in methods. |
| 6 | The unexpected changes and errors are more likely to occur | In tuple, it is hard to take place. |

3.2 How python is differ from other language?

* Python was designed for readability, and has some similarities to the English language with influence from mathematics.
* Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.
* Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.

3.3 Give types of if else statement and explain it ?

1. If

2. If … else

3. Nested If

4. If … elif ...else ladder

5. Shorthand If

6. Shorthand If...else

3.4. what is a set?

Sets are used to store multiple items in a single variable.

A set is a collection which is both unordered and unindexed,Duplicates Not Allowed,Unchangeable

Sets are written with curly brackets.

thisset = {"apple", "banana", "cherry"}  
print(thisset)

3.5 What are the key features of Python?

Python provides many useful features which make it popular and valuable from the other programming languages. It supports object-oriented programming, procedural programming approaches and provides dynamic memory allocation. We have listed below a few essential features.

### 1) Easy to Learn and Use

Python is easy to learn as compared to other programming languages. Its syntax is straightforward and much the same as the English language. There is no use of the semicolon or curly-bracket, the indentation defines the code block. It is the recommended programming language for beginners.

### 2) Expressive Language

Python can perform complex tasks using a few lines of code. A simple example, the hello world program you simply type print("Hello World"). It will take only one line to execute, while Java or C takes multiple lines.

### 3) Interpreted Language

Python is an interpreted language; it means the Python program is executed one line at a time. The advantage of being interpreted language, it makes debugging easy and portable.

### 4) Cross-platform Language

Python can run equally on different platforms such as Windows, Linux, UNIX, and Macintosh, etc. So, we can say that Python is a portable language. It enables programmers to develop the software for several competing platforms by writing a program only once.

### 5) Free and Open Source

Python is freely available for everyone. It is freely available on its official website [www.python.org](https://www.python.org/). It has a large community across the world that is dedicatedly working towards make new python modules and functions. Anyone can contribute to the Python community. The open-source means, "Anyone can download its source code without paying any penny."

### 6) Object-Oriented Language

Python supports object-oriented language and concepts of classes and objects come into existence. It supports inheritance, polymorphism, and encapsulation, etc. The object-oriented procedure helps to programmer to write reusable code and develop applications in less code.

### 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 our Python code. It converts the program into byte code, and any platform can use that byte code.

### 8) Large Standard Library

It provides a vast range of libraries for the various fields such as machine learning, web developer, and also for the scripting. There are various machine learning libraries, such as Tensor flow, Pandas, Numpy, Keras, and Pytorch, etc. Django, flask, pyramids are the popular framework for Python web development.

### 9) GUI Programming Support

Graphical User Interface is used for the developing Desktop application. PyQT5, Tkinter, Kivy are the libraries which are used for developing the web application.

### 10) Integrated

It can be easily integrated with languages like C, C++, and JAVA, etc. Python runs code line by line like C,C++ Java. It makes easy to debug the code.

### 11. Embeddable

The code of the other programming language can use in the Python source code. We can use Python source code in another programming language as well. It can embed other language into our code.

### 12. Dynamic Memory Allocation

In Python, we don't need to specify the data-type of the variable. When we assign some value to the variable, it automatically allocates the memory to the variable at run time. Suppose we are assigned integer value 15 to x, then we don't need to write int x = 15. Just write x = 15.

3.6 What is type conversion in Python?

There may be times when you want to specify a type on to a variable. This can be done with casting.

3.7 Is indentation required in python? Yes

3.8 What are the built-in type does python provides?

3.9 what is diff between if and shorthand if ?

If conditin:

stat

if condition : stat

3.10 How to iterate list?

3.11 How to access list, tuple, dictionary, set?

With the help of variable name while creating used

3.12 Explain Datatypes of python?

|  |  |
| --- | --- |
| Text Type: | str |
| Numeric Types: | int, float, complex |
| Sequence Types: | list, tuple, range |
| Mapping Type: | dict |
| Set Types: | set, frozenset |
| Boolean Type: | bool |
| Binary Types: | bytes, bytearray, memoryview |

3.13 how identify datatypes is string or integer in python?

type()

x= 48 #int

x=”48” #String

3.14 Explain in detail tuple ?with example?

Tuples are used to store multiple items in a single variable.

A tuple is a collection which is ordered and unchangeable, allows duplicate

Tuples are written with round brackets.

thistuple = ("apple", "banana", "cherry")  
print(thistuple)

3.15 what are types of variable in python? Explain it.

Python has no command for declaring a variable.

A variable is created the moment you first assign a value to it.

x = 5  
y = "John"  
print(x)  
print(y)

1. **Xanthrons**

4.1 What is indentation in python?

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.

4.2 What are diff datatypes in python?

In programming, data type is an important concept.Variables can store data of different types, and different types can do different things.

Python has the following data types built-in by default, in these categories:

|  |  |
| --- | --- |
| Text Type: | str |
| Numeric Types: | int, float, complex |
| Sequence Types: | list, tuple, range |
| Mapping Type: | dict |
| Set Types: | set, frozenset |
| Boolean Type: | bool |
| Binary Types: | bytes, bytearray, memoryview |

4.3 What is meant by interpreted language?

4.4 What is diff between Compiled and interpreted language?

| S.NO. | | COMPILED LANGUAGE | | INTERPRETED LANGUAGE |
| --- | --- | --- | --- | --- |
| 1 | A compiled language is a programming language whose implementations are typically compilers and not interpreters. | | An interpreted language is a programming language whose implementations execute instructions directly and freely, without previously compiling a program into machine-language instructions. | |
| 2 | In this language, once the program is compiled it is expressed in the instructions of the target machine. | | While in this language, the instructions are not directly executed by the target machine. | |
| 3 | There are at least two steps to get from source code to execution. | | There is only one steps to get from source code to execution. | |
| 4 | In this language, compiled programs run faster than interpreted programs. | | While in this language, interpreted programs can be modified while the program is running. | |
| 5 | In this language, compilation errors prevent the code from compiling. | | In this languages, all the debugging occurs at run-time. | |
| 6 | The code of compiled language can be executed directly by the computer’s CPU. | | A program written in an interpreted language is not compiled, it is interpreted. | |
| 7 | This language delivers better performance. | | This languages delivers relatively slower performance. | |
| 8 | Example of compiled language – C, C++, C#, CLEO, COBOL, etc. | | Example of Interpreted language – JavaScript, Perl, Python, BASIC, etc. | |

4.5 Which datatype is a mutable datatype?

4.6 Which operator used achieve square root?

A. ++ B. -- C. \*\* D. \*

4.7 Which of the following is not a boolean expression?

A. True B. 3 == 4 C. 3 + 4 D. 3 + 4 == 7

4.8 What is syntax of Shorthand if else?

A. True\_statement if condition: else: False\_condition

B. Flase\_statement if condition: else False\_condition

C. True\_statement if condition else: False\_condition

D. True\_statement if condition: else False\_condition

4.9 True is what type of variable?

A. float B. string

C. boolean D. integer

4.10.Given two variables, num1 and num2, which of the following would mean that both num1 and num2 are positive integers?

A. (num1 = num2) B. (num1 = num2) OR (num1 ≠ num2)

C. (num1 = num2) AND (num1<0) D. (num1 = num2) AND (num2>0)

4.11 What type of data is : arr=[(1,1),(2,2),(3,3)]?

A.Array of tuples B. Tuples of Lists

C.List of Tuples D. Invalid Type

4.12 What is the output of the program : print ((1,2) + (3,4))?

A.(1,2),(3,4) B. (4,6)

C.(1,2,3,4) D. Invalid Syntax

4.13 Which of the following is used to create an empty set?

A.[] B. {}

C.() D. set()

4.14 Which of the following is used to know the datatype of variable?

A.datatype() B.typeof()

C.type() D.vartype()

4.15 What is the data type of : print(type(10))? int