

Python Written Assignment 1.

①

Key features of python.

1. Free and open source.

Python language is freely available at the official website and you can download it from the given the website.

② Easy to code:

Python is a high level programming language. Python is very easy to learn the language as compared to other languages as compared to other lang like C, C++, javascript.

③ Easy to Read.

As you will see, learning python is quite simple. Python's syntax is really straightforward.

④ Object oriented programming.

One of key features of python is OOP's

Python supports classes, object, encapsulation

⑤ GUI programming support.

GUI can be made using a module such as Pyqt, Tk in python.

⑥ High level language:

Python is a high level language. We don't need to remember the system architecture, nor do we need to manage the memory.

⑦ Large community support.

Python has gained popularity over the years, our question are constantly answered by the enormous stack overflow community.

⑧ Easy to debug. Excellent information you mistake tracing. Simply by glancing at the code, you can determine what it is designed to perform.

what is python namespace? explain local, global and built in namespace on detail.

In python a namespace is a container that holds a set of names and their corresponding objects, preventing naming conflicts. There are three main types of namespaces: local, global and built in.

① Local Namespace:-

- (i) Scope limited to a specific function or block of code.
- (ii) Creation: Created when a fn. is called and destroyed when the fn. exists.
- (iii) Access: contains local variables, parameters and temporary variables used within the fn.

② Global Namespace:-

- (i) scope Encompasses the entire module or script.
- (ii) Creation created when the script or module is executed and lasts until the program terminates.
- (iii) Access: Holds global variables and functions that can be accessed from any

③ Built in Namespaces:

- (i) Scope inherit to python itself, containing builtin fns and exceptions
- (ii) Automatically available when python starts.
- (iii) Provides access to built in fns like print(), len() and built in exceptions like TypeError.

Q3] Differentiate Between python arrays and lists.

Ans Lists :

- i) Datatypes: Lists can contain elements of different data types.
- ii) Functionality: Lists provide a versatile range of built in methods and ops.
- iii) Library: Part of the core Python lang.
- iv) Flexibility: Lists are dynamic and can be easily resized.
- v) Syntax: Defined using square brackets of
`mylist = [1, 2, "Hello", 3.14]`

Arrays:-

- i) Data types: Arrays typically hold elements of the same data type.
- ii) Functionality: Numpy library enhances array functionality and provides extensive mathematical operations.
- iii) Library: Requires the Numpy library to work with arrays.
- iv) Performance: Arrays can offer better performance for numerical operations.
- v) Syntax: Defined using the array class from the Numpy library

Import numpy as np.

`my_array = np.array([1, 2, 3, 4])`

Q3] How does break, continue and pass work?
 Ans

① Break:

Usage: used to exit a loop prematurely based on a certain condition.

Effect: when ~~to~~ encountered, the loop (eg for or while) is immediately terminated and the program continues with the next statement after the loop.

```
for i in range(5):
    if i == 3:
        break
    print(i)
```

In this example the loop will print values 0, 1, 2 and break when 'i' equals to 3

② Continue:

Skips the rest of the code inside a loop for the current iteration and proceeds to next iteration.

The loop continues with next iteration ignoring the remaining code for the current iteration.

```
for i in range(5):
    if i == 2:
        continue
    print(i)
```


⑧ pass:

Acts as no operation statement
Used when syntactically some code is req.
but no action is desired.

```
for i in range(5):
    if i == 2:
        pass
    else:
        print(i)
```

Q] Describe the common built in data types in python.

Ans: (i) integers ('int'):
used to represent whole nos.

Examples $x = 5$

(ii) Floating point nos. ('float'):

used to represent decimal or floating point nos.

(iii) strings ('str')

used to represent seq. of characters (text)

Example text = "Hello Python"

(iv) Boolean ('bool'):

Represents either 'True' or 'False'

often used for logical comparisons

(v) Lists.

Ordered mutable seq. of elements.

(vi) Tuples: Ordered, immutable, seq. of elements.

marked
26/3/24