20 May

Python Basic - 1

Q.1. What are keywords in python? Using the keyword library, print all the python keywords.

Ans: Python keywords are special reserved words that have specific meanings and purposes and can't be used for anything but those specific purposes.

```
import keyword
print (keyword.kwlist)
```

```
['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'class', 'continue', 'def', 'del', 'eli
f', 'else', 'except', 'finally', 'for', 'from', 'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not',
'or', 'pass', 'raise', 'return', 'try', 'while', 'with', 'yield']
```

Q.2.What are the standards and conventions followed for the nomenclature of variables in python to improve code readability and maintainability?

Ans: In programming, variable names serve as a means of communication between the programmer and the computer, and also between programmers working on the same codebase.

Some of the important things while defining standards are:

- The constants that are defined should not begin with numerical value.
- Since python is a case sensitive language so it is very important that while defining a variable, it should be in a proper alphabetical manner.

```
12abc = ("Hello")
print(12abc)
```

```
  Cell In [73], line 1
    12abc = ("Hello")
     ^
SyntaxError: invalid decimal literal
```

```
abc = ("Hello")
print(abc)
```

```
Hello
```

Q.3. What will happen if a keyword is used as a variable name?

Ans: Keywords cannot be used as a variable name. It's because keywords have predefined meanings.

Q.4. For what purpose def keyword is used?

Ans: "def" keyword is used for defining or creating a user defined function.
For example: -

```
def name(firstname,lastname):   #definining a function name using keyword 'def'
    print(firstname)
    print(lastname)

#Calling of function

name("Kaushik", "Mahanta")
```

```
Kaushik
Mahanta
```

Q.5. What is the operation of this special character '\'?

Ans: In Python strings, the backslash "\" is a special character, also called the "escape" character. It is used in representing certain whitespace characters: "\t" is a tab, "\n" is a newline, and "\r" is a carriage return.

Q.6. Give an example of the following conditions:

(i) Homogeneous list

(ii) Heterogeneous set

(iii) Homogeneous tuple

Ans:

Homogeneous list

```
# Homogeneous List

fruits=["Bananas","Apple","Grapes","Mango"]
print(fruits)
```

```
['Bananas', 'Apple', 'Grapes', 'Mango']
```

Heterogeneous Set

```
# Hetrogeneous Set

S1= {1,2,3,4,5,"Ram"}
print(S1)
```

```
{1, 2, 3, 4, 5, 'Ram'}
```

Homogeneous tuple

```
# Homogeneous tuple

colour=("Blue","Green","Red")
print(colour)
```

```
('Blue', 'Green', 'Red')
```

Q.7. Explain the mutable and immutable data types with proper explanation & examples.

Ans: Mutable is when something is changeable or has the ability to change. In Python, 'mutable' is the ability of objects to change their values.

Immutable is the when no change is possible over time. In Python, if the value of an object cannot be changed over time, then it is known as immutable

Objects of built-in type that are mutable are:

- Lists
- Sets
- Dictionaries
- User-Defined Classes (It purely depends upon the user to define the characteristics)

Objects of built-in type that are immutable are:

- Numbers (Integer, Rational, Float, Decimal, Complex & Booleans)
- Strings
- Tuples
- User-Defined Classes (It purely depends upon the user to define the characteristics)

```
# List is an example of Mutable datatype
# changing of datatypes is possible
country=["India","Germany","Australia","China"]
print(country)
print("------------------------------")
country [3]="Pakistan"
print(country)
```

```
['India', 'Germany', 'Australia', 'China']
------------------------------
['India', 'Germany', 'Australia', 'Pakistan']
```

```python
# Tuple is an example of Inmutable datatype
# changing of datatypes is not possible
country=("India","Germany","Australia","China")
print(country)
print("--------------------------------")
country.insert(3,"Pakistan")
print(country)
```

```
('India', 'Germany', 'Australia', 'China')
--------------------------------
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In [64], line 4
      2 print(country)
      3 print("--------------------------------")
----> 4 country.insert(3,"Pakistan")
      5 print(country)

AttributeError: 'tuple' object has no attribute 'insert'
```

Q.8. Write a code to create the given structure using only for loop.

```
    *
   ***
  *****
 *******
*********
```

Ans:

```
n=5
for i in range (n):
    for j in range (n-i-1):
        print(" ",end="")
    for j in range(2*i+1):
        print ("*",end="")
    print()
```

```
    *
   ***
  *****
 *******
*********
```

Q.9. Write a code to create the given structure using while loop.

```
|||||||||
 |||||||
  |||||
   |||
    |
```

Ans:

```
n=5
for i in range (n):
    for j in range (i):
        print(" ",end="")
    for j in range(2*(n-i)-1):
        print ("|",end="")
    print()
```

```
|||||||||
 |||||||
  |||||
   |||
    |
```