Teacher's Sign / Remarks

Tathastu Scholar Program

Python

Data types

Data types are the classification of data items. It represents the kind of the value that tells what operations can be performed on a particular data. Since everything is an object in python programming.

Following are the standard data type in python

1. Numeric
2. Sequence Type
3. Boolean
4. Set
5. Dictionary

* Numerical data type represent data which has numeric value.

ex: a) Integer : The value is represented by int class.
→ It contains positive or negative value or whole number ex: a = 1 ; print (type (a))

b) float → The value is represented by float class.
→ it is a real number with floating point representation ex: b = 1.1 ; print (type(b))

c) complex Number → complex number is represented by complex class.
→ it is specified as (real part) + (imaginary part) j . ex: 2+4j = c
Print (type(c))

2. Sequence type

It is the ordered collection of similar or different data types. Types are

a. String
b. List
c. Tuple.

a. String → A string is a collection of one or more characters put in a single quote/ double quote or thrible quote

ex: a = "Sumana"

b. List → It is a Ordered collection of data enclosed within a square bracket and seperated by comas

→ ex: b = [1, 2, 3, 4, 5]

c. Tuple → It is a Ordered collection of data enclosed within a parenthesis and seperated by comas

ex: c = (1, 2, 3, 4, 5)

3. Boolean → It is one of the built in data types provided by python which represents one of the two values.

i.e True or False.

ex: if 1 == 1

True

4. Set

. A set is an unordered & ~~mutable~~ mutable collection of unique elements.

ex : my_set = {1, 2, 3}

5. Dictionary
→ A dict is an unordered and mutable python container that stores mappings of unique keys to values

ex : a = {1 : "sumana", 2 : "bhanu", 3 : "harish"}

Variables

A python variable is a reserved memory location to store values.

Variable Naming Rules in Python

1. Variable name should be start with number (a-z, A-Z) or underscore (_).
ex : age, Age, _age
2. In variable name, no special characters allowed other than underscore (_)
ex : age-
3. Variables are case sensitive
ex : Age and age different
4. Variable name can be have number but not at the beginning.
Ex : Age1
5. Variable name should not be a python keywords
keywords are also called as reserved words.
ex : pass, break, continue etc....

Declaration of Variable

```
a = 100
print (a)
```

output = 100

Redeclare a Variable

```
a = 100
print (a)
a = 'AECS Jadugnda'
print (a).
```

output → 'AECS jaduguda'

Concatenate Variable

```
a = 1
b = "axy"
print (a + str(b))
```

⇒ 1xy = output.

Delete a Variable

```
a = 1
del (a)
```

output - NULL.

Loops

A python for loop iterates over an object until that object is complete.

There are (1) while loop
(2) for loop
(3) Nested loop.

1. while loop

In python while loop is used to execute a block of statements repeatedly until a given condition is satisfied

```
ex  count = 0
    while (count < 3):
        count = count + 1
        print ("Hello Sumana")
```

output

```
Hello Sumana
Hello Sumana
Hello Sumana.
```

2. For loop

A for loop is used for iterating over a sequence

```
ex: fruits = ["apples", "banana", "cherry"]
    for x in fruits:
        print (x)
```

output

```
apples
banana
cherry
```

3. Nested loop

A nested loop is a loop that occurs within another loop, structurally similar to nested if statement

List in Python

A list is a data structure in python that is mutable, ordered sequence of elements.

ex: a = [1, 2, 3, 4, 5]

Dictionary in python

A dictionary is an unordered and mutable Py container that store mappings of unique key to Valu

ex: b = {"a": 1, "b": 2, "c": 3}.

Functions in Python

A function is a block of code that only runs when it is called.

There are 4 types of Functions in python

1. Python Function with no argument and no return Valu

```
ex: a = 20
    b = 30
    Sum = a+b
    print("The sum is :", Sum)
```

output.

The sum is 50

2. Function with no argument and with return Valu

```
ex: a = 10
    b = 25
    Multi = a * b
    return Multi
    Print("The multiplication result is ", Multi)
```

output

The multiplication result is 250

3. Python Function with argument and No return value.

```
def Multiplications(a,b):
    Multi = a * b
    print("The result is :", Multi)
Multiplications(10,20)
```

output

The result is : 200

4. Function with argument and return value

```
def Addition(a,b):
    Sum = a+b
    return Sum
print("The result is :", Addition(10,20))
```

output

The result is : 30