Assignment1

September 14, 2023

Q1. Create one variable containing following type of data: (i) string (ii) list (iii) float (iv) tuple

[8]:
```
s='Sourav'
print(s)
type(s)
```

```
Sourav
```

[8]:
```
str
```

[9]:
```
l=[1,2,3,4]
l
type(l)
```

[9]:
```
list
```

[10]:
```
f=22.5
print(f)
type(f)
```

```
22.5
```

[10]:
```
float
```

[7]:
```
t=(3,4)
print(t)
type(t)
```

```
(3, 4)
```

[7]:
```
tuple
```

Q2. Given are some following variables containing data: (i) var1 = ‘ ‘ (ii) var2 = ‘[DS , ML , Python]’ (iii) var3 = [‘DS’ , ’ML’ , ‘Python’] (iv) var4 = 1. What will be the data type of the above given variable.

[12]:
```
var1=''
type(var1)
```

[12]:
```
str
```

[13]:
```
var2='[ DS , ML , Python]'
type(var2)
```

[13]:
```
str
```

[15]:
```
var3 = [ 'DS' , 'ML' , 'Python' ]
type(var3)
```

[15]:
```
list
```

[16]:
```
var4 = 1.
type(var4)
```

[16]:
```
float
```

Q3. Explain the use of the following operators using an example: (i) / (ii) % (iii) // (iv) **

[18]:
```
#This will simply show the result after division operation
a=7/2
print(a)
```

```
3.5
```

[19]:
```
#This will show the reminder after division operation
a=17%3
print(a)
```

```
2
```

[22]:
```
#This will show only integer value after divison operation
a=17//3
print(a)
type(a)
```

```
5
```

[22]:
```
int
```

[23]:
```
#Power (2^3)
a=2**3
print(a)
```

```
8
```

Q4. Create a list of length 10 of your choice containing multiple types of data. Using for loop print the element and its data type.

[26]:
```
l=[2,3,'sourav','PW',3.4,(3,4),9,8,7,10]
for i in l:
    print(i)
```

```
2
3
sourav
PW
3.4
(3, 4)
9
8
7
10
```

Q5. Using a while loop, verify if the number A is purely divisible by number B and if so then how many times it can be divisible.

[7]:
```
A=int(input('Enter A'))
B=int(input('Enter B'))
c=0
while (A%B==0):
    A=A//B
    c=c+1
print(c)
```

```
Enter A 64
Enter B 2
```

```
6
```

Q6. Create a list containing 25 int type data. Using for loop and if-else condition print if the element is divisible by 3 or not.

[1]:
```
import random
my_list = [random.randint(1, 100) for i in range(25)]
for i in my_list:
    if(i%3==0):

        print(f"{i} is divisible by 3")
    else :
        print(f"{i} is not divisible by 3")
```

```
29 is not divisible by 3
95 is not divisible by 3
86 is not divisible by 3
64 is not divisible by 3
92 is not divisible by 3
```

```
82 is not divisible by 3
89 is not divisible by 3
74 is not divisible by 3
52 is not divisible by 3
15 is divisible by 3
20 is not divisible by 3
65 is not divisible by 3
54 is divisible by 3
4 is not divisible by 3
11 is not divisible by 3
65 is not divisible by 3
14 is not divisible by 3
64 is not divisible by 3
91 is not divisible by 3
17 is not divisible by 3
60 is divisible by 3
43 is not divisible by 3
20 is not divisible by 3
2 is not divisible by 3
5 is not divisible by 3
```

Q7. What do you understand about mutable and immutable data types? Give examples for both showing this property.

Mutable : Mutable datatypes are those whose values can be modified after they are created.

Please see the example below:

[6]:
```
my_list=[1,2,3]
my_list.append(4)
my_list[1]=5
my_list
```

[6]:
```
[1, 5, 3, 4]
```

Immutable : Immutable datatypes are those whose values can not be modified after they are created.

Please see the example below:

[7]:
```
# It will show error "'tuple' object has no attribute 'append'"
my_tuple = (1, 2, 3)
my_tuple.append(4)
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[7], line 2
      1 my_tuple = (1, 2, 3)
----> 2 my_tuple.append(4)
```

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

[8]:
```
my_list = [1, 2, 3]

new_list = my_list

new_list.append(4)

print(my_list)
```

```
[1, 2, 3, 4]
```

[9]:
```
a= 2
b=a
b=2+5
print(a)
```

```
2
```

[ ]:
```

```