Practice test 1

July 13, 2023

Question 1

[1]:
```
a = "shreyansh"
```

[2]:
```
type(a)
```

[2]:
```
str
```

[3]:
```
b = [ 1 , 2 , 3 , 4+5j , True , ]
```

[4]:
```
type(b)
```

[4]:
```
list
```

[5]:
```
c = 6.99
```

[6]:
```
type(c)
```

[6]:
```
float
```

[7]:
```
d = ( 1 , 2 , "shre" , True )
```

[8]:
```
type (d)
```

[8]:
```
tuple
```

Question 2

[9]:
```
var1 = ''
```

[10]:
```
type(var1)
```

[10]:
```
str
```

[11]:
```
var2 = '[ DS , ML , Python ] '
```

[12]:
```
type(var2)
```

[12]:
```
str
```

[13]:
```
var3 = [ 'DS' , ' ML ' , ' Python ' ]
```

[14]:
```
type(var3)
```

[14]:
```
list
```

[15]:
```
var4 = 1
```

[16]:
```
type(var4)
```

[16]:
```
int
```

Question 3

[17]:
```
100/10
```

[17]:
```
10.0
```

/ used for division

[18]:
```
100 % 10
```

[18]:
```
0
```

[19]:
```
100 // 10
```

[19]:
```
10
```

// used for floor division

[20]:
```
5**3
```

[20]:
```
125
```

** used for exponentiation

Question 4

[4]:
```
mylist = [42, "Hello", 3.14, True, [1, 2, 3] , 56+6j , 'tapu' , (4, 5, 6), 7.8,␣
 ↪False]

for i in mylist:
    print( i   , type(i))
```

```
42 <class 'int'>
Hello <class 'str'>
3.14 <class 'float'>
```

```
True <class 'bool'>
[1, 2, 3] <class 'list'>
(56+6j) <class 'complex'>
tapu <class 'str'>
(4, 5, 6) <class 'tuple'>
7.8 <class 'float'>
False <class 'bool'>
```

Question 5

[2]:
```
A = 20
B = 4
count = 0

while A % B == 0:
    A /= B
    count += 1

print("Number of times A is divisible by B:", count)
```

```
Number of times A is divisible by B: 1
```

Question 6

[5]:
```
mylist = [7, 15, 12, 9, 18, 21, 4, 6, 28, 33, 11, 20, 27, 30, 14, 3, 24, 36,␣
 ↪17, 22, 8, 16, 10, 19, 25]

for i in mylist:
    if i % 3 == 0:
        print( i , "is divisible by 3")
    else:
        print(i , "is not divisible by 3")
```

```
7 is not divisible by 3
15 is divisible by 3
12 is divisible by 3
9 is divisible by 3
18 is divisible by 3
21 is divisible by 3
4 is not divisible by 3
6 is divisible by 3
28 is not divisible by 3
33 is divisible by 3
11 is not divisible by 3
20 is not divisible by 3
27 is divisible by 3
30 is divisible by 3
14 is not divisible by 3
3 is divisible by 3
```

```
24 is divisible by 3
36 is divisible by 3
17 is not divisible by 3
22 is not divisible by 3
8 is not divisible by 3
16 is not divisible by 3
10 is not divisible by 3
19 is not divisible by 3
25 is not divisible by 3
```

Question 7

Mutable objects can be modified after they are created. Operations on a mutable object modify the object itself, without creating a new object

[6]:
```
a = [ 1, 2 , 3 , 4 ]
```

[7]:
```
a[2]
```

[7]:
```
3
```

[8]:
```
a [2] = 200
```

[9]:
```
a
```

[9]:
```
[1, 2, 200, 4]
```

Immutable objects cannot be modified after they are created. Any operation on an immutable object creates a new object with the modified value, rather than modifying the original object in place

[11]:
```
s = "shreyansh"
```

[12]:
```
s [-3]
```

[12]:
```
'n'
```

[13]:
```
s[-3] = 't'
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[13], line 1
----> 1 s[-3] = 't'

TypeError: 'str' object does not support item assignment
```