2.2_solutions

January 26, 2023

1 Solutions

1.0.1 data types

1 Let `a='65'`. what is the type of the variable `a`?

[1]:
```
a='65'
print(type(a))
```

```
<class 'str'>
```

2. Let `a=True + True`. what is the type of the variable `a`?

[2]:
```
a=True+True
print('a=',a)
print('type of a=', type(a))
```

```
a= 2
type of a= <class 'int'>
```

3. If `a=5.5` and `b= 3.5`. find the type of the sum, `c=a+b`

[3]:
```
a, b, = 5.5 , 3.5
c = a+b
print('c=',c)
print('type of c=', type(c))
# even if result is 9,
# since it is the sum of two floats, it is stored as 9.0, a float
```

```
c= 9.0
type of c= <class 'float'>
```

4. Let `a=5` and `b="7"`. Convert b to a numeric data type so that you can compute the Boolean expression `(a>b)`. What is the result of this Boolean expression?

[4]:
```
a, b = 5, "7"
b = int(b)
print('type of b after casting=', type(b_int))
print ('a>b=', a>b)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_2644\619695481.py in <module>
      1 a, b = 5, "7"
      2 b = int(b)
----> 3 print('type of b after casting=', type(b_int))
      4 print ('a>b=', a>b)

NameError: name 'b_int' is not defined
```

5. What is the result of `"A"*5+ "+"`?

[5]:
```
result= "A"*5 +  "+"
print(result)
```

```
AAAAA+
```

6. If `a=5.3` is a numeric variable (for instance an integer); then `(a*9)/3 == a*(9/3)` is a Boolean expression with value True. However, if `a="A"`, a string, is the same expression `(a*9)/3 == a*(9/3)` still a correct Boolean statement?

[6]:
```
# It is not correct. and therefore we get an error
a="A"
(a*9)/3 == a*(9/3)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_2644\1884337646.py in <module>
      1 # It is not correct. and therefore we get an error
      2 a="A"
----> 3 (a*9)/3 == a*(9/3)

TypeError: unsupported operand type(s) for /: 'str' and 'int'
```

7. Write a program that test (with a Boolean expression) if a number is an integer. if it is, then it prints `"it is an integer"`. if it is not, then it prints `"it is not an integer"`. **Do not use conditional statement or if clauses to do this exercise.**

[8]:
```
x=5

str_int = "it is an integer"
str_not_int = "it is not an integer"
result= (type(x)==int)*str_int + (type(x)!=int)*str_not_int
print(result)

# change valus of x to see result
```

```
it is an integer
```

[ ]: