

## Exercises

Answer the questions or complete the tasks outlined in bold below, use the specific method described if applicable.

**\*\* What is 7 to the power of 4?\*\***

```
In [12]: def fun(base,power):  
          value=1  
          while(power!=0):  
              value=value*base  
              power=power-1  
          print(value)  
          result=fun(7,4)
```

2401

In [11]:

2401

**\*\* Split this string:\*\***

s = "Hi there Sam!"

**\*into a list. \***

```
In [42]: def change(*args):  
          lst=list(s.split())  
          lst.pop()  
          lst.insert(3,"dad!")  
          print(lst)
```

```
s="hi there Sam!"  
change(s)
```

['hi', 'there', 'dad!']

In [3]:

Out[3]: ['Hi', 'there', 'dad!']

**\*\* Given the variables:\*\***

```
planet = "Earth"  
diameter = 12742
```

**\*\* Use .format() to print the following string: \*\***

The diameter of Earth is 12742 kilometers.

In [29]:

```
planet = "Earth"  
diameter = 12742  
print("The diameter of {} is {} kilometers".format(planet,diameter))
```

The diameter of Earth is 12742 kilometers

In [6]:

The diameter of Earth is 12742 kilometers.

**\*\* Given this nested list, use indexing to grab the word "hello" \*\***

In [25]:

```
lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
```

In [27]:

```
lst[3][1][2][0]
```

Out[27]: 'hello'

In [14]:

Out[14]: 'hello'

**\*\* Given this nest dictionary grab the word "hello". Be prepared, this will be annoying/tricky \*\***

```
In [2]: d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

```
In [3]: d.keys()
```

```
Out[3]: dict_keys(['k1'])
```

```
In [5]: d['k1'][3]['tricky'][3]['target'][3]
```

```
Out[5]: 'hello'
```

```
In [22]:
```

```
Out[22]: 'hello'
```

**\*\* What is the main difference between a tuple and a list? \*\***

```
tuple is immutable where as list is mutable
tuple variables are declared by using ( ) where as list variables are declared by using brackets [ ]
tuples consumes less memory where as list consumes more memory.
```

```
In [ ]:
```

**\*\* Create a function that grabs the email website domain from a string in the form: \*\***

user@domain.com

**So for example, passing "[user@domain.com \(mailto:user@domain.com\)](mailto:user@domain.com)" would return: domain.com**

```
In [24]:
```

```
def domain(str1):
    str1=str1.split('@')[1]
    print(str1)

st=input("Enter a email : ")
domain(st)
```

```
Enter a email : user@domain.com
domain.com
```

In [26]:

Out[26]: 'domain.com'

\*\* Create a basic function that returns True if the word 'dog' is contained in the input string. Don't worry about edge cases like a punctuation being attached to the word dog, but do account for capitalization. \*\*

```
In [37]: def isthere(x):  
         return 'dog' in x.lower().split()  
st=input("Enter a string : ")  
isthere(st)
```

Enter a string : Nice Dog

Out[37]: True

In [28]:

Out[28]: True

\*\* Create a function that counts the number of times the word "dog" occurs in a string. Again ignore edge cases. \*\*

```
In [41]: def count(x):  
         c=0  
         for a in x.lower().split():  
             if(a=='dog'):  
                 c=c+1  
         print(c)  
st=input("Enter a string : ")  
count(st)
```

Enter a string : His dog is more smarter than my dog  
2

In [31]:

Out[31]: 2

## Final Problem

*\*You are driving a little too fast, and a police officer stops you. Write a function to return one of 3 possible results: "No ticket", "Small ticket", or "Big Ticket". If your speed is 60 or less, the result is "No Ticket". If speed is between 61 and 80 inclusive, the result is "Small Ticket". If speed is 81 or more, the result is "Big Ticket". Unless it is your birthday (encoded as a boolean value in the parameters of the function) -- on your birthday, your speed can be 5 higher in all cases.*

\*

In [44]: `def caught_speeding(speed, is_birthday):`

```
    if is_birthday:
        speeding = speed - 5
    else:
        speeding = speed

    if speeding > 80:
        return 'Big Ticket'
    elif speeding > 60:
        return 'Small Ticket'
    else:
        return 'No Ticket'
```

In [46]: `caught_speeding(60,True)`

No Ticket

In [43]: `caught_speeding(70,True)`

Small Ticket

In [5]:

Out[5]: 'Small Ticket'

In [45]: `caught_speeding(81,False)`

Big Ticket

In [6]:

Out[6]: 'Big Ticket'

## Great job!

- - - - -