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 [1]:
```
7**4
```

Out[1]:
```
2401
```

Split this string:

```
s = "Hi there Sam!"
```

into a list.

In [2]:
```
s="Hi there Sam!"
s.split()
```

Out[2]:
```
['Hi', 'there', 'Sam!']
```

In [3]:
```
s="Hi there dad!"
s.split()
```

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 [4]:
```
planet="Earth"
diameter="12742"
```

In [5]:
```
print("The diameter of {} is {} kilometers.".format(planet,diameter))
```

```
The diameter of Earth is 12742 kilometers.
```

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

In [6]:
```
lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
```

In [7]:
```
lst[3][1][2][0]
```

Out[7]:
```
'hello'
```

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

In [8]:
```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

In [9]:
```
d['k1'][3]['tricky'][3]['target'][3]
```

Out[9]:
```
'hello'
```

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

In [10]:
```
# Tuple is immutable and the List is mutable
```

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" would return: domain.com

In [11]:
```
def domainGet(email):
    return email.split('@')[-1]
```

In [12]:
```
domainGet("user@domain.com")
```

Out[12]:
```
'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 [13]:
```
def findDog(st):
    return 'dog' in st.lower().split()
```

In [14]:
```
findDog("Is there a dog here?")
```

Out[14]:
```
True
```

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

In [15]:
```
def countDog(st):
    count = 0
    for word in st.lower().split():
        if word == 'dog':
            count += 1
    return count
```

In [16]:
```
countDog("This dog runs faster than the other dog dude!")
```

Out[16]:
```
2
```

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 [17]:
```
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 [18]:
```
caught_speeding(81,False)
```

Out[18]:
```
'Big Ticket'
```

In [19]:
```
caught_speeding(81,True)
```

Out[19]:
```
'Small Ticket'
```

Create an employee list with basic salary values(at least 5 values for 5 employees) and using a for loop retreive each employee salary and calculate total salary expenditure.

In [20]:
```
class employee:
    def __init__(salary,basic,HRA,DA,PF,amount,total_salary_expenditure):
        salary.basic = basic
        salary.HRA = HRA
        salary.DA =DA
        salary.PF =PF
        salary.amount=amount
list=[]
list.append(employee(12000,3000,800,500,6000,8000))
list.append(employee(14000,4000,500,300,8000,9000))
list.append(employee(12500,2500,300,400,9000,10000))
list.append(employee(25000,3000,400,600,10000,12500))
list.append(employee(40000,5000,800,900,20000,15800))
for val in list:
    print(val.basic, val.HRA, val.DA, val.PF, val.amount)
    print("total_salary_expenditure",val.amount)
```

```
12000 3000 800 500 6000
total_salary_expenditure 6000
14000 4000 500 300 8000
total_salary_expenditure 8000
12500 2500 300 400 9000
total_salary_expenditure 9000
25000 3000 400 600 10000
total_salary_expenditure 10000
40000 5000 800 900 20000
total_salary_expenditure 20000
```

Create two dictionaries in Python:

First one to contain fields as Empid, Empname, Basicpay

Second dictionary to contain fields as DeptName, DeptId.

Combine both dictionaries.

In [21]:
```
dict1={"Empid":18,"Empname":'pradeepa',"Basicpay":8000}
dict2={"DeptName":'it_prog',"Deptid":106}
dict3={**dict1,**dict2}
print(dict3)
```

```
{'Empid': 18, 'Empname': 'pradeepa', 'Basicpay': 8000, 'DeptName': 'it_prog', 'Deptid': 106}
```