In [2]:
```
#What is 7 Raise to the power 4
x= 7 ** 4
print(x)
```

```
2401
```

In [8]:
```
#use the format() to print the message: the diameter of Earth is 12734
planet='Earth'

diameter=12734

print("the diameter of {0} is {1}".format(planet, diameter))
```

```
the diameter of Earth is 12734
```

In [11]:
```
#Split this string into list
s = "Hi there Sam!"
print(s.split())
```

```
['Hi', 'there', 'Sam!']
```

In [17]:
```
#Given this nested list, use indexing to grab the word "hello
lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
print (lst[3][1][2][0])
print (lst[-3][-3][-1])
```

```
hello
hello
```

In [28]:
```
#Given this nested dictionary , use indexing to grab the word "hello
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
print (d['k1'][3]['tricky'][3]['target'][3])
```

```
hello
```

In [40]:
```
# String Manipulation to print data like Einstein.A
Greatest="Albert Einstein,Marie Curie,Issac Newton"
Greatest= Greatest.split(',')
for i in Greatest:
    temp = i.split()
    output = temp[1] +'.'+temp[0][0]
    print(output)
```

```
Einstein.A
Curie.M
Newton.I
```

In [59]:
```
#Extract Vowels from the string
msg="Extract the vowels@123 only from this ( string )"
vowels =  ('a', 'e', 'i', 'o', 'u');
for i in msg:
    if i.lower() in vowels:
       print(i)
```

```
E
a
e
o
e
o
o
i
i
```

In [90]:
```
#remove the duplicates from the shopping_cart
shopping_cart =['pen','paper','pen','CD','paper','DVD','Casette','pen']
unique = []
for i in shopping_cart:
    if i not in unique:
        unique.append(i)

print(unique)
unique1 =[]

[unique1.append(i) for i in shopping_cart  if i not in unique1]
print(unique1)
```

```
['pen', 'paper', 'CD', 'DVD', 'Casette']
['pen', 'paper', 'CD', 'DVD', 'Casette']
```

In [112…
```
## Guess the Number

# 2 Players

# computerChoice : generate a random number between 1-20
# playerChoice : ask the user to enter a number between 1-20

# if the playerChoice is greater then computerChoice:
    # display "your choice is too high"

# if the playerChoice is lesser then computerChoice:
    # display your choice is too low

# if the playerChoice and  computerChoice matches:
    # display: "Gotcha! you guessed  it right"

#please note: a user can attempt a max of 6 guesses after 6 gusses
    # display "a oh ! you have exhaused all your attempts"
import random
from random import randint
computerChoice = random.randint(1, 20)
for x in range(6):
    playerChoice = int(input('Enter a Number between 1-20'))
    if(playerChoice > computerChoice ):
        print("Your choice is too high")
    elif(playerChoice < computerChoice ):
        print("Your choice is too low")
    elif(playerChoice == computerChoice):
        print("Gotcha! you guessed  it right")
        break
else:
    print("a oh ! you have exhaused all your attempts")
```

```
Enter a Number between 1-203
Your choice is too low
Enter a Number between 1-203
Your choice is too low
Enter a Number between 1-203
Your choice is too low
Enter a Number between 1-204
Your choice is too low
Enter a Number between 1-205
Your choice is too low
Enter a Number between 1-205
Your choice is too low
a oh ! you have exhaused all your attempts
```

In [114…
```
#Given a string, return the sum and average of the digits that appear in the string, ignoring all other characters Given:
str1 = "English = 78 Science = 83 Math = 68 History = 65"
str2 = str1.split()
sum1 = 0
count =0
avg = 0
for i in str2:
    if i in str2:
        if(i.isnumeric() == True):
            sum1 = sum1 + int(i)
            count +=1
avg = sum1/count
print(sum1)
print(avg)
```

```
294
73.5
```

In [115…
```
#Cup Swapping
#There are three cups on a table, at positions A, B and C. At the start, there is a ball hidden under the cup at position B.
#However, I perform a number of swaps on the cups, which is notated as two letters. For example, if I swap the cups at positions A and B, I could notate this as AB or BA.
#Create a function which returns the letter position that the ball is at, once I finish swapping the cups. The swaps will be given to you as a list.
#Worked Example cup_swapping(['AB', 'CA', 'AB']) → 'C'
#Ball begins at position B. Cups A and B swap, so ball is at position A. Cups C and A swap, so ball is at position C. Cups A and B swap, but the ball is at position C, so it doesn'
#cup_swapping(['AC', 'CA', 'CA', 'AC']) → 'B'
#cup_swapping(['BA', 'AC', 'CA', 'BC']) → 'A'

def cup_swapping(swap):
    ballPos='B'

    for step in swap:
        if step[0]==ballPos:
            ballPos=step[1]
        elif step[1]==ballPos:
            ballPos=step[0]

    return ballPos

cup_swapping(['AB', 'CA', 'AB'])
```

Out[115…
```
'C'
```

In [ ]:
```

```