

statistics library

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this is the paper about what is statistics library, and how it works.

WHAT IS A LIBRARY?

a library is the place that you can define certain terms that you want to use in python, and you can import the library to your python codes and use the terms that you defined in the library.

```
from (your library) import *
```

This is how you import your library to your python codes

THE LIBRARY

```
import math
import random
def zeros(n):
    a=[]
    for i in range(n):
        a=a+[0]
    return a
def sum_array(a):
    s=0
    for i in range(len(a)):
        s=s+a[i]
    return s
def rand_array(n,mini,maxi):
    a=[]
    for i in range(n):
        a=a+[random.uniform(mini,maxi)]
    return a
```

Here you can start your library.

Def=define, it defines the word or the function that you type after it, then you will be able to use the word to represent the definition that you wrote in other python codea by using the import function.

sum-array gives you the sum of the array, return s gives you the sum but will not print the sum.

rand-array will give you a random array with n being the number of numbers in the array and mini and maxi being the minimum and maximum number of the random array.

```

def avg(a):
    s=0
    for i in range(len(a)):
        s=s+[a[i]**2]
    m=avg(a)
    return (s/len(a)-m**2)
def maximum(a):
    m=-math.inf
    for i in range(len(a)):
        if a[i]>m:
            m=a[i]
    return m
def histogram(mini,maxi,bins,a):
    h=zeros(bins)
    w=(maxi-mini)/bins
    for i in range(len(a)):
        for j in range(bins):
            if a[i]>(mini+j*w) and a[i]<(mini+(j+1)*w):
                h[j]=h[j]+1
    return h
def bargraph(a):
    win=GraphWin("BarGraph",400,400)
    win.setCoords(-1,-1,len(a)+1,maximum(a)+1)
    for i in range(len(a)):
        rec=Rectangle(point(1,0),point(i+1,a[i]))
        rec.draw(win)

def main():
    gauss=zeros(1000)
    for i in range (len(gauss)):
        gauss[i]=sum_array(rand_array(10,0,1))
        histo=histogram(0.,10.,17,gauss)
        BarGraph(histo)
main()

```

avg gives you the average number of the array, and it will also return the answer instead of printing it out since we do not need to print the answer from every term we defined.

maximum will give us the maximum number of the array and histogram will show its minimum, maximum, bins and a being the length of the histogram.

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bargraph will open python's graph window and set the coordinates of the window and draw a bargraph.

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And finally, main will be what we are going to draw in the graph window.

```
from (your library) import *
```

put the library in the same file as the python code that you are going to write base on this library and use this code to import the library into your python codes.