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1.Create a list of 5 items 1,2,3,4,5

```
p= [1,2,3,4,5]
print("The list is= :",p)
```

```
PS D:\New folder (2)> & "C:/Program Files/Python311/python.exe" "d:/New folder (2)/p123.py"
The list is= : [1, 2, 3, 4, 5]
PS D:\New folder (2)>
```

2. Implement a queue and remove first 2 items

```
q = []
lim = int(input("Enter The Limit: "))
print("Enter {} items in the queue".format(lim))
for i in range(0, lim):
    x = input("Enter Data: ")
    q.append(x)

print("The Entered Queue is:", q)

print("After removing first two items from the queue!")
q.pop(0)
q.pop(0)
print(q)
```

```
Enter The Limit:2
Enter 2 items in the queue
Enter Data:5
Enter Data:2
The Entered Queue is: ['5', '2']
After removing first two items from the queue!
```

3.Create a list of 5 items 1,2,3,4,5 implement a stack and remove first 2 items.

```
q=[1,2,3,4,5]
print("the enter queue is :",q)
print("after the removing first two items from the queue!")
q.pop(0)
q.pop(0)
print(q)
```

```
PS D:\New folder (3)> & "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p130.py"
the enter queue is : [1, 2, 3, 4, 5]
after the removing first two items from the queue!
[3, 4, 5]
PS D:\New folder (3)>
```

4.I am _____,my hobbyis(2)_____,I don't have (3)_____,I like to(4),I have(5)_____books,Today's weatheris(6)_____,I have walked(7)_____miles to reach the college.

AND FILL IN THE BLANKS WITH USER CHOICE

```
print("Fill up the blanks:")
print("I am (1)_____,my hobbyis(2)_____,I don't have (3)_____,I
like to(4)____,I have(5)_____books,Today's weatheris(6)_____,I have
walked(7)_____miles to reach the college.")
print("filled up:")
p1=input("Fill in the blank for blank1:")
p2=input("Fill in the blank for blank2:")
p3=input("Fill in the blank for blank3:")
p4=input("Fill in the blank for blank4:")
p5=input("Fill in the blank for blank5:")
```

```
p6=input("Fill in the blank for blank6:")
p7=input("Fill in the blank for blank7:")
print("I am (1) {},my hobbyis(2) {},I don’t have (3) {},I like to(4)
{}.format(p1,p2,p3,p4)")
print("I have(5) {}books,Today’s weatheris(6) {},I have walked(7) {} miles to
reach the college.format(p5,p6,p7)")
```

```
filled up:
Fill in the blank for blank1:priyanka
Fill in the blank for blank2:drawning
Fill in the blank for blank3:car
Fill in the blank for blank4:watching cricket
Fill in the blank for blank5:many
Fill in the blank for blank6:cloudy
Fill in the blank for blank7:6
I am (1) {},my hobbyis(2) {},I don’t have (3) {},I like to(4) {}.format(p1,p2,p3,p4)
I have(5) {}books,Today’s weatheris(6) {},I have walked(7) {} miles to reach the college.format(p5,
PS D:\New folder (3)>
```

5. Write a program to print the ASCII value of a character.

```
c=input("Enter the charecter to find out the ASCII value: ")

asc=ord(c)
print("The ascii value of {} is:{}".format(c,asc))
```

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

PS D:\New folder (3)> & "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p131.py"
Enter the charecter to find out the ASCII value: A
The ascii value of A is:65
PS D:\New folder (3)>
```

6.Write a program to swap two numbers using a temporary variable.

```
p1=int(input("enter first value:"))
p2=int(input("enter second value:"))
temp=0
```

9

```
temp=p1
p1=p2
p2=temp
print("After Swapping,")
print("First value:",p1)
print("second value:",p2)
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
enter first value:& "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p132.py"
Traceback (most recent call last):
  File "d:\New folder (3)\p132.py", line 1, in <module>
    p1=int(input("enter first value:"))
       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
ValueError: invalid literal for int() with base 10: '& "C:/Program Files/Python311/python.exe" "d:/
PS D:\New folder (3)> & "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p132.py"
enter first value:21
enter second value:14
After Swapping,
First value: 14
second value: 21
PS D:\New folder (3)>
```

7.Write a program to swap two numbers without using a temporary variable.

```
p1=int(input("enter first value:"))
p2=int(input("enter second value:"))
p1=p1+p2
p2=p1-p2
p1=p1-p2

print("After swapping,")
print("First Value:",p1)
print("Second value:",p2)
```

```
PS D:\New folder (3)> & "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p132.py"
enter first value:21
enter second value:14
After Swapping,
First value: 14
second value: 21
PS D:\New folder (3)> & "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p133.py"
enter first value:21
enter second value:9
After swapping,
First Value: 9
Second value: 21
PS D:\New folder (3)>
```

Ln 10, Col 1 (18

8. Momentum is calculated as,e=mc^2, where m is the mass of the object and c is its velocity.Write a program that accepts an object's mass(in kilograms) and velocity(in meters per second) and displays its momentum.

```
m=float(input("enter Mass(in kilograms) of the object:"))
c=float(input("enter Valocity(in meters per second)of the object:"))
mo=m*(c**2)
print("Momentum of the Mass",mo)
```

```
PS D:\New folder (3)> & "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p134.py"
enter Mass(in kilograms) of the object:40
enter Valocity(in meters per second)of the object:6
Momentum of the Mass 1440.0
PS D:\New folder (3)>
```

9.To develop an automatic system that accepts the marks of student and generates his/her grade

Marks	Grade
Above 75	O
60-75	A
50-60	B
40-50	C
Less than 40	D

```
p1=int(input("Enter Marks in subject 1:"))
p2=int(input("Enter Marks in subject 2:"))
p3=int(input("Enter Marks in subject 3:"))

per=(p1+p2+p3)/3
print("percentage is:",per)
if per>75:
    print("Grade: O")
elif per<=75 and per>=60 :
    print("Grade: A")
elif per<=60 and per>=50 :
    print("Grade: B")
elif per<=50 and per>=40 :
    print("Grade: C")
else:
    print("Grade: D")
```

```
Enter Marks in Subject 1: 50
Enter Marks in Subject 2: 70
Enter Marks in Subject 3: 60
Percentage is: 60.0
Grade A
PS E:\>
```

10. Write a program to enter any character .if the entered character is in lowercase then convert it into uppercase character ,then convert it into lowercase.

```
p=input("Enter any character:")
asc=ord(p)
if asc>=97 and asc<=122:
    print("The entered character is in lowercase!")
    g=p.upper()
    print("After coverting into Uppercase:",g)
elif asc>=65 and asc<=90:
    print("the entering character is in uppercase!")
    g=p.lower()
    print("After coverting into lowercase:",g)
else:
    print("Entered character does not support case change!")
```

```
PS D:\New folder (3)> & "C:/Program Files/Python311/python.exe" "d:/New folder (3)/p136.py"
Enter any character:a
The entered character is in lowercase!
After coverting into Uppercase: A
PS D:\New folder (3)>
```

11.Write a program to determine the character is vowel or not

```
vowels="aeiou"
p=input("enter any character to check vowel or not:")
```

```
if p.lower ()in vowels:
    print("enter character is vowel!")
else:
    print("enter character is not a vowel:")
```

```
PS D:\New folder (4)> & "C:/Program Files/Python311/python.exe" "d:
/New folder (4)/p150.py"
enter any character to check vowel or not:a
enter character is vowel!
PS D:\New folder (4)>
```

12 . Write a program to find whether the given number is in Armstrong number or not.

Hint: An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself. For example, 371 is an Armstrong number since 33+7**3+1**3=371**

```
a=int(input("Enter A Number:"))
temp=a
s=0
while temp>0:
    b=temp%10
    s=s+(b**3)                  #or  s+=b**3
    temp=temp//10               #or  temp=temp//10
if a==s:
    print("ARMSTRONG NUMBER!")
else:
    print("NOT AN ARMSTRONG NUMBER!")
```

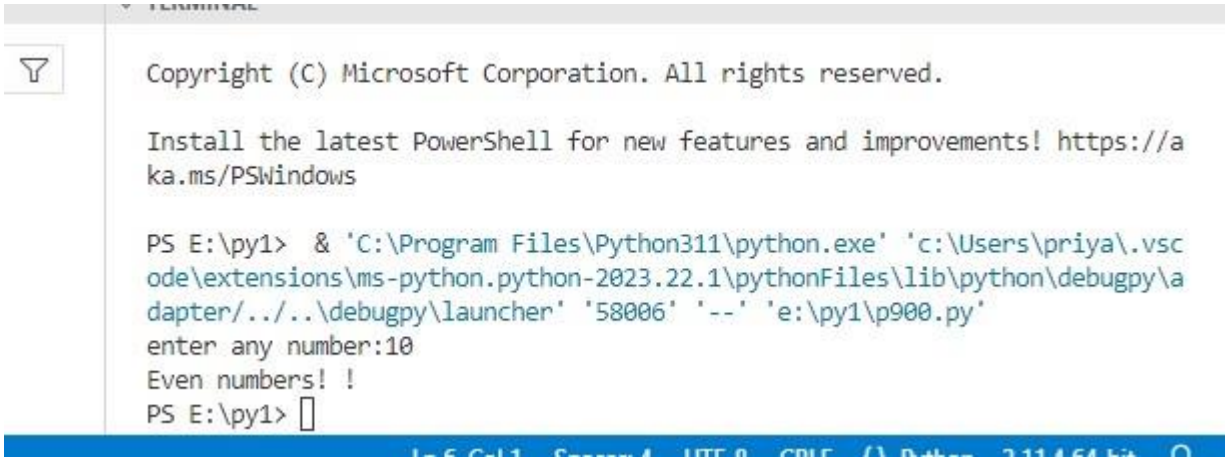
```
Enter A Number:153
ARMSTRONG NUMBER!
```

13.write a program to find the use given number is odd or even.

```
a=int(input("enter any number:"))
```

13

```
if a%2==0:
    print("Even numbers! !")
else:
    print("odd number! !")
```



14.write a program to find the user given number is prime or not.

```
a=int(input("enter a number"))
p=0
for i in range(1,a):
    if a%i==0:
        p+=1
    if p==1:
        print("prime number !")
    else:
        print("composite number !")
```

```
enter a number11
prime number !
```

15.write a program to count the numbers of vowels present in the user given string.

```
vowels="aeiou"
a=input("enter the string:")
b=list(a)
l=len(a)
c=0
for i in range(0,l):
    if b[i] in vowels:
        c+=1
print('total numbers of vowels present in the string:',c)
```

```
PS E:\py1>
PS E:\py1>  e:; cd 'e:\py1'; & 'C:\Program Files\Python31
1\python.exe' 'c:\Users\priya\.vscode\extensions\ms-pytho
n.python-2023.22.1\pythonFiles\lib\python\debugpy\adapter
/../..\debugpy\launcher' '58626' '--' 'e:\py1\p902.py'
enter the string:priyanka
total numbers of vowels present in the string: 3
PS E:\py1>
```

16.Write a program to find the user given string is palindrome or not.

```
a=input("enter a string:")
c=a.lower()
b=c[::-1]
if b==c:
    print("palindrom string!!")
else:
    print("non palindrom string!!")
```

```
PS E:\py1>  & 'C:\Program Files\Python311\python.exe' 'c:
\Users\priya\.vscode\extensions\ms-python.python-2023.22.
1\pythonFiles\lib\python\debugpy\adapter/../..\debugpy\la
uncher' '58758' '--' 'e:\py1\p903.py'
enter a string:pop
palindrom string!!
PS E:\py1>
```

17.write a program that uses docstring and variable-length arguments to add the values passed to the function.

```
def add(p):
    '''Calculates the sum of elements in a list'''
    total = 0
    for i in p:
        total += i
    return total

n = int(input("Enter the limit: "))
print("Enter {} numbers in the list".format(n))
li = []
for i in range(n):
    x = int(input("Enter the number: "))
    li.append(x)

print(add.__doc__)
ss = add(li)
print("The sum is:", ss)
```

```
/../..\debugpy\launcher' '59231' '--' 'e:\py1\p905
Enter the limit: 5
Enter 5 numbers in the list
Enter the number: 17
Enter the number: 89
Enter the number: 09
Enter the number: 45
Enter the number: 32
Calculates the sum of elements in a list
The sum is: 192
PS E:\py1>
```

18. Write a program to sum the series: 1/1!+4/2!+27/3!+….

```
n=int(input("Enter The Limit:"))
s=0
f=1
for i in range(1,n+1):
    for j in range(1,i+1):
        f=f*j
    g=(i**i)//f
    s=s+g
    f=1
print("The Result of the Series is:",s)
```

```
Enter The Limit:4
The Result of the Series is: 1
The Result of the Series is: 3
The Result of the Series is: 7
The Result of the Series is: 17
PS E:\>
```

19.write a program to swap two numbers using function

```
def swap(a, b):
    a = a + b
    b = a - b
    a = a - b
    return a, b
```

a = int(input("Enter first value:"))

b = int(input("Enter second value:"))

a, b = swap(a, b)

print("After swapping!!")

print("First value:", a)

print("Second value:”b)

```
Enter first value:3
Enter second value:9
After swapping!!
First value: 9
Second value: 3
PS E:\py1>
```

20. star pattern

.*

**

***

****

******

```
n=5
for i in range(0,n):
    for j in range(0,i+1):
        print("*",end="")
    print()
```

```
n.python-2023.22.1\pythonFile
/../..\debugpy\launcher' '600
*
**
***
****
*****
PS E:\py1>
```

21. star pattern

```
    *
   **
  ***
 ****
*****
```

```
n=5
for i in range(1,n+1):
    for k in range(i,n):
        print(" ",end=" ")
    for j in range(1,i+1):
            print("*",end=" ")
    print()
```

22. star Pattern:

```
    *
   * *
  * * *
 * * * *
* * * * *
```

```
size = 5
m = (2 * size) - 2
for i in range(0, size):
    for j in range(0, m):
        print(end=" ")
    # decrementing m after each loop
    m = m - 1
    for j in range(0, i + 1):
        print("* ", end=' ')
    print(" ")
```

```
n.python-2023.22.1\pythonFiles\lib\python\debugpy\adapter
/../..\debugpy\launcher' '60781' '--' 'e:\py1\py32.py'
    *
   * *
  * * *
 * * * *
* * * * *
PS E:\py1>
```

23.1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

```
k=1
for i in range(0,5):
    for j in range(0,i+1):
        print(k,end="")
        k=k+1
```

```
    print()
```

```
uncher' '62621' '--' 'e:\py1\p22.py'
1
23
456
78910
1112131415
```

24.A

BB
CCC
DDDDD
EEEEE

```
n=int(input("enter number of rows:"))
A=65
for i in range (1,n+1):
    for j in range(1,i+1):
        print("%c"%(A),end="")
    A+=1
    print()
```

```
/../..\debugpy\launcher' '62760' '--' 'e:\p
enter number of rows:5
A
BB
CCC
DDDD
EEEEE
PS E:\py1>
```

25. Print first 10 natural number using whole loop.

```
lim=10
for i in range(1,lim+1):
    print(i,end=',')
```

```
/../..\debugpy\launcher' '62835'
1,2,3,4,5,6,7,8,9,10,
PS E:\py1>
```

26.12345

1234

123

12

1

```
for i in range(6,1,-1):
    for j in range(1,i):
        print(j,end="")
    print()
```

```
12345
1234
123
12
1
PS E:\py1>
```

27.Calculate the sum of all numbers from 1 to given number

```
from re import IGNORECASE
lim=int(input("enter the limit:"))
s=0
for i in range(1,lim+1):
    s+=i
print('Total sum 1 to {} is: {}'.format(lim,s))
```

```
ncher' '63042' '--' 'e:\py1\p27.py'
enter the limit:5
Total sum 1 to 5 is: 15
PS E:\py1>
```

28.Write a program to print multiplication table of given number

```
from re import IGNORECASE
num=int(input("enter the value of multiplicand:"))
lim=int(input("enter the limit of the multiplier:"))
m=0
print('table of {} upto :'.format(num,lim))
for i in range(1,lim+1):
    m=num*i
print('{},{}s are:{}'.format(i,num,m))
```

```
/../..\debugpy\launcher' '63110' '--' 'e:\py1\p28.p
enter the value of multiplicand:6
enter the limit of the multiplier:2
table of 6 upto :
2,6s are:12
PS E:\py1>
```

29.Display numbers from a list using loop

```
lim=int(input("enter limit of the list:"))
list1=[]
print('Enter {} data in the list!!'.format(lim))
for j in range(0,lim):
    x=input("enter data for list:")
    list1.append(x)
print('showing data from the list using loop!!')
for i in range(0,lim):
    print('data {} in the list :{}'.format(i+1,list1[i]))
```

```
enter data for list:5
enter data for list:4
enter data for list:3
enter data for list:8
showing data from the list using loop!!
data 1 in the list :1
data 2 in the list :5
data 3 in the list :4
data 4 in the list :3
data 5 in the list :8
PS E:\py1>
```

30.Count the total number of digits in a number

```
number=12345
print("the given number is:",number)
count=0
while number>0:
    number=number//10
    count=count+1
print("the number of digits is:",count)
```

```
n.python-2023.22.1\pythonFiles\lib'
/../..\debugpy\launcher' '63217' '
the given number is: 12345
the number of digits is: 5
PS E:\py1>
```

31.

```
0
11
222
3333
44444
```

```
n=int(input("enter number of rows:"))
for i in range(0,n+1):
    for j in range(0,i+1):
        print(i,end="")
    print()
```

```
/../..\debugpy\launcher' '6326
enter number of rows:5
0
11
222
3333
44444
555555
```

32.print list in reverse order using a loop

```
list=[]
no_e=int(input("\nEnter the number:"))
for i in range(no_e):
    e=int(input("enter the element one by one: "))
    list.append(e)
print("list items in reverse:")
for i in range(no_e-1,-1,-1):
    print(list[i],end='')
```

```
Enter the number:5
enter the element one by one: 1
enter the element one by one: 9
enter the element one by one: 6
enter the element one by one: 3
enter the element one by one: 5
```

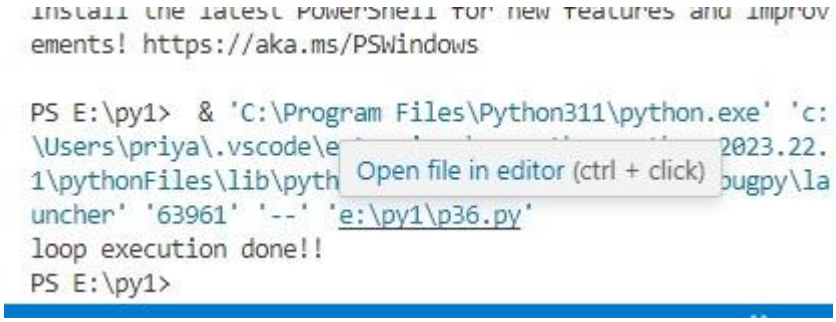
33.Display numbers from -10 to -1 using for loop

```
for i in range(-10,0):
    print(i,end=',')
```

```
n.python-2023.22.1\pythonFiles\lib
/../..\debugpy\launcher' '63352' '
-10,-9,-8,-7,-6,-5,-4,-3,-2,-1,
PS E:\py1>
```

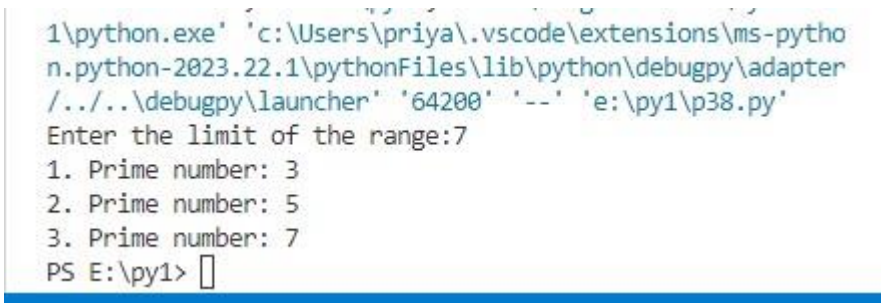
34.Use else block to display a message “done” after successful execution of for loop

```
lim=5
i=0
for i in range(1,lim+1):
    pass
if(i<lim):
    print('loop is not execute properly!!')
else:
    print('loop execution done!!')
```



35.Write a program to display all prime numbers within a range

```
lim = int(input('Enter the limit of the range:'))
co = 0
p = 0

for i in range(3, lim + 1):
    co = 0  # Reset the count for each number
    for j in range(1, i + 1):
        if i % j == 0:
            co += 1

    if co == 2:  # Check if the count is 2 (only divisible by 1 and itself)
        p += 1
        print('{}. Prime number: {}'.format(p,i))
```



36.Display Fibonacci series up 10 terms

```
print('** FIBONACCI SERIES UPTO 10 TERMS**')
a=0
b=1
print('{};{}'.format(a,b),end=',')
for j in range(2,10):
    c=a+b
print(c,end=',')
a=b
b=c
```

```
** FIBONACCI SERIES UPTO 10 TERMS **
0 , 1 , 1 , 2 , 3 , 5 , 8 , 13 , 21 , 34 ,
```

37.Find the factorial of a given number

```
a=int(input('enter a number:'))
f=1
for i in range(1,a+1):
    f=f*i
    print('factorial of {} is : {}'.format(a,f))
```

```
Enter a number:6
Factorial of 6 is : 720
```

38.Reverse a given integer number

```
a=int(input('enter a number:'))
temp=a
n=0
while temp>0:
    b=temp%10
    n=n*10+b
    temp=temp//10
    print('revere of {} is: {}'.format(a,n))
```

```
enter a number:54
revere of 54 is: 4
revere of 54 is: 45
PS E:\py1>
```

39. Use a loop to display elements from a given list present at odd index positions

```
my_list = [10, 20, 30, 40, 50, 60, 70]

print("Elements at odd index positions:")
for i in range(1, len(my_list), 2):
    print(my_list[i])
```

```
  n.python-2023.22.1\pythonFiles\lib\pythc
  /../..\debugpy\launcher' '64687' '--' 'e
  Elements at odd index positions:
  20
  40
  60
  PS E:\py1>
```

40.calculate the cube of all numbers from 1 to a given number

```
lim=int(input('enter the limit:'))
print('finding cube of all the numbers from 1 to',lim)
for i in range(1,lim+1):
    print('cube of {} is : {}'.format(i,i**3))
```

```
n.python-2023.22.1\pythonFiles\lib\python\debu
/../..\debugpy\launcher' '64624' '--' 'e:\py1\
enter the limit:5
finding cube of all the numbers from 1 to 5
cube of 1 is : 1
cube of 2 is : 8
cube of 3 is : 27
cube of 4 is : 64
cube of 5 is : 125
PS E:\py1>
```

41.2+22+222+2222+22222+……+n terms:

```
a=int(input("enter the number:"))
x=2
s=0
for i in range(1,a+1):
    s=s+x
    x=x*10+2
    print("total sum:",s)
```

```
/../..\debugpy\launcher   64848
enter the number:5
total sum: 2
total sum: 24
total sum: 246
total sum: 2468
total sum: 24690
PS F:\py1>
```

42. Print the following pattern:

```
*
**
***
****
*****
****
***
**
*
```

```
print('program ton print star pattern :\n ')
rows=input("enter maximum starts you want display on a single line ")
rows=int(rows)
for i in range (0,rows):
    for j in range(0,i+1):
        print("*",end='')
    print('\r')
for i in range (rows,0,-1):
    for j in range(0,i-1):
        print("*",end='')
    print("\r")
```

```
*
**
***
****
*****
****
***
**
*
```

43.Python program to find square root of a given number

```
a=int(input("enter the number to find the square root:"))
if a<0:
    print("we can not find square root of a negative number:")
else:
    b=a**0.5
print('square root of {} is:{}'.format(a,float(b)))
```

```
PS E:\py1>  e:; cd 'e:\py1'; & 'C:\Program File
1\python.exe' 'c:\Users\priya\.vscode\extensior
n.python-2023.22.1\pythonFiles\lib\python\debug
/../..\debugpy\launcher' '65483' '--' 'e:\py1\p
enter the number to find the square root:10
square root of 10 is:3.1622776601683795
PS E:\py1>
```

44.Python program to check a buzz number

```
a = int(input("Enter a number to check if it's a buzz number or not:"))
b = a % 10
c = a // 7

if b == 7 or a % 7 == 0:
    print("Buzz number")
else:
    print("Not a buzz number")
```

```
\Users\priya\.vscode\extensions\ms-python.python-2023.22.
1\pythonFiles\lib\python\debugpy\adapter/../..\debugpy\la
uncher' '49826' '--' 'E:\py1\p98.py'
Enter a number to check if it's a buzz number or not:14
Buzz number
PS E:\py1>
Ln 8, Col 31 (188 selected)  Spaces: 4  UTF-8  CRLF  Python  3.11.4
```

45. python program to find HCF or GCD

```
lim=int(input("Enter The Limit: "))
print("Enter {} Values!".format(lim))
x=0
val=[]
for i in range (0,lim):
    x=int(input("Enter Value: "))
```

```
val.append(x)
temp=0
gcd=0
for i in range(1,(min(val)+1)):
    temp=0
    for j in val:
        if j%i==0:
            continue
        else:
            temp=1
            break
    if temp==1:
            continue
    else:
            gcd=i
print("GCD of {} is : {}".format(val,gcd))
```

```
/../..\debugpy\launcher' '49980' '--' 'E:\py1\p500.p
Enter The Limit: 3
Enter 3 Values!
Enter Value: 4
Enter Value: 8
Enter Value: 2
GCD of [2] is : 2
PS E:\py1>
```

46.python program to find LCM

```
lim=int(input("Enter The Limit: "))
print("Enter {} Values!".format(lim))
x=0
val=[]
for i in range (0,lim):
    x=int(input("Enter Value: "))
val.append(x)
temp=0
gcd=0
for i in range(1,(min(val)+1)):
    temp=0
    for j in val:
        if j%i==0:
            continue
        else:
            temp=1
            break
    if temp==1:
            continue
    else:
         if i>gcd:
```

```
            gcd=i
            p=1
            for j in val:
                 p*=j
                 lcm=p/gcd
print("LCM of {} is: {}".format(val,lcm))
```

```
Enter The Limit: 3
Enter 3 Values!
Enter Value: 12
Enter Value: 36
Enter Value: 48
LCM of [48] is: 1.0
PS E:\py1>
```

47.python program to short in word in alphabetic order

```
a=input('enter a word:')
l=list(a)
print('output:',sorted(l))
```

```
enter a word:piu
output: ['i', 'p', 'u']
PS E:\py1>
```

48.python program to count the number of each vowel in a word

```
word = input("\nEnter a word : ")
word_1 = word.lower
count_a = count_e = count_i = count_o = count_u = 0
for char in word:
 if char == 'a':
    count_a += 1
 elif char == 'e':
    count_e += 1
 elif char == 'i':
    count_i += 1
 elif char == 'o':
    count_o += 1
 elif char == 'u':
    count_u += 1
```

```
print("Occurance of a in ",word," is : ",count_a)
print("Occurance of e in ",word," is : ",count_e)
print("Occurance of i in ",word," is : ",count_i)
print("Occurance of o in ",word," is : ",count_o)
print("Occurance of u in ",word," is : ",count_u)
```

```
Enter a word : piu
Occurance of a in  piu  is :  0
Occurance of e in  piu  is :  0
Occurance of i in  piu  is :  1
Occurance of o in  piu  is :  0
Occurance of u in  piu  is :  1
PS E:\py1>
```

49.write a program in python to check whether a number is palindrom or not.

```
num=int(input("\n enter a number:"))
temp=num
n=0
while temp>0:
    b=temp%10
    n=n*10+b
    temp=temp//10

    if num==n:
        print('palindrom numbeer!!')
    else:
        print('not palindrom!!!')
```

```
 enter a number:234
not palindrom!!!
```

50.Write a program to determine the Pythagorean theorem between three points

```
import math
x1,y1 = map(float,input("Enter the values for x1 and y1 : ").split())
x2,y2 = map(float,input("Enter the values for x2 and y2 : ").split())
x3,y3 = map(float,input("Enter the values for x3 and y3 : ").split())
def distance(a1,b1,a2,b2):
 return math.sqrt((a2 - a1)**2 + (b2 - b1)**2)
d1 = distance(x1,y1,x2,y2)
```

```
d2 = distance(x2,y2,x3,y3)
d3 = distance(x1,y1,x3,y3)
is_pytho = (
 d1 ** 2 == (d2 ** 2) + (d3 ** 2) or
 d2 ** 2 == (d1 ** 2) + (d3 ** 2) or
 d3 ** 2 == (d1 ** 2) + (d2 ** 2)
)
if is_pytho:
 print("Yes, it's support pythagorean theorem")
else:
 print("No, it's support pythagorean theorem")
```

```
:\py1\p250.py'
Enter the values for x1 and y1 : 0 0
Enter the values for x2 and y2 : 3 0
Enter the values for x3 and y3 : 0 4
Yes, it's support pythagorean theorem
PS E:\py1>
```

51. Find the number of words and character present in the user given statement.

```
a=input('enter any string:')
b=a.split()
wrd=len(b)
ch=len(a)
print('no.of words:',wrd)
print('no.of characters:',ch)
```

```
n.python-2023.22.1\pythonFiles\lib\
/../..\debugpy\launcher' '52349' '-
enter any string:virat
no.of words: 1
no.of characters: 5
PS E:\py1>
```

52.Write a program to validate password entered by the user

```
import re
print("\nCriteria :")
```

```
print("Minimum length 8, one uppercase and one lowercase letter, one digit and
a special chracter\n")
def valid_pass(password):
 if len(password) < 8:
  return False
 if not any(char.isupper() for char in password):
  return False
 if not any(char.islower() for char in password):
  return False
 if not any(char.isdigit() for char in password):
  return False
 if not re.search('[!@#$%^&*(),.?":{}|<>]', password):
  return False
 return True
my_pass = input("Enter your password: ")
if valid_pass(my_pass):
 print("Password is valid.")
else:
 print("Password is not valid, Please follow the criteria.")
```

```
1\python.exe' 'c:\Users\priya\.vscode\extensions\ms-pytho
n.python-2023.22.1\pythonFiles\lib\python\debugpy\adapter
/../..\debugpy\launcher' '52969' '--' 'E:\py1\pii.py'

Criteria :
Minimum length 8, one uppercase and one lowercase letter,
 one digit and a special chracter

Enter your password: Priyanka@2012
Password is valid.
PS E:\py1>
```

53.Write a function that accepts a number n as a input and returns the average of numbers from 1 to n.

```
print("enter the value of n:")
n=int(input())
print("Enter "+str(n)+"number:")
nums=[]
for i in range(n):
    nums.insert(i,int(input()))
    sum=0
    for i in range(n):
        sum=sum+nums[i]
        avg=sum/n
        print("\nAverage=",avg)
```

```
/../..\debugpy\launcher' '53042' '--' 'E:\py1\
enter the value of n:
5
Enter 5number:
2

Average= 0.4
```

54. write a menu driven program using function to perform calculator operation such as adding ,subtracting ,multiplying and dividing two integer

```
def add(a,b):
    return a+b
def sub(a,b):
    return a-b
def mul(a,b):
    return a*b
def div(a,b):
    return a//b
print("enter 2 no.s")
a=int(input("enter 1st number: "))
b=int(input("enter 2nd number: "))
print("1.addition \n2.subtract \n3.Multiplication \n4.division")
choice=int(input("enter your choice:"))

if choice==1:
    print("addition result:",add(a,b))
elif choice==2:
    print("subtraction result:",sub(a,b))
elif choice==3:
    print("multiplication result:",mul(a,b))
elif choice==4:
    print("division result:",div(a,b))
else:
     print("Wrong choice!!")
```

```
enter 2 no.s
enter 1st number: 10
enter 2nd number: 2
1.addition
2.subtract
3.Multiplication
4.division
enter your choice:4
division result: 5
PS E:\py1>
```

55. write a menu driven program using object to perform calculator operation such as adding ,subtracting ,multiplying and dividing two integer

```
class Calculator:

    def add(x, y):
        return x + y


    def subtract(x, y):
        return x - y


    def multiply(x, y):
        return x * y


    def divide(x, y):
        if y != 0:
            return x / y
        else:
            return "Cannot divide by zero"

while True:
    print("\nCalculator Menu:")
    print("1. Add")
    print("2. Subtract")
    print("3. Multiply")
    print("4. Divide")
    print("5. Exit")

    choice = input("Enter your choice (1-5): ")

    if choice == '5':
        print("Exiting the calculator program.")
        break

    if choice in ('1', '2', '3', '4'):
        num1 = int(input("Enter the first number: "))
        num2 = int(input("Enter the second number: "))

        if choice == '1':
            result = Calculator.add(num1, num2)
        elif choice == '2':
            result = Calculator.subtract(num1, num2)
        elif choice == '3':
            result = Calculator.multiply(num1, num2)
```

```
        elif choice == '4':
            result = Calculator.divide(num1, num2)

        print(f"Result: {result}")

    else:
        print("Invalid choice. Please enter a valid option (1-5).")
```

```
1. Add
2. Subtract
3. Multiply
4. Divide
5. Exit
Enter your choice (1-5): 2
Enter the first number: 10
Enter the second number: 7
Result: 3
```

56.Write aoop of a person class .Person will have name age and there wil be a display method which will show name and age

Person subclass:

1.teacher(which will show name and age from parent class and its salary and experience inself)

2.student(which will show name and age from parent class and its course and marks initself)

```
class Person:

    def display(name, age):
        print(f"Name: {name}, Age: {age}")

class Teacher(Person):

    def display(name, age, subject):
        Person.display(name, age)
        print(f"Subject: {subject}")

class Student(Person):

    def display(name, age, grade):
```

```
        Person.display(name, age)
        print(f"Grade: {grade}")

people = []

while True:
    print("\n1. Add Teacher")
    print("2. Add Student")
    print("3. Display All")
    print("4. Exit")

    choice = input("Enter your choice (1-4): ")

    if choice == '4':
        print("Exiting the loop.")
        break

    if choice in ('1', '2'):
        name = input("Enter name: ")
        age = int(input("Enter age: "))

        if choice == '1':
            subject = input("Enter subject: ")
            Teacher.display(name, age, subject)
        elif choice == '2':
            grade = input("Enter grade: ")
            Student.display(name, age, grade)

    elif choice == '3':
        for person in people:
            person.display()

    else:
        print("Invalid choice. Please enter a valid option (1-4).")
```

```
Enter your choice (1-4): 1
Enter name: priyanka
Enter age: 22
Enter subject: computer
Name: priyanka, Age: 22
Subject: computer

1. Add Teacher
2. Add Student
3. Display All
4. Exit
Enter your choice (1-4): 2
Enter name: riya
Enter age: 40
Enter grade: A
Name: riya, Age: 40
Grade: A

1. Add Teacher
2. Add Student
3. Display All
4. Exit
Enter your choice (1-4):
```

57.write a program to make a class take a number variable and initialize with the help of an object which belongs to another class

```
class a:
    num=10
class b:
     def disp(self,obj):
         obj.num=10000
         print("New Num: ",obj.num)

obj1=a()
print("Printing From Object: ",obj1.num)
obj2=b()
obj2.disp(obj1)
print("Again Printing From Object: ",obj1.num)
```

```
Printing From Object:  10
New Num:  10000
Again Printing From Object:  10000
PS E:\py1>
```

58. Write a program to create a nested class and print anything to show the access to outer class from the inner class using their corresponding objects.

```
class Outer:
    def __init__(self, outer_value):
        self.outer_value = outer_value

    def display_outer(self):
        print("Outer Value:", self.outer_value)

    class Inner:
        def display_inner(self, outer_instance):
            print("Accessing Outer Value from Inner Class:", outer_instance.outer_value)

# Creating an instance of the Outer class
outer_instance = Outer(42)

# Calling the display_outer method of the Outer class
outer_instance.display_outer()

# Creating an instance of the Inner class
inner_instance = outer_instance.Inner()

# Calling the display_inner method of the Inner class
inner_instance.display_inner(outer_instance)
```

```
Outer Value: 42
Accessing Outer Value from Inner Class: 42
```

59. Write a program to overload the +,- Operator of an class.

```
class operator_overload:
  def __init__(self, value):
   self.value = value
  def __add__(self, ob):
   print("\nAdd with operator overloading : ",self.value + ob.value)
  def __sub__(self, ob):
```

```
    print("Sub with operator overloading : ",self.value - ob.value)
value1 = operator_overload(10)
value2 = operator_overload(20)
value1 + value2
value1 - value2
```

```
Add with operator overloading :  30
Sub with operator overloading :  -10
```

60. Write a program to create any text file and give some user input. Display the number of letters and words present in the file.

```
file=open ('abc.txt' , 'w')
a=input ("Enter Your text : ")
file.write(a)
file.close( )
file=open ('abc.txt' , 'r')
b = file.readlines( )
c = b[0]
words =c.split()
space = c.count(" ")
print('No of letters: ',len(c) - space)
print('No of words: ',len(words))
```

```
Enter Your text : piu
No of letters:  3
No of words:  1
PS E:\py1>
```

61. Write a program to utilize Try, Catch, and Finally block to handle division by zero and file not found error.

```
a = int(input("\nEnter a number : "))
b = int(input("Enter another number : "))
c = 'Hello'
try:
 print(a / b)
```

```
except ZeroDivisionError:
    print("b value cannot be zero")

try:
 print(a / c)

except TypeError:
 print("Integer cannot divide by string")
```

```
Enter a number : 18
Enter another number : 9
2.0
Integer cannot divide by string
PS F:\nv1>
```

62. write a file management program in python to create,and read student database

```
fp=open('studentname.txt','r')
print(fp.read())
fp.close()
```

```
.PY'
ID        NAME              ROLL NUMBER        GRADE
1         AARAV PATEL      2021001              A
2         ISHIKA SHARMA    2021002              B
3         ROHAN GUPTA      2021003              C
4         PRIYA SINGH      2021004              A
5         ARJUN KUMAR      2021005              B
```

63.Write a module that will have functions and variables and import that in a separate python file

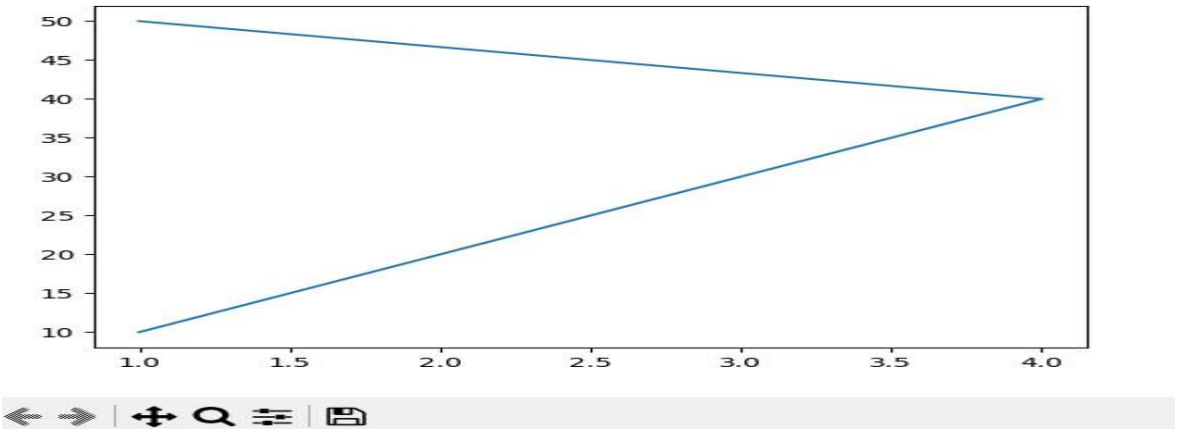
```
# my_module1.py

# Variables
my_variable = "Hello from my_module1"

# Function 1
def greet(name):
    return f"Hello, {name}!"

# Function 2
def square(x):
   return x**2
```

```python
# main.py
import my_module1

# Accessing variables from the module
print(my_module1.my_variable)

# Calling functions from the module
name = "John"
greeting = my_module1.greet(name)
print(greeting)

number = 5
result = my_module1.square(number)
print(f"The square of {number} is: {result}")
```

```
\python\debugpy\adapter/../..\de
de\main1.py'
Hello from my_module1
Hello, John!
The square of 5 is: 25
PS E:\py1>
```

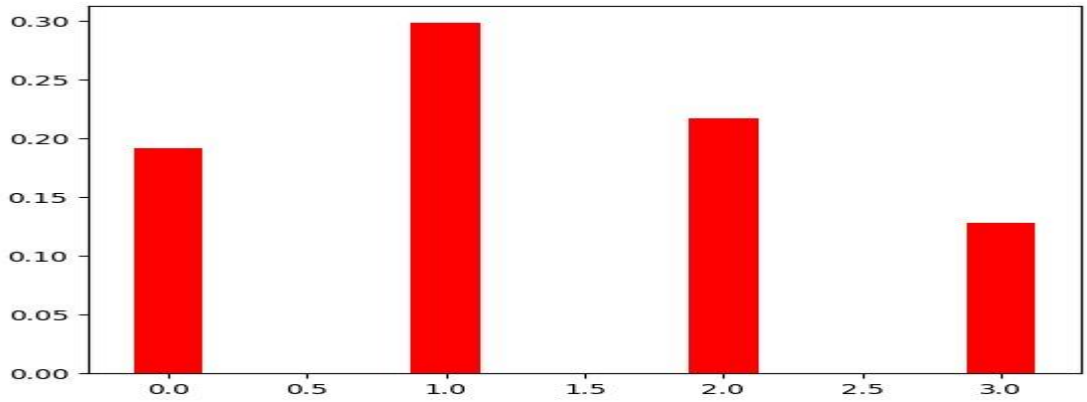
64. line plot

```
import numpy as np
import matplotlib.pyplot as plt

X=[1,2,3,4,1]
Y=[10,20,30,40,50]
plt.plot(X,Y)
plt.show()
```



65.Bar plot with color

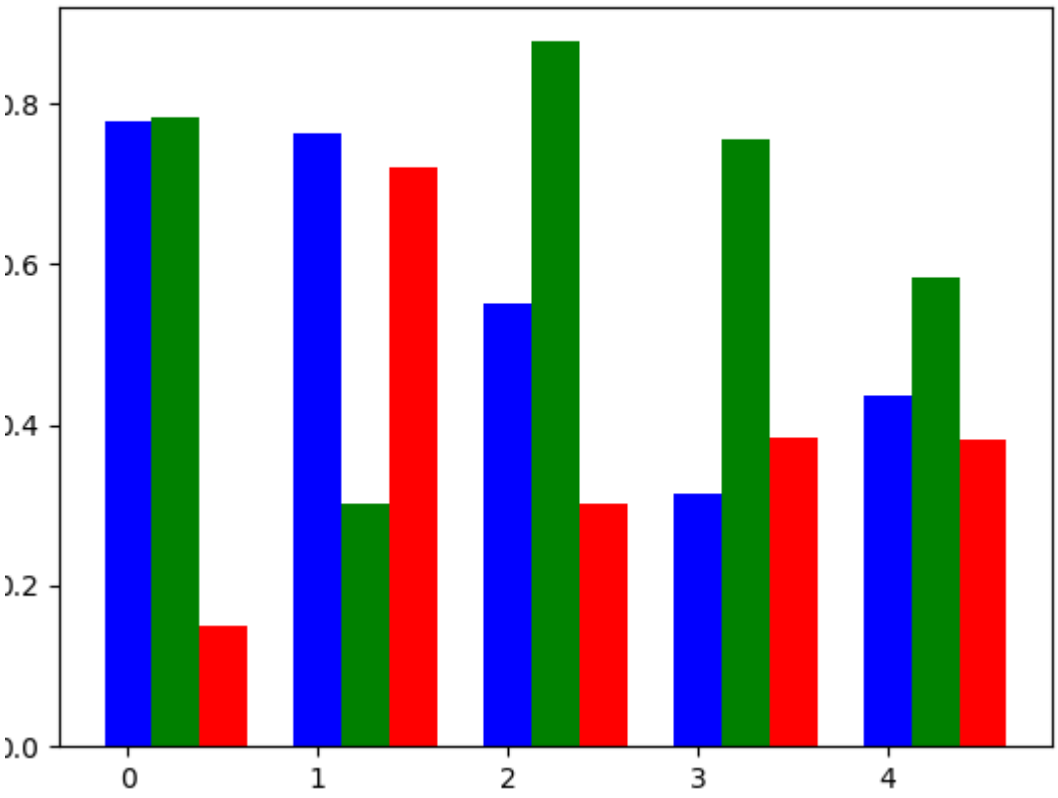
```
import numpy as np
import matplotlib.pyplot as plt
x= np.arange(4)
y=np.random.rand(4)
plt.bar(x,y,color='r',width=0.25)
 plt.show()
```



b)

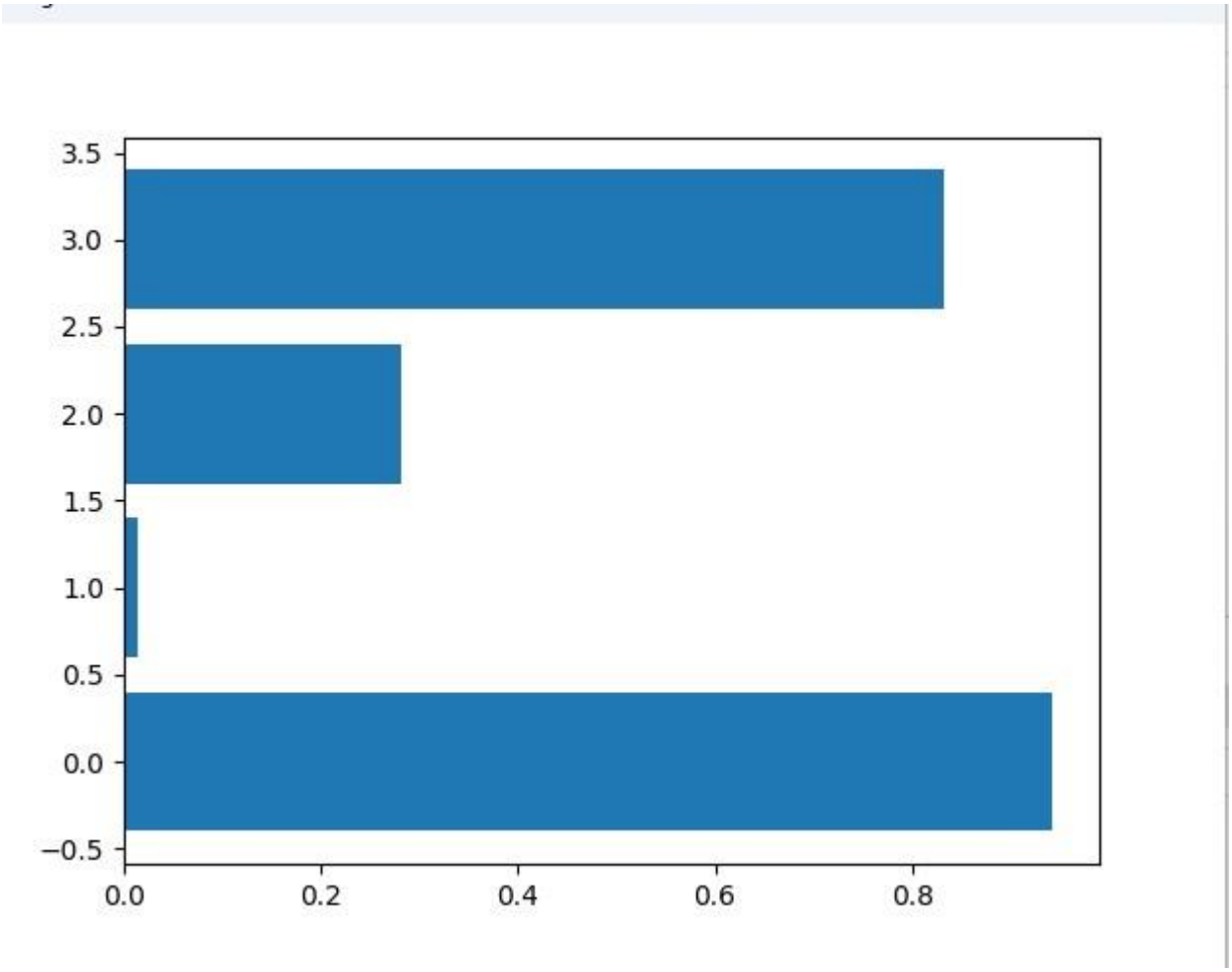
```
import numpy as np
 import matplotlib.pyplot as plt
 x= np.arange(5)
 y=np.random.rand(3,5)
 plt.bar(x+0.00,y[0],color='b',width=0.25)
 plt.bar(x+0.25,y[1],color='g',width=0.25)
 plt.bar(x+0.50,y[2],color='r',width=0.25)
```

```
plt.show()
```



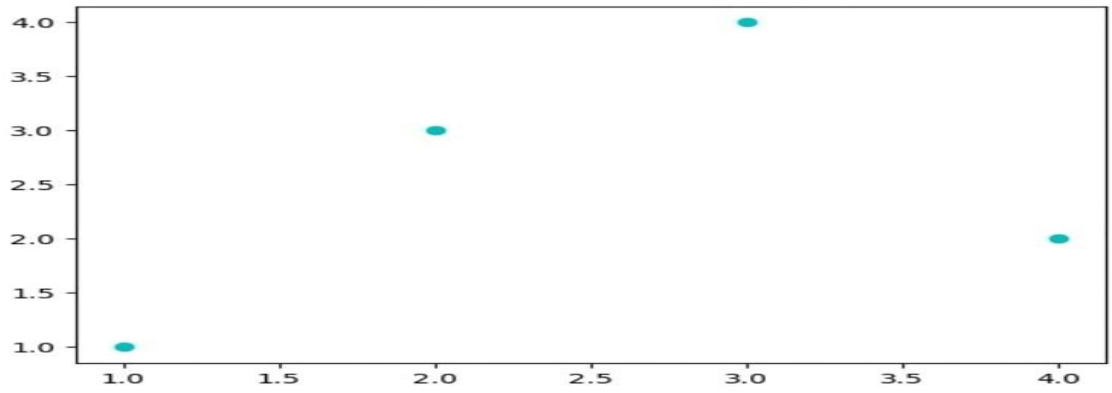
66. Horizontal Bar Graph

```
import numpy as np
import matplotlib.pyplot as plt
x= np.arange(4)
y=np.random.rand(4)
plt.barh(x,y)
plt.show()
```



67. Scatter Plot

```
import numpy as np
import matplotlib.pyplot as plt
x=[1,2,3,4]
y=[1,3,4,2]
plt.scatter(x,y,c='c')
plt.show()
```



b.

```
import numpy as np
import matplotlib.pyplot as plt
x=np.random.rand(20)
y=np.random.rand(20)
colors=np.random.rand(20)
plt.scatter(x,y,c=colors)
plt.show()
```