**#addition of two number**

x = int(input("enter the first number "))

y = int(input("enter the second number "))

c = x+y

print(c)

**#eval function**

x = eval(input("Enter the expression"))

print(x)

**#if elif else statement**

x = int(input("enter the number "))

if x%2==0 :

print("given number is even")

else:

print("give number is odd")

**#elif ( result )**

x = int(input("enter the number obtained "))

y = int(input("enter the total marks "))

if (x/y)\*100>75:

print("You PASS with Distintion")

elif (x/y)\*100>60:

print("You PASS with First Class")

elif (x/y)\*100>40:

print("You PASS with Second Class")

elif (x/y)\*100>32:

print("You are PASS")

else:

print("You are FAIL")

**#Whilee loop**

x = int(input(**"enter the number of times u want to print "**))  
y = input(**"what u wamt to print "**)  
i = 1  
  
**while** i<=x:  
 print(y)  
 i+=1

**Break**

a = 50  
x = int(input(**"eenter the number of candies u want"**))  
i = 1  
  
**while** i <=x:  
 **if** (x > a) :  
 print(**"out of stock"**)  
 **break** print(**"candy"**)  
 i+=1

**continue**

x = int(input(**"inter the starting number"**))  
y = int(input(**"enter the last number"**))  
  
**for** i **in** range(x,y):  
 **if** i%3==0 **or** i%5==0 :  
 **continue** print(i)

**pass**

x = int(input(**"enter the first number"**))  
y = int(input(**"enter the last number"**))  
  
**for** i **in** range(x,y):  
 **if** i%2!=0 :  
 **pass  
  
  
 else**:  
  
 print(i)

**PRIME**

x = int(input(**"enter the number"**))  
  
**for** i **in** range(2,x) :  
 **if** x%i==0:  
 print(**"it is a not prime number"**)  
 **break  
 else**:  
 print(**"it is a prime number"**)

**Array**

**from** array **import** \*  
  
x = array(**'i'**,[1,2,3,4,5,6,7,8,9])  
x.reverse()  
print(x)

**from** array **import** \*  
  
x = array(**'i'**,[1,2,3,4,5,6,7,8,9])  
**for** i **in** range(len(x)):  
 print(x[i])

**User Input Array**

**from** array **import** \*  
  
x = array(**'i'**,[])  
y = int(input(**"enter the length of the array"**))  
  
**for** i **in** range(y):  
 a = int(input(**'enter the array'**))  
 x.append(a)  
print(x)

**from** array **import** \*  
  
x = array(**'i'**,[])  
y = int(input(**"enter the length of array"**))  
  
**for** i **in** range(y):  
 z = int(input(**"enter the array value"**))  
 x.append(z)  
print(x)  
  
a = int(input(**"enter the value to be searched in array"**))  
k = 1  
  
**for** e **in** x:  
 **if** e == a:  
 print(k)  
 **break** k+=1

**Copying an array**

**Simple copying**

**from** numpy **import** \*  
  
x = array([**'s'**,**'f'**,**'s'**]) here both the array have same IP   
y = x address  
  
print(x)  
print(y)  
  
print(id(x))  
print(id(y)

**View copying is a shallow copying**

**from** numpy **import** \*  
  
x = array([1,2,3,4,5,6,7,8]) here both the array have different IP   
y = x.view() addresss but if we do changes in   
 one array both array get changed  
x[1]=7  
  
print(x)  
print(y)  
print(id(x))  
print(id(y))

**Copy copying is a deep copying**

**from** numpy **import** \*  
  
x = array([1,2,3,4,5,6,7,8]) here both the array have different IP address   
y = x.copy() if we do changes in one array other array will   
x[1]=7 not changed  
print(x)  
print(y)  
print(id(x))  
print(id(y))

**working with matrix in python**

**from** numpy **import** \*  
x = array([[1,2,3,4,5,4],  
 [2,4,5,6,7,6]])  
  
y = x.flatten()  
z = x.reshape(2,2,3)  
print(x.dtype)  
print(x.shape)  
print(y.shape)  
print(z.shape)  
  
print(x.ndim)  
print(y.ndim)  
print(z.ndim)  
print(y)  
print(z)

outputs

int32

(2, 6)

(12,)

(2, 2, 3)

2

1

3

[1 2 3 4 5 4 2 4 5 6 7 6]

[[[1 2 3]

[4 5 4]]

[[2 4 5]

[6 7 6]]]

**Matrix**

**There is a separate function in Python called matrix**

**from** numpy **import** \*  
  
x = matrix(**'1,2,3;2,3,4;5,6,7'**)  
y = matrix(**'7,4,5;78,0,3;34,6,9'**)  
  
z = x \* y  
  
print(**"Matrix X = "**,x)  
print(**"Matrix y = "**,y)  
  
print(**"X \* Y = "**,z)  
  
print(**"maximum in matrix x = "**,x.max())  
print(**"minimum in matrix y = "**,y.min())  
  
print(**"diagonal elemeent of matrix x = "**, diagonal(x))  
print(**"diagonal element of matrix y = "**, diagonal(y))  
print(**"diagonal element of matrix z = "**, diagonal(z))  
  
print(**"the dimention of matrix z = "**, z.ndim)  
  
print(**"the shape of matrix z = "**, z.shape )

output:

Matrix X = [[1 2 3]

[2 3 4]

[5 6 7]]

Matrix y = [[ 7 4 5]

[78 0 3]

[34 6 9]]

X \* Y = [[265 22 38]

[384 32 55]

[741 62 106]]

maximum in matrix x = 7

minimum in matrix y = 0

diagonal elemeent of matrix x = [1 3 7]

diagonal element of matrix y = [7 0 9]

diagonal element of matrix z = [265 32 106]

the dimention of matrix z = 2

the shape of matrix z = (3, 3)

**FUNCTIONS**

**def** input(name,age=23):  
 print(name)  
 print(age)  
input(**"danish"**,20)  
input(age=20,name=**'fiza'**)  
input(**"tarique "**)

**kwargs**

**def** person(name,\*\*data):  
 print(name)  
 **for** i,j **in** data.items():  
 print(i,j)  
  
  
person(**"danish"**,age = 20, city = **'mumbai'** , mobile= 8793606806)