

## Exchange of the Values

### **AIM:**

To Perform swapping of two values using simple statements and expressions in Python

### **ALGORITHM-1:** (By introducing 3<sup>rd</sup> variable)

**Step 1:** Get the value of a

**Step 2:** Get the value of b

**Step 3:** Assign the value of temp=0

**Step 4:** Display The value before Swapping a,b

**Step 5:** temp=a

**Step 6:** a=b

**Step 7:** b=temp

**Step 8:** Display The value after Swapping a,b

**Step 9:** Stop

### **PROGRAM-1:**

```
a=int(input("Enter number 1:"))
b=int(input("Enter number 2:"))
temp=0
print("The values before swapping :",a," ",b)
temp=a
a=b
b=temp
print("The values after swapping :",a," ",b)
```

### **OUTPUT-1:**

Enter number 1:5

Enter number 2:2

The values before swapping: 5 2

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The values after swapping: 2 5

**ALGORITHM-2: (By comma operator)**

**Step 1:** Get the value of a

**Step 2:** Get the value of b

**Step 3:** Display The value before Swapping a,b

**Step 4:** a,b=b,a

**Step 5:** Display The value after Swapping a,b

**Step 6:** Stop

**PROGRAM-2:**

```
a=int(input("Enter number 1:"))  
b=int(input("Enter number 2:"))  
print("The values before swapping :",a," ",b)  
a,b=b,a  
print("The values after swapping :",a," ",b)
```

**OUTPUT-2:**

Enter number 1:5

Enter number 2:2

The values before swapping: 5 2

The values before swapping: 2 5

### **ALGORITHM-3: (By arithmetic operator)**

**Step 1:** Get the value of a

**Step 2:** Get the value of b

**Step 4:** Display The value before Swapping a,b

**Step 5:**  $a=a+b$

**Step 6:**  $b=a-b$

**Step 7:**  $a=a-b$

**Step 8:** Display The value after Swapping a,b

**Step 9:** Stop

### **PROGRAM-3:**

```
a=int(input("Enter number 1:"))
b=int(input("Enter number 2:"))
print("The values before swapping :",a," ",b)
a=a+b
b=a-b
a=a-b
print("The values after swapping :",a," ",b)
```

### **OUTPUT-3:**

Enter number 1:5

Enter number 2:2

The values before swapping: 5 2

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The values after swapping: 2 5

#### **ALGORITHM-4: (using XOR operator)**

**Step 1:** Get the value of a

**Step 2:** Get the value of b

**Step 4:** Display The value before Swapping a,b

**Step 5:**  $a=a^b$

**Step 6:**  $b=a^b$

**Step 7:**  $a=a^b$

**Step 8:** Display The value after Swapping a,b

**Step 9:** Stop

#### **PROGRAM-4:**

```
a=int(input("Enter number 1:"))
b=int(input("Enter number 2:"))
print("The values before swapping :",a," ",b)
a=a+b
b=a-b
a=a-b
print("The values after swapping :",a," ",b)
```

#### **OUTPUT-3:**

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Enter number 1:5

Enter number 2:2

The values before swapping: 5 2

The values after swapping: 2 5

### **RESULT:**

Thus the result for the given Program is obtained.

Circulating the List of values

### **AIM:**

To Perform Circulating the value in the list using simple statements and expressions in Python

### **ALGORITHM-1: (Using inbuilt functions)**

**Step 1:** Get the value of n

**Step 2:** Assign l[]

**Step 3:** Check for the condition for i=0 to n if true goto 4 else goto 6

**Step 4:** Get value of x

**Step 5:** append x to l[]

**Step 6:** Get number of rotation a

**Step 7:** Check for the condition for i=0 to a if true goto 8 else goto 11

**Step 8:** Assign b = l.pop(0)

**Step 9:** append b to l[]

**Step 10:** Print the circulated list b

**Step 11:** Stop

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**PROGRAM-1:**

```
n=int(input("Enter the number of values in the list :"))
l=[]
for i in range(0,n):
    x=int(input("Enter the value :"))
    l.append(x)
a=int(input("Enter number of rotation :"))
for i in range(0,a):
    b=l.pop(0)
    l.append(b)
print("The circulate list is :",l)
```

**OUTPUT-1:**

Enter the number of values in the list :3

Enter the value :1

Enter the value :2

Enter the value :5

Enter number of rotation :2

The circulate list is : [2, 5, 1]

The circulate list is : [5, 1, 2]

### **ALGORITHM-2: (using slicing operator)**

**Step 1:** Get the value of n

**Step 2:** Assign l[]

**Step 3:** Check for the condition for i=0 to n if true goto 4 else goto 7

**Step 4:** Get value of x

**Step 5:** append x to l[]

**Step 6:** Display circulating the list...

**Step 7:** Get number of rotation a

**Step 8:** Check for the condition for i=0 to a if true goto 9 else goto 11

**Step 9:** Compute l=l[1:]+l[:1]

**Step 10:** Print the circulated list b

**Step 11:** Stop

### **PROGRAM-2:**

```
n=int(input("Enter the number of values in the list :"))
```

```
l=[]
```

```
for i in range(0,n):
```

```
    x=int(input("Enter the value :"))
```

```
    l.append(x)
```

```
print("Circulating the list....")
```

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```
a=int(input("Enter the number of rotation :"))
for i in range(0,a):
    l=l[1:]+l[:1]
    print("The circulate list is :",l)
```

### **OUTPUT-2:**

Enter the number of values in the list :3

Enter the value :1

Enter the value :2

Enter the value :5

Enter number of rotation :2

The circulate list is : [2, 5, 1]

The circulate list is : [5, 1, 2]



**RESULT:**

Thus the result for the given Program is obtained

Distance between Two points

**AIM:**

To Calculate distance between Two points using simple statements and expressions in Python

**ALGORITHM:**

Step 1: Start.

Step 2: Import math.

Step 3: Get the value of x1.

Step 4: Get the value of y1.

Step 5: Get the value of x2.

Step 6: Get the value of y2.

Step 7: Calculate the distance using the formula .

$$D=(\text{pow}(x2-x1,2)+\text{pow}(y2-y1,2))^{**1/2}$$

Step 8: Display the distance D.

Step 9: Stop.

**PROGRAM:**

```
import math
```

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```
print("To find the distance between two points")
x1=int(input("Enter x1 value : "))
y1=int(input("Enter x2 value : "))
x2=int(input("Enter y1 value : "))
y2=int(input("Enter y2 value : "))
d=(pow(x2-x1,2)+pow(y2-y1,2))**1/2
print("The distance between the points is",d)
```

### **OUTPUT:**

To find the distance between two points

Enter x1 value : 40

Enter x2 value : 50

Enter y1 value : 35

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Enter y2 value : 90

The distance between the points is 40.311288741492746

**RESULT:**

Thus the result for the given Program is obtained.

TO PERFORM ARITHMETIC  
OPERATIONS ON TWO VALUES

**AIM:**

To Perform Arithmetic operations on two values using simple statements and expressions in Python

**ALGORITHM:**

Step 1: Start

Step 2: Get the value of a.

Step 3: Get the value of b.

Step 4: Calculate and print "The ADDITION Value IS!".

Step 5: Calculate and print "The SUBRACTION Value IS!".

Step 6: Calculate and print "The MULTIPLICATION value is!".

Step 1: Calculate and display" The QUOTIENT VALUE 13:'-

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Step 8 Calculate and display "the REMAINDER Value IS!"

Step 9: Stop.

**PROGRAM:**

```
a=int(input("Enter value of a : "))
b=int(input("Enter value of b : "))
print("The ADITTION value is :",a+b)
print("The SUBRACTION value is :",a-b)
print("The MULTIPLICATION value is :",a*b)
print("The QUOTIENT value is :",a/b)
print("The REMAINDER value is :",a%b)
```

**OUTPUT:**

Enter value of a : 20

Enter value of b : 10

The ADITTION value is : 30

The SUBRACTION value is : 10

The MULTIPLICATION value is : 200

The QUOTIENT value is : 2.0

The REMAINDER value is : 0

**RESULT:**

Thus the result for the given Program is obtained.

Weight of the apples

**AIM:**

To Calculate Weight of the apples using simple statements and expressions in Python

**ALGORITHM:**

Step 1: Start

step 2: On the test of 1kg Apple W

Step 3: Enter the total weight of apples Bought

Step 4: Calculate the total cost of apple.

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Step 5: Display Total cost

Step 6 Stop

**PROGRAM:**

```
a=int(input("Enter Cost of 1 kg of apple : "))  
b=int(input("Enter Total Weight of Apples Bought : "))  
print("The total cost of the apple is",a*b,"Rs/-")
```

**OUTPUT:**

Enter Cost of 1 kg of apple : 120

Enter Total Weight of Apples Bought : 5

The total cost of the apple is 600 Rs/-

**RESULT:**

Thus the result for the given Program is obtained

Fahrenheit into Celsius

**AIM:**

To Convert Fahrenheit into Celsius using simple statements and expressions in Python

**ALGORITHM:**

Step 1 : Start

Step 2: Get the Fahrenheit value in degree a

Step 3: Calculate Celsius Using the formula  $c = (F - 32) \times 5 / 9$ .

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Step 4: Display Celsius c.

Step 5: Stop.

**PROGRAM:**

```
a=int(input("Enter Fahrenheit value F in degrees: "))  
c=( F - 32 ) 5 / 9  
print("The Celsius value is : ",c)
```

**OUTPUT:**

Enter Fahrenheit value F in degrees : 28

The Celsius value is : 82.4

**RESULT:**

Thus the result for the given Program is obtained.

Calculate price of a book

**AIM:**

To Calculate price of a book with discount using simple statements and expressions in Python

**ALGORITHM:**

Step 1: Start

Step 2: Get the Price of book

Step 4: Calculate discount amount using formula  $\text{disc} = a*5/100$ .

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Step 5: Display the discount amount

Step 6: Display Calculate Bill price using  $\text{net} = a - \text{disc}$

Step 7: Display the Bill Price

Step 8 : Stop

### **PROGRAM:**

```
a=int(input("Enter Price Of Book bought : "))
```

```
b=int(input("Enter The discount amount : "))
```

```
disc=(a*b)/100
```

```
net=a-disc
```

```
print("The Discount price is : ",disc)
```

```
print("The Bill price is : ",net)
```

### **OUTPUT:**

Enter Price Of Book bought : 600

Enter The discount amount : 45

The Discount price is : 270.0

The Bill price is : 330.0

### **RESULT:**

Thus the result for the given Program is obtained.

Prime number or not

### **AIM:**

To Calculate Prime number or not using simple statements and expressions in Python

### **ALGORITHM:**

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Step 1: Start

Step 2: initialise  $i=2$

Step 4: Get the value to be checked as  $n$

Step 5: Check for the condition  $i \leq n$  if true goto 6 step 4.1

4.1: Divide  $i$  by  $n$  and check whether remainder is 0 increase  $i$  by 1 and goto step 4

4.2: If false goto step 5

Step 7: Display the number as prime and goto step 7

Step 6: Display not prime

Step 8 : Stop

### **PROGRAM:**

```
n=int(input("Enter number :"))
```

```
i=2
```

```
for i in range(2,n):
```

```
    if n%i==0:
```

```
        p=True
```

```
if True:
```

```
    print("Not Prime")
```

```
else:
```

```
    print("Prime")
```

### **OUTPUT:**

Enter number :4

Not Prime

Enter number :1

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Prime

**RESULT:**

Thus the result for the given Program is obtained.

Leap year or not

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**AIM:**

To Calculate price of a book with discount using simple statements and expressions in Python

**ALGORITHM:**

Step 1: Start

Step 2: Get the Year as y

Step 4: Check for the condition. if((y%400==0) or (y%100!=0) and (y%4==0)): if true goto step5 else goto step 6

Step 5: Display Leap year

Step 6: Display Not a Leap year

Step 7: Display the Bill Price

Step 8 : Stop

**PROGRAM:**

```
y=int(input("Enter number :"))  
if((y%400==0) or (y%100!=0) and (y%4==0)):  
    print("Leap Year")  
else:  
    print("Not a Leap year")
```

**OUTPUT:**

Enter number :2020

Leap Year

Enter number :1900

Not a Leap year

**RESULT:**

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Thus the result for the given Program is obtained.

### Simple Interest

#### **AIM:**

To Calculate Simple Interest using simple statements and expressions in Python

#### **ALGORITHM:**

Step 1: Start.

step 2: Get Principle balance amount P.

Step 3: Get Annual Intrest rate r.

Step 4: Get Time in Years t.

Step 5: Calculate annual interest rate using the formula

$$A = p ( 1 + r * t )$$

Step 6: Display Annual Interest rate.

Slep 7: Stop.

#### **PROGRAM:**

```
p=float(input("Enter the Principle balance amount P : "))
```

```
r=float(input("Enter the annual interest rate r : "))
```

```
t=float(input("Enter the Time in Years t : "))
```

$$A = p ( 1 + r * t )$$

```
print("The annual interest rate is A : ",a)
```

#### **OUTPUT:**

Enter the Principle balance amount P : 10000

Enter the annual intreat rate r : 5.6

Enter the Time in Years t : 5

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The annual interest rate is A : 280000.0

**RESULT:**

Thus the result for the given Program is obtained.