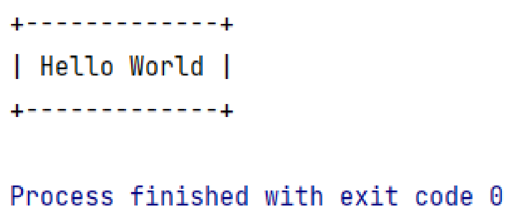
PRACTICAL SET - 01

# Set-1 Practical-1 : Write a Python program to print "Hello World".

```
print ("+-------------+")
print ("| Hello World |")
print ("+-------------+")
```

OUTPUT:

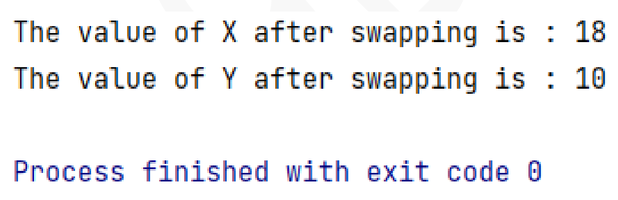


```
+-------------+
| Hello World |
+-------------+

Process finished with exit code 0
```

# Set-1 Practical-2 : Write a Python program to swap two variables using third variable.

```
X=10
Y=18

Z=X
X=Y
Y=Z

print ("The value of X after swapping is:", X)
print ("The value of Y after swapping is:", Y)
```

OUTPUT:



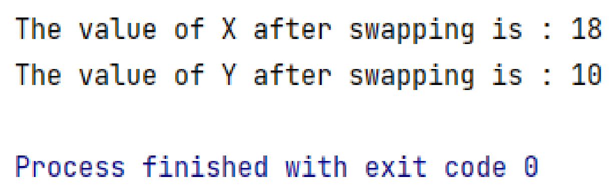
```
The value of X after swapping is : 18
The value of Y after swapping is : 10

Process finished with exit code 0
```

# Set-1 Practical-3 : Write a Python program to swap two variables without third variable.

```
X = 10
Y = 18

X = X + Y
Y = X - Y
X = X - Y
```

```
print ("The value of X after swapping is :", X)
print ("The value of Y after swapping is :", Y)
```

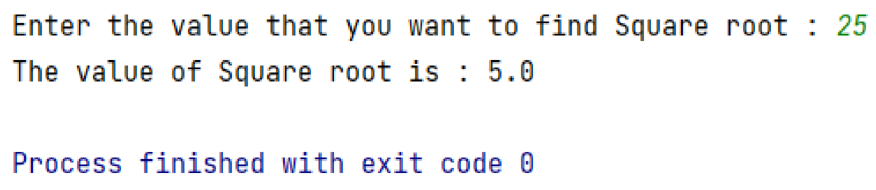
OUTPUT:



```
The value of X after swapping is : 18
The value of Y after swapping is : 10

Process finished with exit code 0
```

```
# Set-1 Practical-4 : Write a Python program to find square root of
positive number.

A = float(input("Enter the value that you want to find Square root : "))
sqrt = A**0.5
print ("The value of Square root is :", sqrt)

# Using sqrt() function:
# import math
# A = float(input("Enter the value that you want to find Square root :
"))
# sqrt = math.sqrt(A)
# print ("The value of Square root is :", sqrt)
```

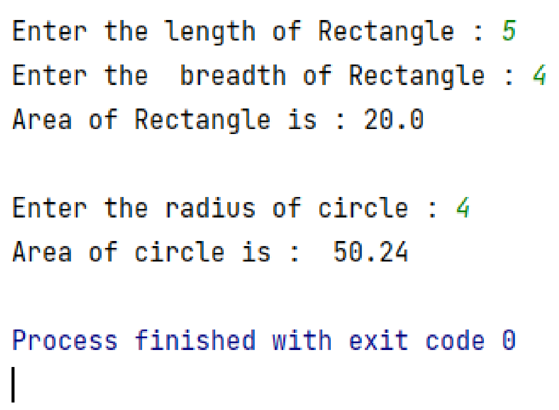
OUTPUT:



```
Enter the value that you want to find Square root : 25
The value of Square root is : 5.0

Process finished with exit code 0
```

```
# Set-1 Practical-5 : Write a Python program to find area of a
rectangle and circle.

# Area of Rectangle :
L = float(input("Enter the length of Rectangle : "))
B = float(input("Enter the  breadth of Rectangle : "))
R = L*B
print("Area of Rectangle is :", R)

# Area of circle :
r = float(input("\nEnter the radius of circle : "))
C = 3.14*r*r
print("Area of circle is : ", C)
```

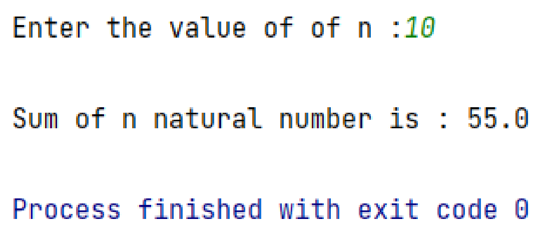
OUTPUT:



```
Enter the length of Rectangle : 5
Enter the  breadth of Rectangle : 4
Area of Rectangle is : 20.0

Enter the radius of circle : 4
Area of circle is :  50.24

Process finished with exit code 0
```

```python
# Set-1 Practical-6 : Write a Python program to find sum of n natural
numbers without loop.

n = float(input("Enter the value of of n :"))
n = n*(n+1)/2

print ("\nSum of n natural number is :", n)
```

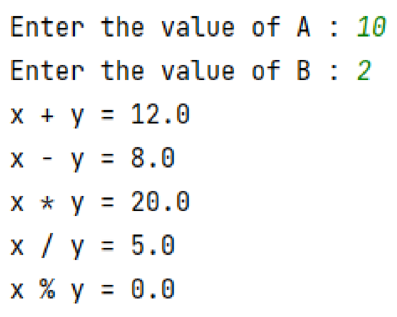
OUTPUT:



```
Enter the value of of n :10

Sum of n natural number is : 55.0

Process finished with exit code 0
```

```python
# Set-1 Practical-7 : Check various arithmetic operators of Python.

A = float(input("Enter the value of A :  "))
B = float(input("Enter the value of B :  "))

print('x + y =', A + B)
print('x - y =', A - B)
print('x * y =', A * B)
print('x / y =', A / B)
print('x % y =', A % B)
```

OUTPUT:

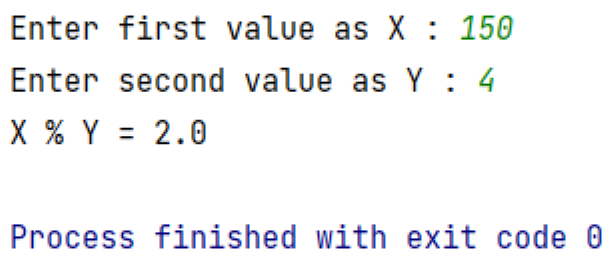


```
Enter the value of A : 10
Enter the value of B : 2
x + y = 12.0
x - y = 8.0
x * y = 20.0
x / y = 5.0
x % y = 0.0
```

# Set-1 Practical-8 : Write a Python program to check output of modulo operator.

```
X = float(input("Enter first value as X : "))
Y = float(input("Enter second value as Y : "))
print("X % Y =", X % Y)
```

OUTPUT:



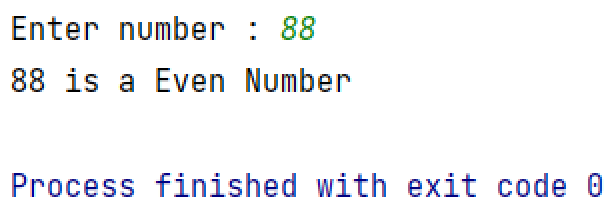
```
Enter first value as X : 150
Enter second value as Y : 4
X % Y = 2.0

Process finished with exit code 0
```

PRACTICAL SET - 02

# Set-2 Practical-1 : Write a Python program to check whether entered number is even or odd.

```
a = int(input("Enter number : "))
print(a, "is a Even Number") if a % 2 == 0 else print(a, "is a Odd
Number")
```

OUTPUT:

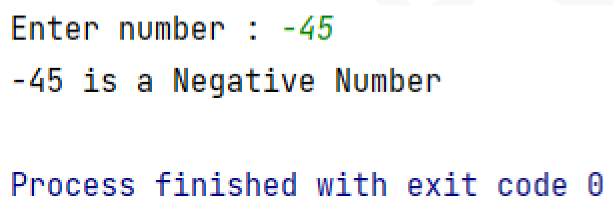


```
Enter number : 88
88 is a Even Number

Process finished with exit code 0
```

# Set-2 Practical-2 : Write a Python program to find whether entered number is positive, negative or zero.

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

print(a, "is a Negative Number") if a < 0 else print(a, "is a Positive
Number ") if a > 0 else print(a, "Number is Zero")
```

OUTPUT:

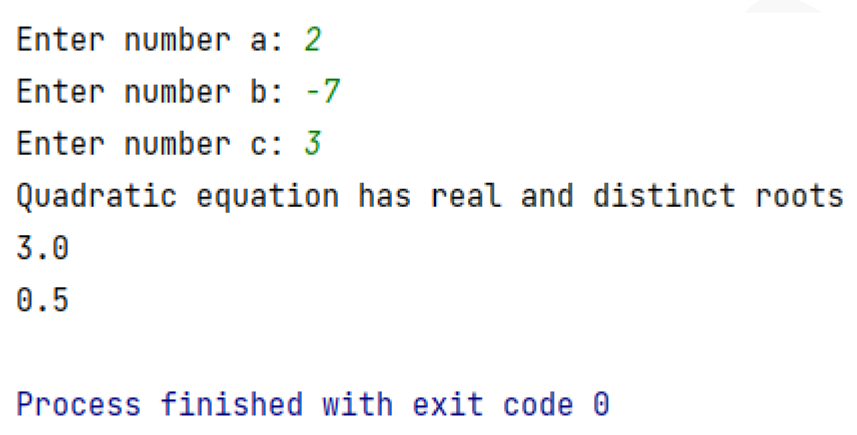


```
Enter number : -45
-45 is a Negative Number

Process finished with exit code 0
```

# Set-2 Practical-3 : Write a Python program to find roots of quadratic equations if roots are real.

```
def root(a, b, c):
    d = b ** 2 - 4 * a * c
    sqrt_d = abs(d) ** 0.5

    if d > 0:
        print("Quadratic equation has real and distinct roots")
        print((-b + sqrt_d) / (2 * a))
        print((-b - sqrt_d) / (2 * a))

    if d == 0:
        print("Quadratic equation has real and one roots")
        print(-b / (2 * a))
    if d < 0:
        print("Quadratic equation has imaginary and distinct roots")
        print(-b / (2 * a), "+ i", sqrt_d / (2 * a))
        print(-b / (2 * a), "- i", sqrt_d / (2 * a))


p = int(input("Enter number a: "))
q = int(input("Enter number b: "))
r = int(input("Enter number c: "))

if p == 0:
    print("Enter correct quadratic equation.")
else:
    root(p, q, r)
```

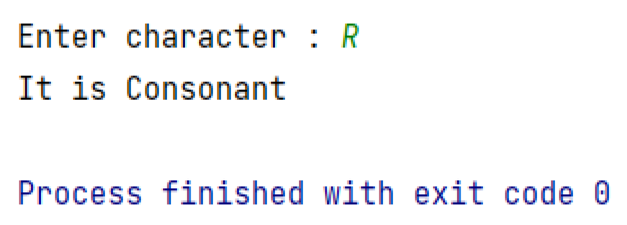
OUTPUT:



```
Enter number a: 2
Enter number b: -7
Enter number c: 3
Quadratic equation has real and distinct roots
3.0
0.5

Process finished with exit code 0
```

```
# Set-2 Practical-4 : Write a Python program to check whether entered
character is vowel or consonant.

a = input("Enter character : ")
if (a == 'a') | (a == 'e') | (a == 'i') | (a == 'o') | (a == 'u') | (a
== 'A') | (a == 'E') | (a == 'I') | (a == 'O') | (a == 'U'):
    print("It is Vowel")
else:
    print("It is Consonant")
```

OUTPUT:

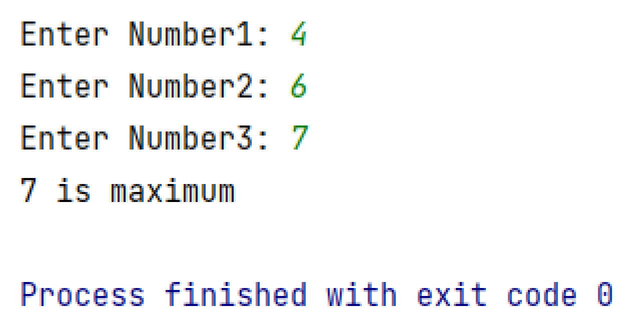


```
Enter character : R
It is Consonant

Process finished with exit code 0
```

# Set-2 Practical-5 : Write a Python program to find maximum of three numbers (nested if-else).

```
a = int(input("Enter Number1: "))
b = int(input("Enter Number2: "))
c = int(input("Enter Number3: "))
if a > b:
    if a > c:
        print(a, "is maximum")
    elif c > b:
        print(c, "is maximum")
elif b > c:
    print(b, "is maximum")
else:
    print(c, "is maximum")
```

OUTPUT:

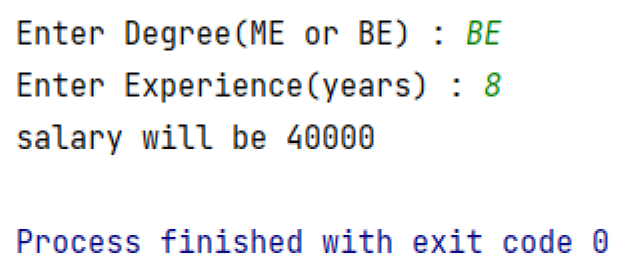


```
Enter Number1: 4
Enter Number2: 6
Enter Number3: 7
7 is maximum

Process finished with exit code 0
```

# Set-2 Practical-6 : Write a Python program to calculate the salary of an employee based on following conditions
# (nested if-else):
# 1. if degree = B.E. and experience < 5 years, salary=30000
# 2. if degree = B.E. and experience >= 5 years, salary=40000
# 3. if degree = M.E. and experience < 5 years, salary=50000
# 4. if degree = M.E. and experience >= 5 years, salary= 60000

```
degree = input("Enter Degree(ME or BE) : ")
exp = int(input("Enter Experience(years) : "))

if degree == 'BE':
    if exp < 5:
        print("salary will be 30000")
    elif exp >= 5:
        print("salary will be 40000")
elif degree == 'ME':
    if exp < 5:
        print("salary will be 50000")
    elif exp >= 5:
        print("salary will be 60000")
else:
    print("Enter valid Degree.")
```

OUTPUT:

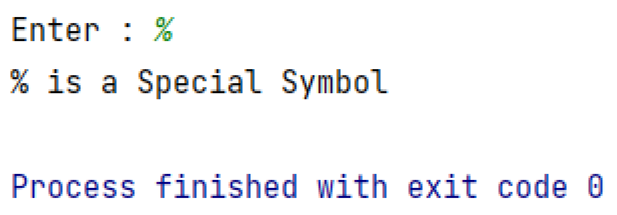


```
Enter Degree(ME or BE) : BE
Enter Experience(years) : 8
salary will be 40000

Process finished with exit code 0
```

# Set-2 Practical-7 : Write a Python program to check whether entered input is character, digit or special symbol using ladder if-else.

```python
a = input("Enter : ")
if a.isalpha():
    print(a, "is a Character")
elif a.isnumeric():
    print(a, "is a Number")
else:
    print(a, "is a Special Symbol")
```

OUTPUT:



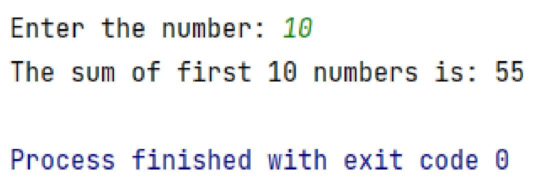
```
Enter : %
% is a Special Symbol

Process finished with exit code 0
```

PRACTICAL SET - 03

# Set-3 Practical-1 : Write a Python program to find sum of first N numbers.

```
su = 0
n = int(input("Enter the number: "))
a = n
while n > 0:
    su = su + n
    n = n - 1
print("The sum of first", a, "numbers is:", su)
```

OUTPUT:

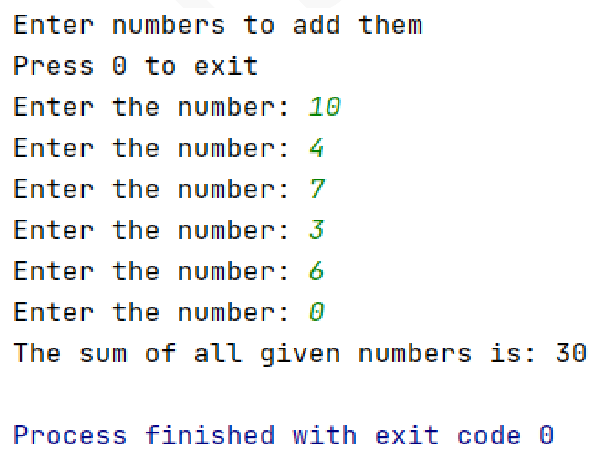


```
Enter the number: 10
The sum of first 10 numbers is: 55

Process finished with exit code 0
```

# Set-3 Practical-2 : Write a Python program to find sum of N scanned numbers.

```
su = 0
print("Enter numbers to add them")
print("Press 0 to exit")
while True:
    n = int(input("Enter the number: "))
    if n == 0:
        break
    su = su + n
print("The sum of all given numbers is:", su)
```

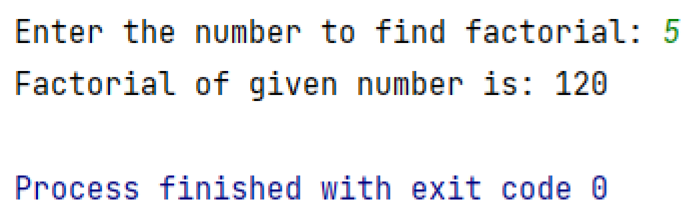
OUTPUT:



```
Enter numbers to add them
Press 0 to exit
Enter the number: 10
Enter the number: 4
Enter the number: 7
Enter the number: 3
Enter the number: 6
Enter the number: 0
The sum of all given numbers is: 30

Process finished with exit code 0
```

```python
# Set-3 Practical-3 : Write a Python program to find N!

num = int(input("Enter the number to find factorial: "))
factorial = 1
if num == 0 or num == 1:
    print("Factorial of given number is:", factorial)
else:
    for i in range(1, num+1):
        factorial = factorial * i
    print("Factorial of given number is:", factorial)
```

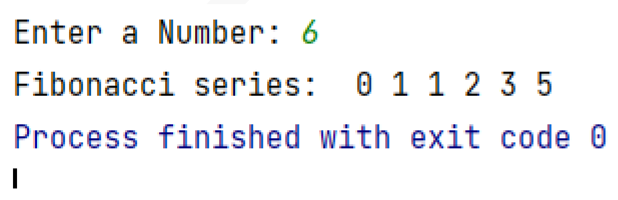
OUTPUT:



```
Enter the number to find factorial: 5
Factorial of given number is: 120


Process finished with exit code 0
```

```python
# Set-3 Practical-4 : Write a Python program to print Fibonacci
series upto n terms.

def fibo(i):
    if i <= 1:
        return i
    else:
        return fibo(i - 1) + fibo(i - 2)


num = int(input("Enter a Number: "))
if num <= 0:
    print("Enter a positive number.")
else:
    print("Fibonacci series: ", end=" ")
    for n in range(num):
        print(fibo(n), end=" ")
```

OUTPUT:

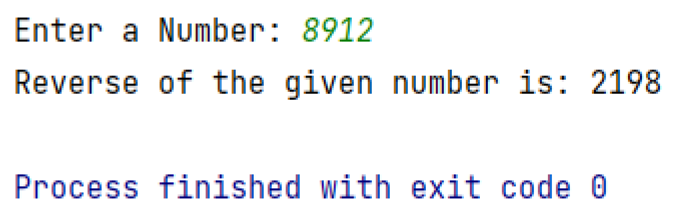


```
Enter a Number: 6
Fibonacci series:  0 1 1 2 3 5
Process finished with exit code 0
```

```python
# Set-3 Practical-5 : Write a Python program to find the reverse of
given numbers (Example 2564-4652).

n = int(input("Enter a Number: "))
```

```
rev = 0
while n > 0:
    dig = n % 10
    rev = rev * 10 + dig
    n = n // 10
print("Reverse of the given number is:", rev)
```

OUTPUT:

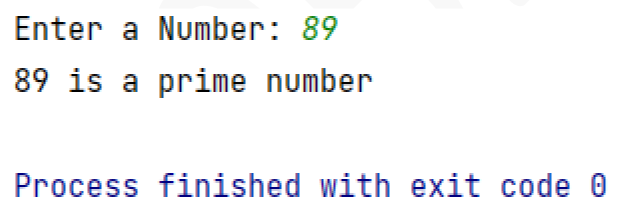


```
Enter a Number: 8912
Reverse of the given number is: 2198

Process finished with exit code 0
```

# Set-3 Practical-6 : Write a Python program to check whether entered number is prime or not.

```
num = int(input("Enter a Number: "))
if num > 2:
    for i in range(2, int(num/2)+1):
        if num % i == 0:
            print(num, "is not a prime number")
            break
    else:
        print(num, "is a prime number")
else:
    print(num, "is not a prime number")
```

OUTPUT:

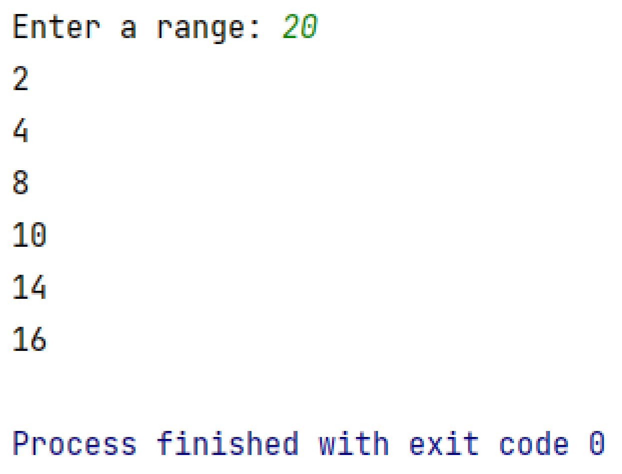


```
Enter a Number: 89
89 is a prime number

Process finished with exit code 0
```

# Set-3 Practical-7 : Write a Python program to print all even numbers between 1 to n except the numbers divisible by 6.

```
n = int(input("Enter a range: "))
for i in range(2, n, 2):
    if i % 6 != 0:
        print(i)
```

OUTPUT:

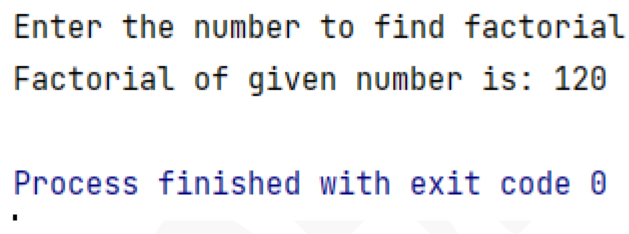


```
Enter a range: 20
2
4
8
10
14
16

Process finished with exit code 0
```

# Set-3 Practical-8 : Write a Python program to calculate N!.

```
num = int(input("Enter the number to find factorial: "))
factorial = 1
if num == 0 or num == 1:
    print("Factorial of given number is:", factorial)
else:
    for i in range(1, num+1):
        factorial = factorial * i
    print("Factorial of given number is:", factorial)
```

OUTPUT:



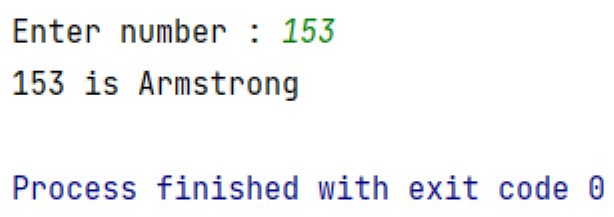
```
Enter the number to find factorial: 5
Factorial of given number is: 120

Process finished with exit code 0
```

# Set-3 Practical-9 : Write a Python program to check whether given number is Armstrong or not.

```
sum = 0
count = 0
n = int(input("Enter number : "))
temp = n
while n != 0:
    count += 1
    n = n // 10
n = temp
while n != 0:
    rev = n % 10
    sum = rev ** count + sum
    n = n // 10
if sum == temp:
    print(temp, "is Armstrong")
```

```
else:
    print(temp, "is not Armstrong")
```

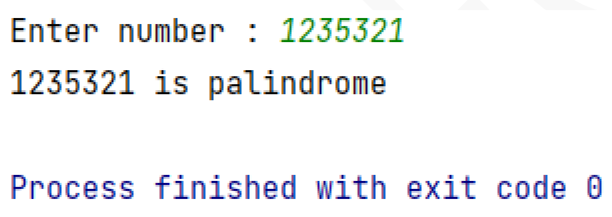
OUTPUT:



```
Enter number : 153
153 is Armstrong

Process finished with exit code 0
```

```
# Set-3 Practical-10 : Write a Python program to check whether given
number is Palindrome or not.

rev = 0
n = int(input("Enter number : "))
temp = n
while n != 0:
    rev = rev * 10 + n % 10
    n = n // 10
if rev == temp:
    print(temp, "is palindrome")
else:
    print(temp, "is not palindrome")
```

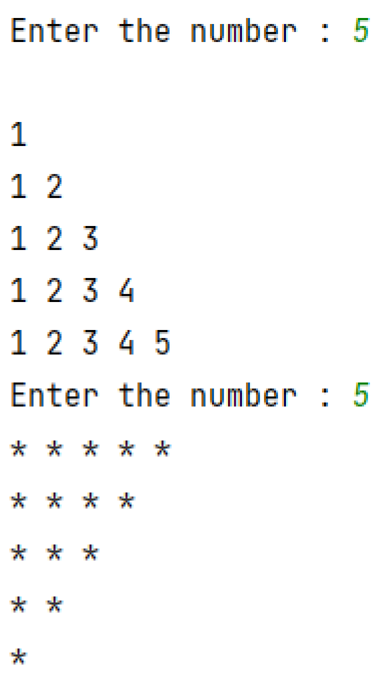
OUTPUT:



```
Enter number : 1235321
1235321 is palindrome

Process finished with exit code 0
```

```
# Set-3 Practical-11 : Write a Python program to print the following:
# 1) 1                      2) * * * * *
#    1 2                       * * * *
#    1 2 3                     * * *
#    1 2 3 4                   * *
#    1 2 3 4 5                 *

n = int(input("Enter the number : "))
for i in range(n + 1):
    for j in range(1, i + 1):
        print(j, end=' ')
    print()

n = int(input("Enter the number : "))
for i in range(n + 1):
    for j in range(i, n):
        print("*", end=' ')
    print()
```

OUTPUT:

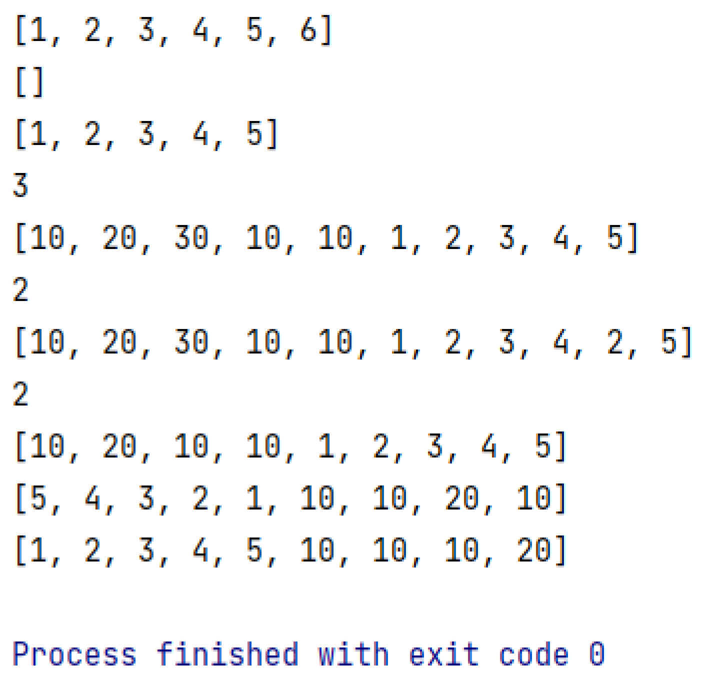


```
Enter the number : 5

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
Enter the number : 5
* * * * *
* * * *
* * *
* *
*
```

PRACTICAL SET – 04

```
# Set-4 Practical-1 : Write a Python program which covers all the
methods (functions) of list.

L1 = [1, 2, 3, 4, 5]

# Adds an element at the end of the list
L1.append(6)
print(L1)

# Removes all the elements from the list
L1.clear()
print(L1)

# Returns a copy of the list
L1 = [1, 2, 3, 4, 5]
L2 = L1.copy()
print(L2)

# Returns the number of elements with the specified value
L3 = [10, 20, 30, 10, 10]
n = L3.count(10)
print(n)

# Add the elements of a list (or any iterable), to the end of the
current list
L3.extend(L1)
print(L3)

# Returns the index of the first element with the specified value
print(L3.index(30))

# Adds an element at the specified position insert(pos,value)
L3.insert(9, 2)
print(L3)

# Removes the element at the specified position
print(L3.pop(9))

# Removes the item with the specified value
L3.remove(30)
print(L3)

# Reverses the order of the list
L3.reverse()
print(L3)

# sorted list
L3.sort()
print(L3)
```

OUTPUT:

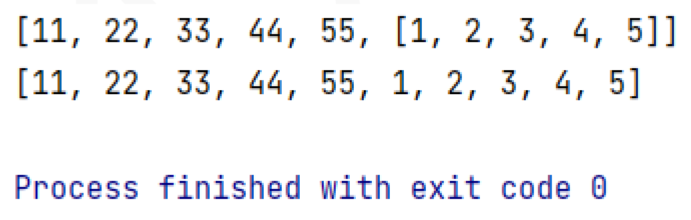


```
[1, 2, 3, 4, 5, 6]
[]
[1, 2, 3, 4, 5]
3
[10, 20, 30, 10, 10, 1, 2, 3, 4, 5]
2
[10, 20, 30, 10, 10, 1, 2, 3, 4, 2, 5]
2
[10, 20, 10, 10, 1, 2, 3, 4, 5]
[5, 4, 3, 2, 1, 10, 10, 20, 10]
[1, 2, 3, 4, 5, 10, 10, 10, 20]

Process finished with exit code 0
```

# Set-4 Practical-2 : Write a Python program to append a list to the second list.

```
L1 = [1, 2, 3, 4, 5]
L2 = [11, 22, 33, 44, 55]

L2.append(L1)
print(L2)

L1 = [1, 2, 3, 4, 5]
L2 = [11, 22, 33, 44, 55]

L2.extend(L1)
print(L2)
```

OUTPUT:

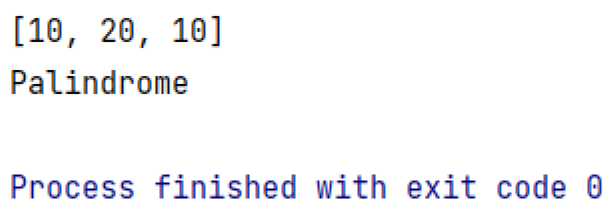


```
[11, 22, 33, 44, 55, [1, 2, 3, 4, 5]]
[11, 22, 33, 44, 55, 1, 2, 3, 4, 5]

Process finished with exit code 0
```

# Set-4 Practical-3 : Write a Python program to check whether the given list is palindrome or not.

```
l = [10, 20, 10]
r = l[::-1]
print(r)
if l == r:
    print("Palindrome")
else:
    print("Not palindrome")
```

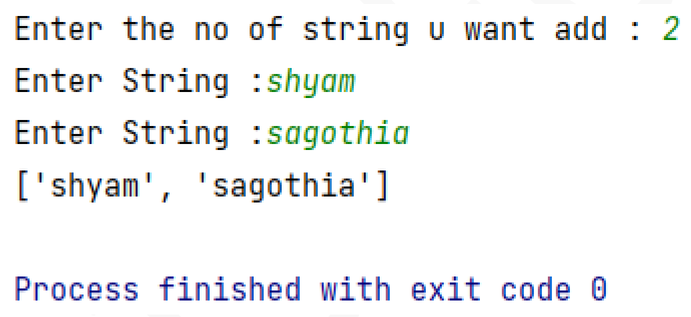
OUTPUT:



```
[10, 20, 10]
Palindrome

Process finished with exit code 0
```

```
# Set-4 Practical-4 : Write a Python program to store strings in list
and then print them.

n = int(input("Enter the no of string u want add : "))
L1 = []

for i in range(n):
    str = input("Enter String :")
    L1.append(str)

print(L1)
```

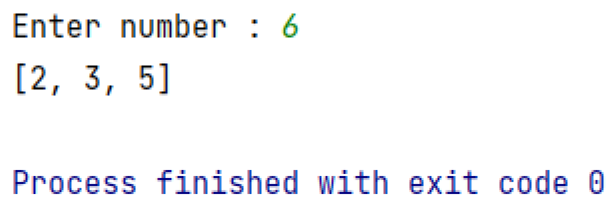
OUTPUT:



```
Enter the no of string u want add : 2
Enter String :shyam
Enter String :sagothia
['shyam', 'sagothia']

Process finished with exit code 0
```

```
# Set-4 Practical-5 : Write a Python program to print list of prime
numbers upto N using loop and else clause.

l = []
n = int(input("Enter number : "))

for i in range(2, n + 1):
    for j in range(2, (i // 2) + 1):
        if i % j == 0:
            break
    else:
        l.append(i)
print(l)
```

OUTPUT:

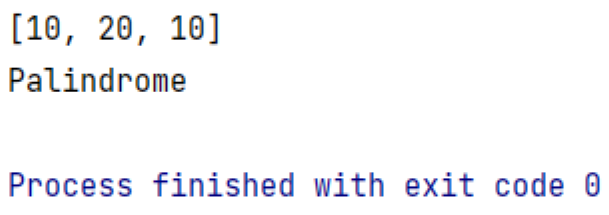


```
Enter number : 6
[2, 3, 5]

Process finished with exit code 0
```

# Set-4 Practical-6 : Write a Python program to check whether the given list is palindrome or not.

```
l = [10, 20, 10]
r = l[::-1]
print(r)
if l == r:
    print("Palindrome")
else:
    print("Not palindrome")
```

OUTPUT:



```
[10, 20, 10]
Palindrome

Process finished with exit code 0
```

# Set-4 Practical-7 : Write a Python program to multiply all the items in a list.

```
L1 = [1, 2, 3, 4, 5]
ans = 1
for i in L1:
    ans *= i

print(ans)
```

OUTPUT:

```
120
```

# Set-4 Practical-8 : Write a Python program to get the largest number from a list.

```
l = [99, 50, 30, 75, 22]
l.sort()
m = l[-1]
print(m)
```

OUTPUT:

```
99
```

# Set-4 Practical-9 : Write a Python program to find the second-smallest number in a list.

```
l = [99, 50, 30, 75, 22]
l.sort()
m = l[1]
print(m)
```

OUTPUT:

```
30
```

# Set-4 Practical-10 : Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are same from a given list of strings.

```
l = ['aba', 'lol', 'hello', 'val', 'hoh']
l1 = []
n = len(l)
for j in range(n):
    a = l[j]
    i = len(a)
    i -= 1

    if a[0] == a[i]:
        l1.append(a)
print(l1)
```

OUTPUT:

```
['aba', 'lol', 'hoh']


Process finished with exit code 0
```

# Set-4 Practical-11 : Write a Python program to remove duplicates from a list.

```python
def Remove(duplicate):
    final_list = []
    for num in duplicate:
        if num not in final_list:
            final_list.append(num)
    return final_list
duplicate = [2, 4, 10, 20, 5, 2, 20, 4]
print(Remove(duplicate))
```

OUTPUT:

```
[2, 4, 10, 20, 5]


Process finished with exit code 0
```

# Set-4 Practical-12 : Write a Python program to find the list of words that are longer than n from a given string.

```python
L1 = []
def str_find(n, str):
    str1 = str.split(" ")
    for i in str1:
        if n < len(i):
            L1.append(i)
str = "I am inevitable"
str_find(2, str)
print(L1)
```

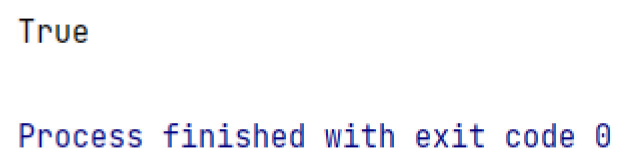
OUTPUT:

```
['inevitable']


Process finished with exit code 0
```

# Set-4 Practical-13 : Write a Python function that takes two lists and returns True if they have at least one common member.

```python
def common_inlist(L1, L2):
    for i in L1:
        for j in L2:
            if i is j:
                return True
    else:
        return False
L1 = [1, 2, 3, 4, 5]
L2 = [6, 7, 8, 9, 5]

print(common_inlist(L1, L2))
```

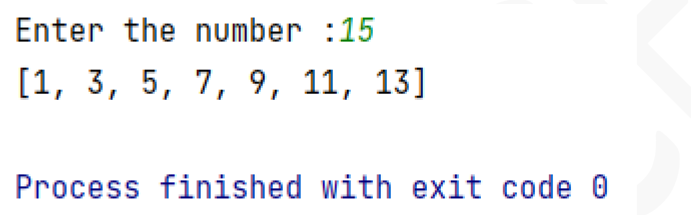
OUTPUT:



```
True

Process finished with exit code 0
```

```
# Set-4 Practical-14 : Write a Python program to print the numbers of
a specified list after removing even numbers from it.

n = int(input("Enter the number :"))
L1 = [i for i in range(n) if i % 2 != 0]
print(L1)
```

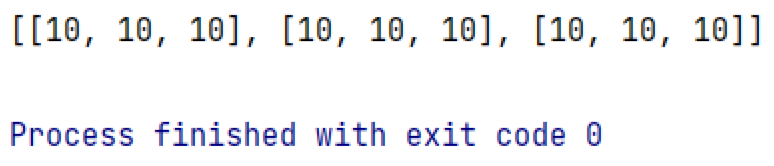
OUTPUT:



```
Enter the number :15
[1, 3, 5, 7, 9, 11, 13]

Process finished with exit code 0
```

```
# Set-4 Practical-15 : Write a Python program to add two matrices.

L3 = [[0, 0, 0], [0, 0, 0], [0, 0, 0]]


def add_matrix(L1, L2):
    for i in range(len(L1)):
        for j in range(len(L1[i])):
            L3[i][j] = L1[i][j] + L2[i][j]
    return L3
L1 = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
L2 = [[9, 8, 7], [6, 5, 4], [3, 2, 1]]
print(add_matrix(L1, L2))
```

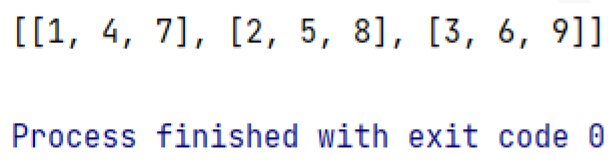
OUTPUT:



```
[[10, 10, 10], [10, 10, 10], [10, 10, 10]]

Process finished with exit code 0
```

```
# Set-4 Practical-16 : Write a Python program to transpose a given
matrix.

L2 = [[0, 0, 0], [0, 0, 0], [0, 0, 0]]

def transpose_matrix(L):
    for i in range(len(L)):
        for j in range(len(L[i])):
            if i == j:
                L2[i][j] = L1[i][j]
            else:
                L2[i][j] = L1[j][i]
    return L2

L1 = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
print(transpose_matrix(L1))
```

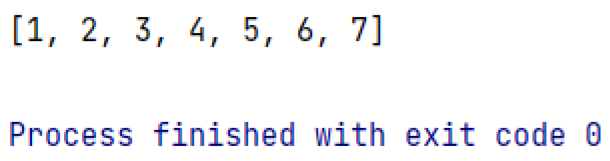
OUTPUT:



```
[[1, 4, 7], [2, 5, 8], [3, 6, 9]]

Process finished with exit code 0
```

```
# Set-4 Practical-17 : Flatten a nested list structure.
# Example: if list1 = [1, [2, 3], [4, 5, [6, 7] ] ] then try to
convert it in 1-dimensional
# [1, 2, 3, 4, 5, 6, 7]

L2 = []

def convert_1_dimension(L):
    for i in L:
        if type(i) == list:
            convert_1_dimension(i)
        else:
            L2.append(i)
    return L2

L1 = [1, [2, 3], [4, 5, [6, 7]]]
print(convert_1_dimension(L1))
```

OUTPUT:

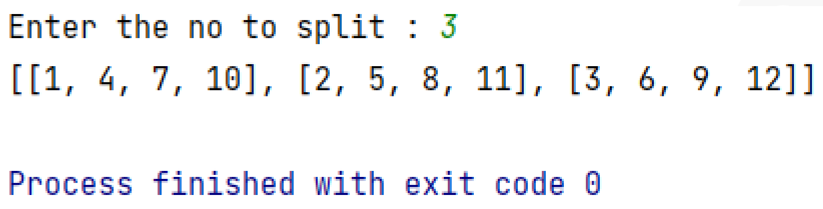


```
[1, 2, 3, 4, 5, 6, 7]


Process finished with exit code 0
```

# Set-4 Practical-18 : Write a Python program to split a list every Nth element.

```python
def split_step(L, n):
    return (L[i::n] for i in range(n))

L1 = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]
n = int(input("Enter the no to split : "))
print(list(split_step(L1, n)))
```

OUTPUT:



```
Enter the no to split : 3
[[1, 4, 7, 10], [2, 5, 8, 11], [3, 6, 9, 12]]

Process finished with exit code 0
```

PRACTICAL SET – 05

```
# Set-5 Practical-1 : Create a set of integers as follows:
# • initialize the set directly
# • initialize empty set and then add values
# • from a list
# • from another set
# • using range
# • update an existing set using another set
# • print the elements of set iteratively
# • check the functionality of remove and discard

set1 = {1, 2, 3}
set2 = set()

'''using add func'''
set2.add(5)
set2.add(6)

print("Adding elements in empty set :\n", set2)

list1 = [10, 20, 30]

'''using update func to add value from list'''

set2.update(list1)
print("\nUpdated from another list : \n", set2)

'''using update func to add value from another set'''
set3 = {11, 22, 33}
set2.update(set3)
print("\nUpdated from another set : \n", set2)

''' print the elements of set iteratively'''

print("\nPrinting elements of set :\n")
for i in set2:
    print(i)

'''using remove func'''
set2.remove(10)
print("Removed\n", set2)

'''using discard func'''
set2.discard(20)
print("Discard\n", set2)
```

OUTPUT:

```
Adding elements in empty set :
 {5, 6}

Updated from another list :
 {5, 6, 10, 20, 30}

Updated from another set :
 {33, 5, 6, 10, 11, 20, 22, 30}

Printing elements of set :

33
5
6
10
11
20
22
30
Removed
 {33, 5, 6, 11, 20, 22, 30}
Discard
 {33, 5, 6, 11, 22, 30}

Process finished with exit code 0
```

# Set-5 Practical-2 : Create two sets of integers and find their difference, intersection, union and symmetric difference. Also find subset and superset from these two. Apply methods as well as operators for all operations.

```
set1 = {10, 20, 30}
set2 = {20, 40, 50}

'''difference between two sets'''
print(set1 - set2)

'''intersection between two set'''
print(set1.intersection(set2))

''' union '''
print(set1.union(set2))

''' symmetric difference '''
print(set1.symmetric_difference(set2))
```

```
''' subset '''
set3 = {40, 50, 10, 20, 30}
print(set1.issubset(set3))

''' super set'''
print(set3.issuperset(set1))
```

OUTPUT:

```
{10, 30}
{20}
{50, 20, 40, 10, 30}
{40, 10, 50, 30}
True
True

Process finished with exit code 0
```

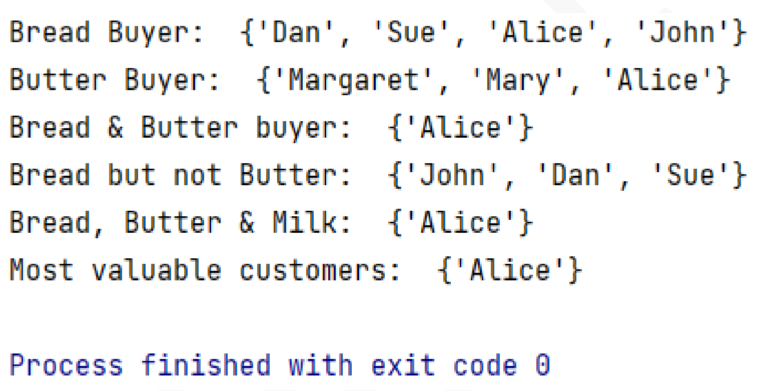
```
# Set-5 Practical-3 : Write a function called find_dups that takes a
list of integers as its input argument and returns a set of those
integers that occur two or more times in the list.

def find_dups(list1):
    list2 = []
    for i in list1:
        n = list1.count(i)
        if n > 1:
            if list2.count(i) == 0:
                list2.append(i)
    return list2
list1 = [10, 20, 10, 30, 20, 30, 40]
print(find_dups(list1))
```

OUTPUT:

```
[10, 20, 30]

Process finished with exit code 0
```

```
# Set-5 Practical-4 : The following company details are given for
analysis: customer acc no, customer name, purchased product no,
product category, unit price. Marketing is interested in
understanding customer purchase
# patterns. Find the answers of following questions:
# • How many customers have purchased bread?
# • How many customers have purchased butter?
# • How many customers have purchased bread and butter?
# • Who has purchased bread but not butter?
# • Which customers have purchased bread, butter and milk?
# • Print the name of the most valuable customers who have purchased
all three items.

bread_buyer = {'John', 'Alice', 'Dan', 'Sue'}
butter_buyer = {'Alice', 'Margaret', 'Mary'}
milk_buyer = {'Mary', 'Margaret', 'Dan', 'Alice'}

A = bread_buyer & butter_buyer
B = bread_buyer - butter_buyer
C = bread_buyer & butter_buyer & milk_buyer

print("Bread Buyer: ", bread_buyer)
print("Butter Buyer: ", butter_buyer)
print("Bread & Butter buyer: ", A)
print("Bread but not Butter: ", B)
print("Bread, Butter & Milk: ", C)
print("Most valuable customers: ", C)
```

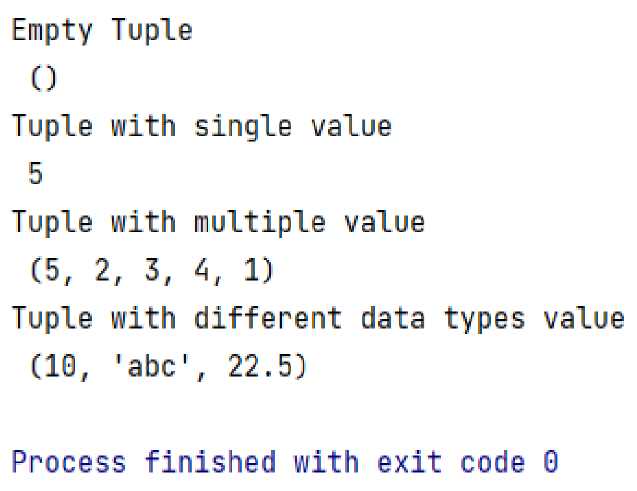
OUTPUT:



```
Bread Buyer:  {'Dan', 'Sue', 'Alice', 'John'}
Butter Buyer:  {'Margaret', 'Mary', 'Alice'}
Bread & Butter buyer:  {'Alice'}
Bread but not Butter:  {'John', 'Dan', 'Sue'}
Bread, Butter & Milk:  {'Alice'}
Most valuable customers:  {'Alice'}

Process finished with exit code 0
```

```
# Set-5 Practical-5 : Write a Python program to create an empty
tuple, tuple with single value, tuple with multiple
values/collections and a tuple with different data types.

tuple1 = ()
tuple2 = (5)
tuple3 = (5, 2, 3, 4, 1)
tuple4 = (10, 'abc', 22.5)
print("Empty Tuple\n", tuple1, "\nTuple with single value\n", tuple2,
"\nTuple with multiple value\n", tuple3,
      "\nTuple with different data types value\n", tuple4)
```

OUTPUT:

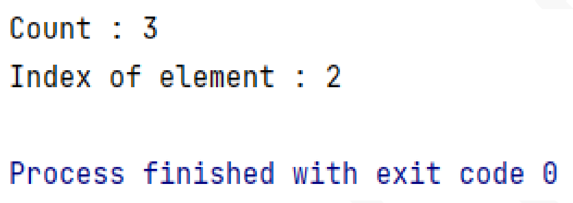


```
Empty Tuple
 ()
Tuple with single value
 5
Tuple with multiple value
 (5, 2, 3, 4, 1)
Tuple with different data types value
 (10, 'abc', 22.5)

Process finished with exit code 0
```

# Set-5 Practical-6 : Check all the methods of tuple.

```
tuple1 = (1, 2, 5, 3, 4, 5, 7, 5)
print("Count :", tuple1.count(5))
print("Index of element :", tuple1.index(5))
```

OUTPUT:

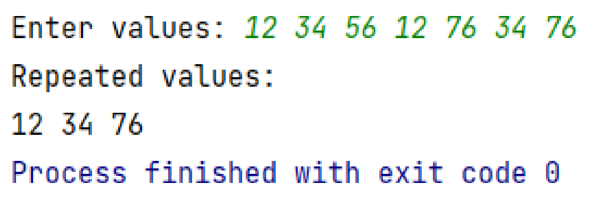


```
Count : 3
Index of element : 2

Process finished with exit code 0
```

# Set-5 Practical-7 : Write a Python program to find multiple items of a tuple.

```
tuple1 = [int(x) for x in input("Enter values: ").split()]
tuple1 = tuple(tuple1)
t = tuple1
print("Repeated values: ")
for i in range(0, len(t)):
    for j in range(i+1, len(t)):
        if t[i] == t[j]:
            print(t[j], end=" ")
```

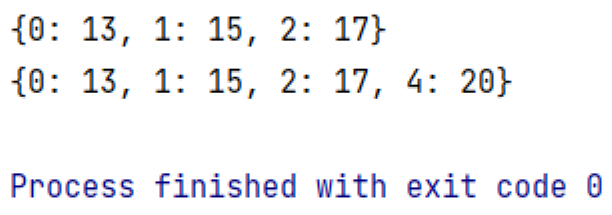
OUTPUT:



```
Enter values: 12 34 56 12 76 34 76
Repeated values:
12 34 76
Process finished with exit code 0
```

```python
# Set-5 Practical-8 : Write a Python program to add a key to a
dictionary.

dic = {0: 13, 1: 15, 2: 17}
print(dic)
dic.update({4: 20})
print(dic)
```

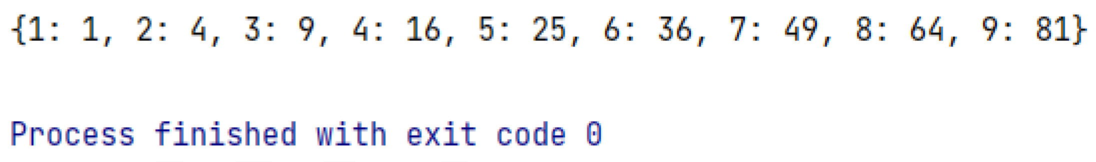
OUTPUT:



```
{0: 13, 1: 15, 2: 17}
{0: 13, 1: 15, 2: 17, 4: 20}

Process finished with exit code 0
```

```python
# Set-5 Practical-9 : Write a Python program to print a dictionary
where the keys are numbers between 1 and 15 (both included) and the
values are square of keys.

dic = dict()
for x in range(1, 10):
    dic[x] = x**2
print(dic)
```

OUTPUT:



```
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64, 9: 81}

Process finished with exit code 0
```

```python
# Set-5 Practical-10 : Write a Python program to check if a given key
already exists in a dictionary.

dic = {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}


def key_present(x):
    if x in dic:
        print("key is present")
    else:
        print("key is not present")
key_present(5)
key_present(9)
```

OUTPUT:

```
key is present
key is not present

Process finished with exit code 0
```

# Set-5 Practical-11 : Write a Python program to merge two Python dictionaries.

```
dic1 = {'a': 100, 'b': 200}
dic2 = {'x': 300, 'y': 200}
d = dic1.copy()
d.update(dic2)
print(d)
```

OUTPUT:

```
{'a': 100, 'b': 200, 'x': 300, 'y': 200}

Process finished with exit code 0
```

# Set-5 Practical-12 : Write a Python program to remove a key from a dictionary.

```
dic = {'a': 100, 'b': 200, 'c': 300, 'd': 400}
print(dic)
if 'a' in dic:
    del dic['a']
print(dic)
```

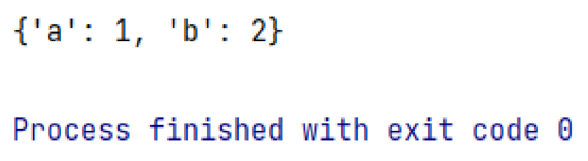
OUTPUT:

```
{'a': 100, 'b': 200, 'c': 300, 'd': 400}
{'b': 200, 'c': 300, 'd': 400}

Process finished with exit code 0
```

# Set-5 Practical-13 : Write a Python program to create a dictionary from two lists.

```
key_val = ['a', 'b']
val_list = [1, 2]
zip_list = zip(key_val, val_list)
dic = dict(zip_list)
print(dic)
```

OUTPUT:

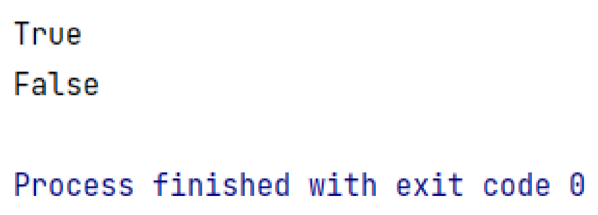


```
{'a': 1, 'b': 2}

Process finished with exit code 0
```

# Set-5 Practical-14 : Write a Python program to check if all dictionaries in a list are empty or not.

```
my_list = [{}, {}, {}]
my_list1 = [{1, 2}, {}, {}]

print(all(not d for d in my_list))
print(all(not d for d in my_list1))
```

OUTPUT:



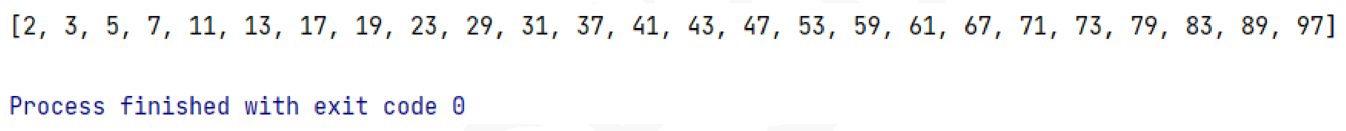
```
True
False

Process finished with exit code 0
```

PRACTICAL SET – 06

# Set-6 Practical-1 : Write a Python program to find the prime numbers in a specific range using filter.

```python
def is_prime(t):
    if t <= 1:
        return False
    for i in range(2, t):
        if t % i == 0:
            return False
    return True


lst = [i for i in range(100)]
lst = list(filter(is_prime, lst))
print(lst)
```

OUTPUT:

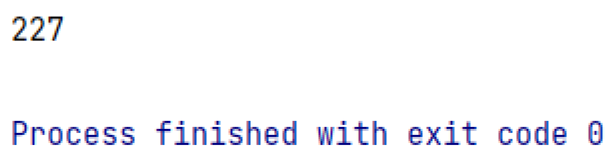


```
[2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97]

Process finished with exit code 0
```

# Set-6 Practical-2 : Write a Python program to make sum of particular range using reduce.

```python
from functools import reduce

list1 = [2, 3, 5, 6, 7, 9, 11, 12, 15, 17, 19, 23, 55, 43]
sum = reduce(lambda x, y: x + y, list1)
print(sum)
```

OUTPUT:

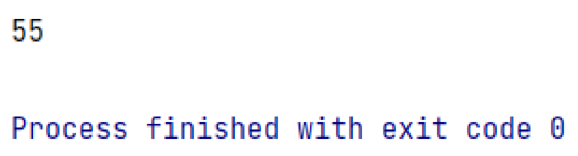


```
227

Process finished with exit code 0
```

# Set-6 Practical-3 : Write a Python program to find maximum from a list using reduce.

```python
from functools import reduce

list1 = [2, 3, 5, 6, 7, 9, 11, 12, 15, 17, 19, 23, 55, 43]
print(reduce(max, list1))
```

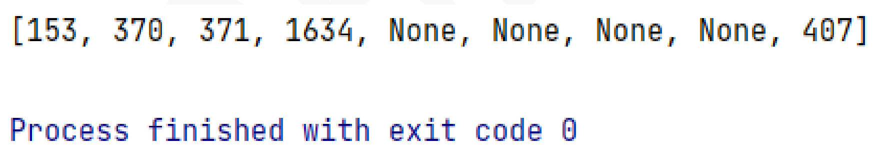
OUTPUT:



```
55

Process finished with exit code 0
```

```
# Set-6 Practical-4 : Write a Python program to find Armstrong number
in a specific range using map.

list1 = [153, 370, 371, 1634, 125, 207, 100, 310, 407]

def armstrong(a):
    temp = a
    count = 0
    sum = 0
    while a != 0:
        count += 1
        a = a // 10
    a = temp
    while a != 0:
        rev = a % 10
        sum = rev ** count + sum
        a = a // 10
    if sum == temp:
        return temp

list2 = list(map(armstrong, list1))
print(list2)
```

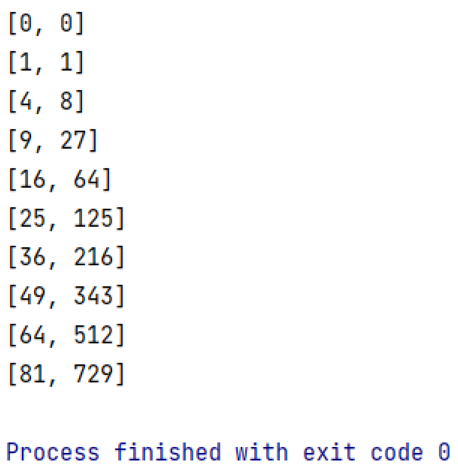
OUTPUT:



```
[153, 370, 371, 1634, None, None, None, None, 407]

Process finished with exit code 0
```

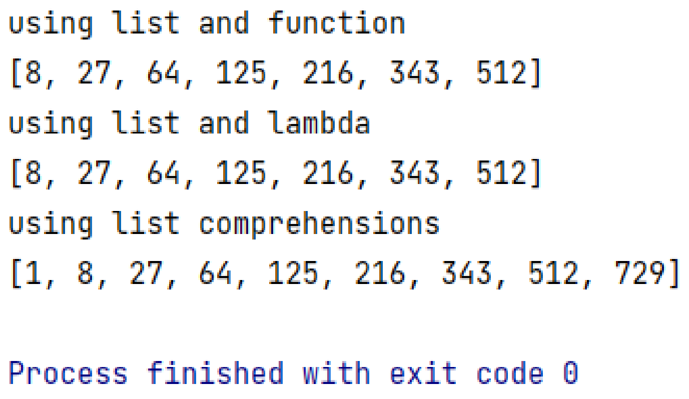
```
# Set-6 Practical-5 : Write a Python program to apply two functions
(square and cube) simultaneously on a specific range using map.

def square(num):
    return num * num
def cube(num):
    return num * num * num
func = [square, cube]
for i in range(10):
    ans = list(map(lambda x: x(i), func))
    print(ans)
```

OUTPUT:


```
[0, 0]
[1, 1]
[4, 8]
[9, 27]
[16, 64]
[25, 125]
[36, 216]
[49, 343]
[64, 512]
[81, 729]

Process finished with exit code 0
```

```
# Set-6 Practical-6 : Write python programs using (i) map/filter and
function (ii) map/filter and lambda
# (iii) list comprehension
# • Create a list to store the cube of all the elements in a given list.
# • Create a list of equivalent Celsius degree from Fahrenheit.
# • Create a list that stores only positive numbers from given list.
# • Create a list that stores only alphabets from given list.

print("using list and function")
def cu(a):
    return a * a * a
list1 = [2, 3, 4, 5, 6, 7, 8]
cube = list(map(cu, list1))
print(cube)
print("using list and lambda")
list1 = [2, 3, 4, 5, 6, 7, 8]
cube = list(map(lambda x: x * x * x, list1))
print(cube)
print("using list comprehensions")
list2 = [i ** 3 for i in range(1, 10)]
print(list2)
```

OUTPUT:

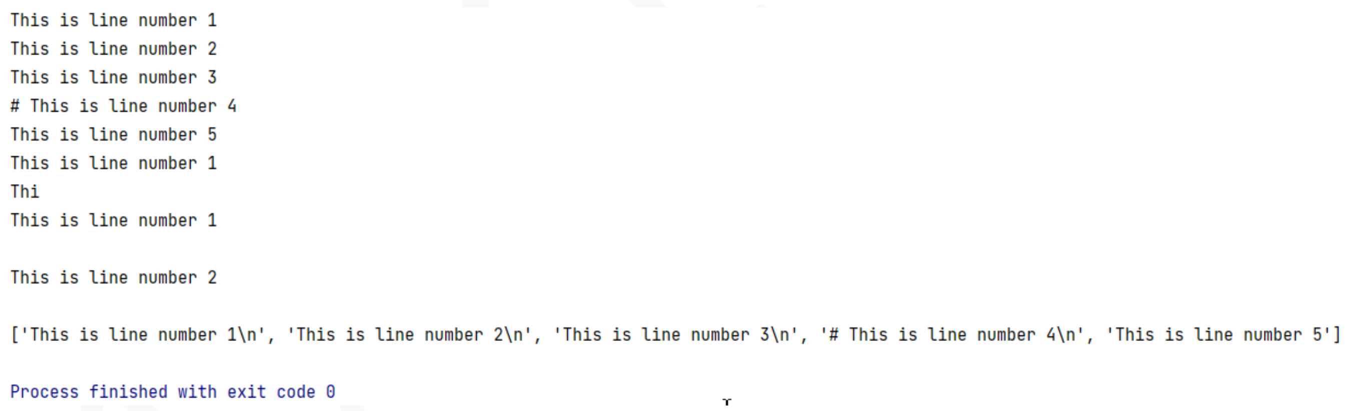

```
using list and function
[8, 27, 64, 125, 216, 343, 512]
using list and lambda
[8, 27, 64, 125, 216, 343, 512]
using list comprehensions
[1, 8, 27, 64, 125, 216, 343, 512, 729]

Process finished with exit code 0
```

PRACTICAL SET - 07

# Set-7 Practical-1 : Write a Python program to read the text file using read (), readlines() and readline() methods.

```
f = open('try.txt', 'r')
print(f.read())
f.close()

f = open('try.txt', 'r')
print(f.read(25))
f.close()

f = open('try.txt', 'r')
print(f.readline())
print(f.readline())
f.close()

f = open('try.txt', 'r')
print(f.readlines())
f.close()
```

OUTPUT:



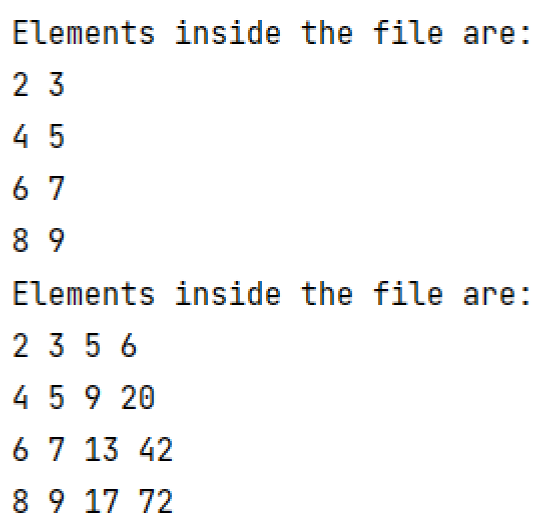
```
This is line number 1
This is line number 2
This is line number 3
# This is line number 4
This is line number 5
This is line number 1
Thi
This is line number 1

This is line number 2

['This is line number 1\n', 'This is line number 2\n', 'This is line number 3\n', '# This is line number 4\n', 'This is line number 5']

Process finished with exit code 0
```

# Set-7 Practical-2 : Write a Python program to read a file containing pairs of numbers in a file. Create a file that contains the pairs of numbers as well as addition and multiplication of the two numbers in the same line.

```
file1 = open('number.txt', 'r')
print("Elements inside the file are: ")
print(file1.read())
file1.close()

file1 = open('number.txt', 'r')
data_list = file1.readlines()
file1.close()
```

```
file1 = open('number.txt', 'w')
result_list = []
for data in data_list:
    data = data.replace('\n', '')
    num1, num2 = data.split(' ')
    result = '{} {} {} {} \n'.format(num1, num2, int(num1)+int(num2),
int(num1)*int(num2))
    result_list.append(result)
file1.writelines(result_list)
file1.close()

file1 = open('number.txt', 'r')
print("Elements inside the file are: ")
print(file1.read())
file1.close()
```

OUTPUT:



```
Elements inside the file are:
2 3
4 5
6 7
8 9
Elements inside the file are:
2 3 5 6
4 5 9 20
6 7 13 42
8 9 17 72
```

# Set-7 Practical-3 : A text file contains a header line, few comments lines followed by actual lines of data. Write a python program to create a function skip_header() that skips the header and all the comment lines and prints only actual lines of data.

```
def skip_header():
    if line.startswith('#'):
        pass
    else:
        print(line)
with open('try.txt') as f:
    while line := f.readline():
        skip_header()
```

OUTPUT:

```
This is line number 1

This is line number 2

This is line number 3

This is line number 5

Process finished with exit code 0
```

# Set-7 Practical-4 : Write a Python program to create a function that returns smallest value from the given text file.

```python
f = open('number1.txt', 'r')
data_list = f.readlines()
f.close()
result_list = []

for data in data_list:
    data = data.replace('\n', '')
    result_list.append(int(data))
print(min(result_list))
```

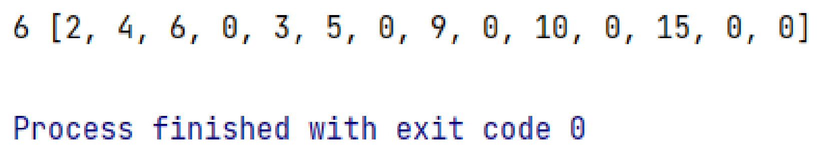
OUTPUT:

```
2

Process finished with exit code 0
```

# Set-7 Practical-5 : Write the program-4 for a text file with missing values (missing values are represented as hyphen (-)).

```python
f = open('number2.txt', 'r')
data_list = f.readlines()
f.close()
result_list = []
count = 0

for data in data_list:
    data = data.replace('\n', '')
    if data == '-':
        count = count + 1
        data = data.replace('-', '0')
    result_list.append(int(data))
print(count, result_list)
```

OUTPUT:

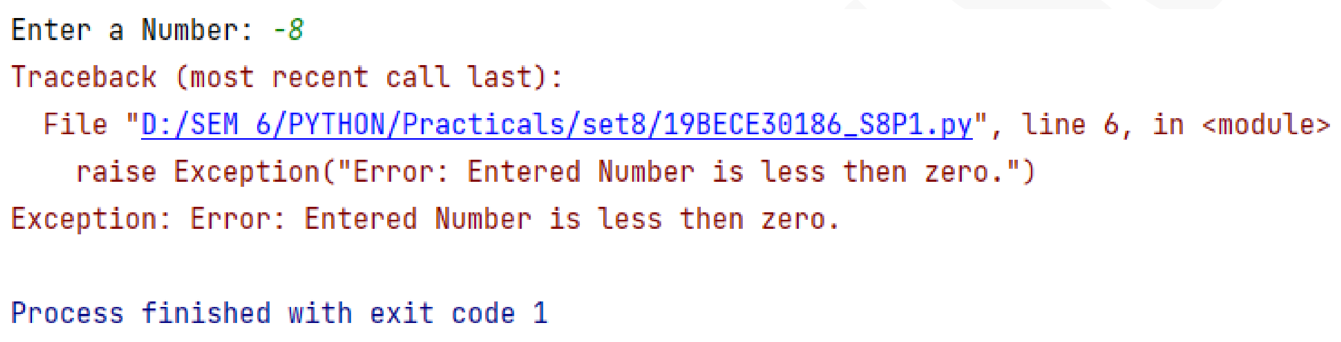


```
6 [2, 4, 6, 0, 3, 5, 0, 9, 0, 10, 0, 15, 0, 0]

Process finished with exit code 0
```

PRACTICAL SET - 08

```
# Set-8 Practical-1 : Write a Python program which will throw
exception if the value entered by user is less than zero.

n = int(input("Enter a Number: "))

if n < 0:
    raise Exception("Error: Entered Number is less then zero.")
```

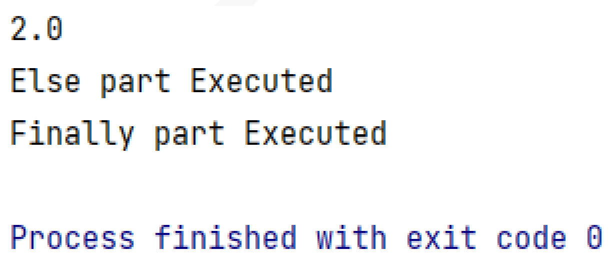
OUTPUT:



```
Enter a Number: -8
Traceback (most recent call last):
  File "D:/SEM 6/PYTHON/Practicals/set8/19BECE30186_S8P1.py", line 6, in <module>
    raise Exception("Error: Entered Number is less then zero.")
Exception: Error: Entered Number is less then zero.

Process finished with exit code 1
```

```
# Set-8 Practical-2 : Write a Python program to demonstrate use of
finally and else keywords.

try:
    print(10 / 5)
except:
    print("ERROR")
else:
    print("Else part Executed")
finally:
    print("Finally part Executed")
```

OUTPUT:

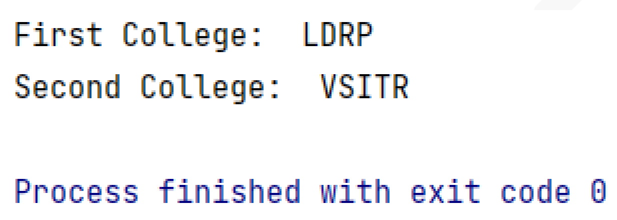


```
2.0
Else part Executed
Finally part Executed

Process finished with exit code 0
```

PRACTICAL SET - 09

```
# Set-9 Practical-1 : Write a Python program to create class KSV with
attributes like class variable cnt, instance variables x and y,
instance methods get_value and print_value.

class KSV:
    def __init__(self, clg1, clg2):
        self.clg1 = clg1
        self.clg2 = clg2

    def get_value(self):
        print("First College: ", self.clg1, "\nSecond College: ",
self.clg2)


x = KSV("LDRP", "VSITR")
x.get_value()
```

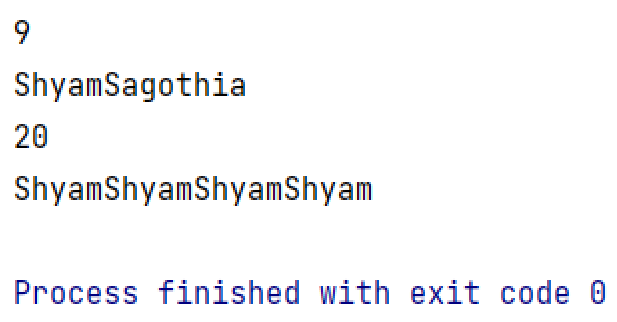
OUTPUT:



```
First College:  LDRP
Second College:  VSITR

Process finished with exit code 0
```

```
# Set-9 Practical-2 : Write a Python program to demonstrate
overloading of add (+) operator.

print(4 + 5)
print("Shyam" + "Sagothia")
print(4 * 5)
print("Shyam" * 4)
```

OUTPUT:



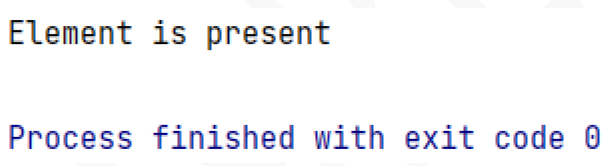
```
9
ShyamSagothia
20
ShyamShyamShyamShyam

Process finished with exit code 0
```

PRACTICAL SET - 10

# Set-10 Practical-1 : Write a Python program to search a specific value from a given list of values using binary search method.

```
def binary_search(arr, low, high, x):
    if high >= low:
        mid = (high + low) // 2
        if arr[mid] == x:
            return mid
        elif arr[mid] > x:
            return binary_search(arr, low, mid - 1, x)
        else:
            return binary_search(arr, mid + 1, high, x)
    else:
        return -1


arr = [2, 3, 4, 10, 60, 89]
x = 60

result = binary_search(arr, 0, len(arr)-1, x)

if result != -1:
    print("Element is present")
else:
    print("Element is not present")
```

OUTPUT:

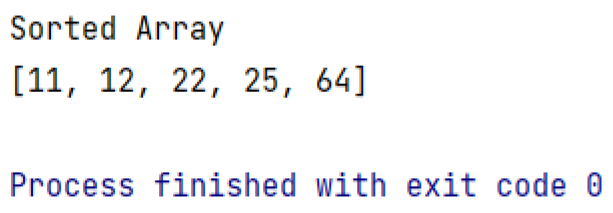


```
Element is present


Process finished with exit code 0
```

# Set-10 Practical-2 : Write a Python program to sort the elements of list values using selection sort.

```
A = [64, 25, 12, 22, 11]

for i in range(len(A)):
    min_idx = i
    for j in range(i+1, len(A)):
        if A[min_idx] > A[j]:
            min_idx = j
    A[i], A[min_idx] = A[min_idx], A[i]

print("Sorted Array")
print(A)
```

OUTPUT:



```
Sorted Array
[11, 12, 22, 25, 64]

Process finished with exit code 0
```