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Ques. Print Hello World?

```
print('Hello World!!!')
```

Output:- Hello World!!!

Ques. swap two variables?

```
a = 11
b = 7

# -- Using a Temporary variable
temp = a
a = b
b = temp

print(a) # 7
print(b) # 11

# -- Without a temporary variable
a, b = b, a

print(a) # 7
print(b) # 11

# -- Using arithmetic operators
a = a + b # a = 18, b = 7
b = a - b # a = 18, b = 11
a = a - b # a = 7, b = 11

print(a) # 7
print(b) # 11

# -- Using multiplication and division operator
# To Swap the values of two variables using Addition and subtraction operator
P = P * Q
Q = P / Q
P = P / Q

print ("The Value of P after swapping: ", P)
print ("The Value of Q after swapping: ", Q)

# -- XOR swap
P = P ^ Q
Q = P ^ Q
P = P ^ Q

print ("The Value of P after swapping: ", P)
print ("The Value of Q after swapping: ", Q)
```

Ques. Program to check if a number is Even or odd?

```
# 1 Option
num = int(input("Enter a number: "))
if (num % 2) == 0:
    print("{0} is Even".format(num))
else:
    print("{0} is Odd".format(num))

# 2 option
def evenOrOdd(n):
    if n%2 == 0:
        print('even Number hai')
    else:
        print('Odd Number hai')
evenOrOdd(6)
```

Print the even number and odd number

```
num = int(input("Enter a number: "))
even = []
odd = []
for i in range(2,num+1):
    if(i%2==0):
        even.append(i)
    else:
        odd.append(i)

print(even) # Output:- [2, 4, 6, 8, 10, 12, 14]
print(odd)  # Output:- [3, 5, 7, 9, 11, 13, 15]
```

Ques. Check Prime Number Or Not?

```
num = int(input("Enter a number: "))
if num > 1:
    for i in range(2,num):
        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:- 3

3 is a prime number

Ques. Prime Number Print between lower to upper

```
lower = int(input(" Please Enter the Minimum Value: "))
upper = int(input(" Please Enter the Maximum Value: "))

print("Prime numbers between", lower, "and", upper, "are:")

for num in range(lower, upper + 1):
    # all prime numbers are greater than 1
    if num > 1:
        for i in range(2, num):
            if (num % i) == 0:
                break
        else:
            print(num)
```

Output:-

11
13
17
19

Ques. Reverse string?

```
# -- Using for loop
string = 'mohit'
blank = ''
for i in string:
    blank = i + blank
print(blank)    # Output:- tihom
```

```
# -- Using while loop
str = "mohit"
reverse_String = ""
count = len(str)
while count > 0:
    reverse_String += str[ count - 1 ]
    count = count - 1
print (reverse_String)
```

Output:- tihom

```
# -- Using the slice ([]) operator
def reverse(str):
    str = str[::-1]
    return str
```

```
s = "mohit"
print ("The original string is : ",s)
print (reverse(s))
```

Output:- tihom

```
# -- Using reversed function with join
def reverse(str):
    string = "".join(reversed(str)) # reversed() function inside the join()
    function
    return string
```

```
s = "mohit"

print ("The original string is : ",s)
print (reverse(s) )
```

Output:- tihom

Ques. How to reverse a word sentence?

```
inputsentence = input("Please input a sentence : ")
splitString = inputsentence.split()      # ['i', 'love', 'Mohit', 'Saxena']
reversedString = reversed(splitString)
print(" ".join(reversedString))
```

Output:- i love Mohit Saxena
Saxena Mohit love i

- 2 option

```
str = "sky is blue"
str_split = str.split()
new_str = str_split[::-1]
str = " ".join(new_str)
print(str)
```

Output:- blue is sky

- 3 option using for loop

```
my_str = input("Please enter your own String : ")
str = ''
for i in my_str:
    str = i + str
print("\nThe Original String is: ", my_str)
print("The Reversed String is: ", str)
```

Output:-
The Original String is: i love Mohit Saxena
The Reversed String is: anexaS tihoM evol i

Ques. Reverse a Number

```
# using a while loop
Number = int(input("Please Enter any Number: "))
Reverse = 0
while(Number > 0):
    Reminder = Number %10
    Reverse = (Reverse *10) + Reminder
    Number = Number //10

print("Reverse of entered number is = %d" %Reverse)
```

Output:-

```
Please Enter any Number: 68765
Reverse of entered number is = 56786
```

```
# Using String slicing
num = 9412
print(str(num)[::-1])
```

Output:-

```
num = 2149
```

```
# Using Recursion
num = int(input("Enter the number: "))
revr_num = 0    # initial value is 0. It will hold the reversed number
def recur_reverse(num):
    global revr_num    # We can use it out of the function
    if (num > 0):
        Reminder = num % 10
        revr_num = (revr_num * 10) + Reminder
        recur_reverse(num // 10)
    return revr_num
```

```
revr_num = recur_reverse(num)
print("Reverse of entered number is = %d" % revr_num)
```

Output:-

```
Enter the number: 1284
Reverse of entered number is = 4821
```

Ques. To Check if a String is a Palindrome

```
def isPalindrome(string):  
    rev = string[::-1]  
    # rev = ''.join(reversed(string))    # 2nd Option to reversed string  
    # print(rev)  
    if(rev == string):  
        print("The string is a palindrome!");  
    else:  
        print("The string isn't a palindrome!");  
  
s = "malayalam"  
# s = "Mohit saxena"  
isPalindrome(s)
```

Output:- The string **is** a palindrome!

```
x = "malayalam"  
  
w = ""  
for i in x:  
    w = i + w  
if (x == w):  
    print("Yes")  
else:  
    print("No")
```

Output:- Yes

Ques. To Check if a Number is a Palindrome

```
num = int(input("Enter a number:"))  
temp = num  
reverse = 0  
while temp > 0:  
    remainder = temp%10  
    reverse = (reverse*10)+remainder  
    temp = temp//10  
if num == reverse:  
    print('Palindrome')  
else:  
    print("Not Palindrome")
```


Ques. Find the Factorial of a Number?

- factorial of 6 is $6 \times 5 \times 4 \times 3 \times 2 \times 1$ which is 720.

```
num = int(input("Enter a number: "))
factorial = 1
if num < 0:
    print(" Factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1,num + 1):
        factorial = factorial*i
    print("The factorial of",num,"is",factorial)
```

Output:-

Enter a number: 6

The factorial of 6 is 720

Ques. Find Fibonacci series up to n

```
def fibonacci(n):
    first = 0
    second = 1
    if n < 0:
        print("Incorrect input")
    elif n == 0:
        return 0
    elif n == 1:
        return second
    else:
        print(first)
        print(second)
        for i in range(2, n):
            third = first + second
            first = second
            second = third
            print(third)
```

fibonacci(9)

Output:- 0 1 1 2 3 5 8 13 21

- Using While Loop

```
def fibonacci(n):
    first = 0
    second = 1
    count = 0
    if n < 0:
        print("Incorrect input")
    elif n == 0:
        return 0
    elif n == 1:
        return second
    else:
        while count < n:
            print(first)
            third = first + second
            # At last, we will update values
            first = second
            second = third
            count += 1
fibonacci(9)
```

Ques. Check number is an Armstrong number or not?

- $153 = (1 * 1 * 1) + (5 * 5 * 5) + (3 * 3 * 3) = 153$
- $1634 = (1 * 1 * 1 * 1) + (6 * 6 * 6 * 6) + (3 * 3 * 3 * 3) + (4 * 4 * 4 * 4) = 1634$

```
num = int(input("Enter a number: "))
len = len(str(num))
sum = 0
temp = num

while temp > 0:
    digit = temp % 10
    sum = sum + digit ** len
    temp = temp//10

if num == sum:
    print(num,"is an Armstrong number")
else:
    print(num,"is not an Armstrong number")
```

Output:-

Enter a number: 1634

1634 is an Armstrong number

list Sorting using bubble sort

```
list = [3,-6,2,4,6,-2,-7]

def sortUsingBubbleSort(list):
    length = len(list)
    for i in range(length):
        for j in range(0, length-i-1):
            if list[j] > list[j+1]:
                temp = list[j]
                list[j] = list[j+1]
                list[j+1] = temp
            # list[j], list[j+1] = list[j+1], list[j]

sortUsingBubbleSort(list)
print(list)
```

Output:- [-7, -6, -2, 2, 3, 4, 6]

Star Printing

Star Printing Programs

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

Output:-

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

```
str1 = input("enter the string: ")
len = len(str1)
for i in range(len):
    for j in range(i+1):
        print(str1[i], end="")
    print()
```

Output:-

```
enter the string: Mohit
M
oo
hhh
iiii
ttttt
```

```
str1 = input("enter the string: ")
len = len(str1)
for i in range(len):
    for j in range(i+1):
        print(str1[j], end="")
    print()
```

Output:-

```
enter the string: mohit
m
mo
moh
```

```
mohi
mohit
```

```
rows = 6
for i in range(rows):
    for j in range(i):
        print(i, end=' ')
    print('')
```

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

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

Output:-

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

Sorting multidimensional array by name

```
abc = [
    {"name": "mohit", "age": 30},
    {"name": "abhinav", "age": 36},
    {"name": "rohit", "age": 25}
]

# Bubble sort by "name" key
n = len(abc)
for i in range(n - 1):
    for j in range(0, n - i - 1):
        if abc[j]["name"] > abc[j + 1]["name"]:
            # Swap elements
            abc[j], abc[j + 1] = abc[j + 1], abc[j]
print(abc)
# Print the sorted array
for person in abc:
    print("Name: {}, Age: {}".format(person["name"], person["age"]))
```

Ques. program to convert a list to string

```
def listToString(s):
    blank = ""
    for element in s:
        blank = blank + ' ' + element
    print(blank)

s = ['Hello', 'mohit', 'saxena']
listToString(s)
```

Output:- Hellomohitsaxena

- Using list comprehension

```
s = ['I', 'want', 4, 'apples', 'and', 18, 'bananas']
listToStr = ' '.join([str(elem) for elem in s])
print(listToStr)
```

Output:- I want 4 apples and 18 bananas

- Using .join() method

```
def listToString(s):
    str1 = " "
    return (str1.join(s))
```

```
s = ['Hello', 'Mohit', 'Saxena']
print(listToString(s))
```

Output:- Hello Mohit Saxena

- Using map()

```
s = ['I', 'want', 4, 'apples', 'and', 18, 'bananas']
listToStr = ' '.join(map(str, s))
print(listToStr)
```

Program to generate a random number between 0 and 9?

```
import random
print(random.randint(0,9))
```

Output:- 0 se 9 tak ka koi bhi number aa sakta hai.

Calculate the number of words

- Using split method

```
test_string = "Mohit saxena"
res = len(test_string.split())
print ("The number of words in string are : " + str(res))
```

Output:- 2

-

```
na = input("Enter a string: ")
space = 0
for i in na:
    if i==" ":
        space = space+1
print(space)
print(space+1)
```

Output:-

Enter a string: mohit saxena

1

2

Print A to Z ?

- Using String module

```
import string

for i in string.ascii_lowercase:
    print(i, end=" ")

Output:- a b c d e f g h i j k l m n o p q r s t u v w x y z
-----
import string

for i in string.ascii_uppercase:
    print(i, end=" ")

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
```

- Using chr() Function

```
for i in range(97,123):
    print(chr(i), end=" ")

a b c d e f g h i j k l m n o p q r s t u v w x y z
-----
for i in range(65,91):
    print(chr(i), end=" ")

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
```

Ques. Count the number of vowels in a string?

```
na = input("Enter a string: ")
count = 0
for i in na:
    if(i=='A' or i=='a' or i=='E' or i=='e' or i=='I' or i=='i' or i=='O' or
i=='O' or i=='U' or i=='u'):
        count = count+1
print("Number of vowels ", count)

Output:-
Enter a string: Mohit saxena
Number of vowels  4
```

Ques. To identify if the Character is vowel or consonant?

```
def vowel_or_consonant(string):  
    vowel = 'aeiouAEIOU'  
    for i in string:  
        if i in vowel:  
            print('Vowel')  
        else:  
            print('consonant')  
vowel_or_consonant('a')
```

Output:- Vowel

```
# Method 2  
l = input("Enter the character: ")  
if l.lower() in ('a', 'e', 'i', 'o', 'u'):  
    print("Vowel")  
else:  
    print("Consonant")
```

```
latter = input("Enter any latter:- ").lower()  
vowels = ['a','e','i','o','u']  
if latter in vowels:  
    print(f"{latter} is a vowel")  
else:  
    print(latter,"latter is not vowel")
```

Ques. To check number is digit or not?

```
number = input("Enter any number:- ")  
if number.isdigit():  
    print(f'{number} is digit')  
else:  
    print(f'{number} is not digit')
```

Ques. Check leap year or not

```
year = int(input("Enter any year:- "))  
if (year%4 == 0):  
    print(f'{year} is a leap year')  
else:  
    print(f'{year} is not a leap year')
```

Ques. Multiply two numbers without using arithmetic operator?

```

num1=int(input("Enter a number for num1: "))
num2=int(input("Enter a number for num2: "))
product=0
for i in range (1,num2+1): #Python for loop
    product=product+num1      #product+=num1
print("Multiplication of numbers: ",product)

```

Output:-

```

Enter a number for num1: 4
Enter a number for num2: 4
Multiplication of numbers: 16

```

Python program to convert a list to string

```

def listToString(s):
    blank = ""
    for element in s:
        blank = blank + ' ' + element
    print(blank)

```

```

s = ['Hello', 'mohit', 'saxena']
listToString(s)

```

Output:- Hellomohitsaxena

```

# Using list comprehension
s = ['I', 'want', 4, 'apples', 'and', 18, 'bananas']
listToStr = ' '.join([str(elem) for elem in s])
print(listToStr)

```

Output:- I want 4 apples and 18 bananas

```

# Using .join() method
def listToString(s):
    str1 = " "
    return (str1.join(s))

```

```

s = ['Hello', 'Mohit', 'Saxena']
print(listToString(s))

```

Output:- Hello Mohit Saxena

```

# Using map()
s = ['I', 'want', 4, 'apples', 'and', 18, 'bananas']
listToStr = ' '.join(map(str, s))
print(listToStr)

```

Ques. Solve the classic FizzBuzz problem: Print numbers from 1 to 100, but for multiples of 3 print "Fizz," for multiples of 5 print "Buzz," and for multiples of both 3 and 5, print "FizzBuzz."

```
for i in range(1, 101):  
    if i % 3 == 0 and i % 5 == 0:  
        print("FizzBuzz")  
    elif i % 3 == 0:  
        print("Fizz")  
    elif i % 5 == 0:  
        print("Buzz")  
    else:  
        print(i)
```

<https://prepinsta.com/python-program/find-a-number-is-palindrome-or-not/>

Array/List Programs:

Find sum of array/list?

```
arr = [3,2,4]

# -- using for loop
sum = 0
for i in arr:
    sum = i + sum
print(sum) # Output:- 9

# -- using sum function
print(sum(arr)) # Output:- 9
```

Find Largest Element in an Array/list?

```
arra = [10, 324, 45, 90, 9808]

# -- using for loop
n = len(arr)
max = arra[0]
for i in range(1, n):
    if arra[i] > max:
        max = arra[i]
print(max) # output:- 9808

# -- Using inbuild function
print(max(arr)) # Output:- 9808

# -- Using sort function
arra.sort()
print(arr[-1]) # Output:- 9808
```

Find the missing number in the array/list?

```
def findMissingNumbers(n):  
    maxnumber = max(n)  
    output = []  
    for i in range(1, maxnumber):  
        if i not in n:  
            output.append(i)  
    return output  
  
listOfNumbers = [5, 6, 7, 8, 9, 10, 16, 11, 13, 14]  
print(findMissingNumbers(listOfNumbers))    # Output:- [1, 2, 3, 4, 12, 15]
```