

1. Write a Python function to check whether a number is even or odd.

**Program**

```
#Function to Check whether a number is even or odd.
def oddeven(x):
    if x%2==0: print("The Number", x, "is even")
    else: print("The Number", x, "is odd")
num = int(input("Enter a number: "))
oddeven(num) #Function calling
```

**Output**

```
Enter a number: 4
The Number 4 is even
```

2. Write a Python program to calculate the sum of three given numbers, if the values are equal then return thrice of their sum.

**Program**

```
def sum_thrice(x, y, z):
    sum = x + y + z
    if x == y == z:
        sum = sum * 3
    return sum

#Main Program
a=int(input("Enter First Number:"))
b=int(input("Enter Second Number:"))
c=int(input("Enter Third Number:"))
print("Sum_Thrince:",sum_thrice(a,b,c))
```

**Output**

```
Enter First Number:3
Enter Second Number:3
Enter Third Number:3
Sum_Thrince: 27
```

3. Write a Python function to get a new string from a given string where "Is" has been added to the front. If the given string already begins with "Is" then return the string unchanged.

**Program**

```
def new_string(str):
    if str[:2] == "Is":
        return str
    return "Is " + str

#Main Program
str1=input("Enter a String:")
```

```
print("New String:",new_string(str1))
```

**Output**

```
Enter a String:Good Morning
New String: Is Good Morning
```

4. Write a Python program to get a string which is n (non-negative integer) copies of a given string.

**Program**

```
def larger_string(str, n):
    result = " "
    for i in range(n):
        result = result + " " + str
    return result
#Main Program
str1=input("Enter a String:")
n=int(input("Number of Copies:"))
print("Final String:",larger_string(str1,n))
```

**Output**

```
Enter a String:Python Program
Number of Copies:3
Final String: Python Program Python Program Python Program
```

5. Write a Python function that will return true if the two given integer values are equal or their sum or difference is 5.

**Program**

```
def test_number5(x, y):
    eq,differ5,sum5,no=False,False,False,False
    if x == 5 or y == 5:
        eq = True
    elif abs(x-y) == 5:
        differ5 = True
    elif (x+y) == 5:
        sum5 = True
    else:
        no = True
    return eq,differ5,sum5,no
a=int(input("Enter first integer:"))
b=int(input("Enter second integer:"))
e,d,s,n = test_number5(a,b)
if e:print(a,"and",b, "are equal:",e)
if d: print("Difference of", a, "and", b,"is",5, "is",d)
if s:print("Sum of ", a, "and", b, "is", 5, "is",s)
if n: print("Sum of numbers is not 5\n Difference of numbers is not 5\n")
```

Numbers are not equal")

**Output**

Enter first integer:6

Enter second integer:8

Sum of numbers is not 5

Difference of numbers is not 5

Numbers are not equal

6. Write a Python function that takes two lists and returns True if they have at least one common member.

**Program**

```
def common_data(list1, list2):
    result = False
    for x in list1:
        for y in list2:
            if x == y:
                result = True
    return result

#main program
list1=input("Enter first list(space separated):")
lis1=list(list1.split())
list2=input("Enter second list(space separated):")
lis2=list(list2.split())
r=common_data(lis1,lis2)
if r:
    print(lis1,"and", lis2,"has at least common member:",r)
else:
    print(lis1,"and", lis2,"has at least common member:",r)
```

**Output**

Enter first list(space separated):1 2 cat rat

Enter second list(space separated):2 3 tiger lion

[‘1’, ‘2’, ‘cat’, ‘rat’] and [‘2’, ‘3’, ‘tiger’, ‘lion’] has at least common member: True

7. Write a Python function to find the GCD of 2 numbers.

**Program**

```
#Function to find the GCD of two numbers
def gcd(a,b):
    for i in range (1, min(a,b)+1):
        if a%i==0 and b%i==0: gcd=i
    print(gcd)
```

```

a=int(input("Enter First Number:"))
b=int(input("Enter Second Number:"))
gcd(a,b)#Function calling

```

**Output**

```

Enter First Number:12
Enter Second Number:18

```

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8. Write a Python function to generate all the factors of a number.

**Program**

✓ #Function to find all the factors of a number

```

def factors(a):
    for i in range (1,(a+1)):
        if a%i==0 : print(i)
#Main Function
a=int(input("Enter a Number:"))
factors(a)#Function calling

```

**Output**

```

Enter a Number:12
1
2
3
4
6
12

```

9. Write a Python function to find the sum of digits of a number.

**Program**

✓ #Function to find sumofdigits of a number

```

def sumofdigits(n):
    sum=0
    while n>0:
        digit=n%10
        sum+=digit
        n=n//10
    print("Sum of digits is",sum)
#Main Function
a=int(input("Enter a Number:"))
sumofdigits(a)#Function calling

```

**Output**

```

Enter a Number:1234
Sum of digits is 10

```

~~Functions~~

10. Write a Python function to concatenate two strings.

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~~Program~~

```
#Function to concatenate two strings
def concatenate(s1,s2):
    print("First String:",s1)
    print("Second String:",s2)
    print("Concatenated String:",(s1+s2))
#Main Function
s1=input("Enter first string:")
s2=input("Enter second string:")
concatenate(s1,s2)#Function calling
```

**Output**

```
Enter first string:Hello
Enter second string: Python
First String: Hello
Second String: Python
Concatenated String: Hello Python
```

11. Write a Python function called compare which takes two strings s1 and s2 and an integer n as arguments. The function should return True if first n characters of both the strings are same else the function should return False.

**Program**

```
#Function to find similar substrings
def substring(s1,s2,n):
    for i in range(0,n):
        if s1[i]!=s2[i]:return False
    else : return True
#Main Function
s1=input("Enter first string:")
s2=input("Enter second string:")
n=int(input("Enter a number:"))
#substring(s1,s2,n)#Function calling
if substring(s1,s2,n):
    print("The substrings are equal:")
else:
    print("The substrings are not equal")
```

**Output**

```
Enter first string: Programming
Enter second string: Program
Enter a number: 4
```

12. Write a Python function to find whether a number is completely divisible by another number.

**Program**

```
#Function to find whether a number is completely divisible by another
def divisible(x,y):
    if(x%y==0):
        print(x, "is completely divisible by", y)
    else :
        print(x, "is not completely divisible by", y)
```

**#Main Function**

```
x=int(input("First Number:"))
y=int(input("Second Number:"))
divisible(x,y)
```

**Output**

```
First Number:12
Second Number:5
12 is not completely divisible by 5
```

13. Write a Python program to display Fibonacci series using recursion.

**Program**

```
"""Recursive function to
print Fibonacci sequence"""
def recursive_fibo(n):
    if n <= 1:
        return n
    else:
        return(recursive_fibo(n-1) + recursive_fibo(n-2))
# Main function
n = int(input("How many terms? "))
# check if the number of terms is valid
if n <= 0:
    print("Please enter a positive integer")
else:
    print("Fibonacci sequence:")
    for i in range(n):
        print(recursive_fibo(i))
```

**Output**

```
How many terms? 5
Fibonacci sequence:
0
1
1
```

- 2  
3  
4. Write a Python program to find the sum of n natural numbers using recursion.

**Program**

```
"""Function to return the sum
of natural numbers using recursion"""
def recursive_sum(n):
    if n <= 1:
        return n
    else:
        return n + recursive_sum(n-1)
#Main function
num = int(input("Enter a number: "))
if num < 0:
    print("Enter a positive number:")
else:
    print("The sum of first", num, "natural numbers is", recursive_sum(num))
```

**Output**

```
Enter a number: 5
The sum of first 5 natural numbers is 15
```

15. Write a Python program to convert decimal to binary using recursion.

**Program**

```
"""Function to print binary number
for the input decimal using recursion"""
def binary(n):
    if n >= 1:
        binary(n//2)
        print(n%2, end=' ')
```

```
#Main function
dec = int(input("Enter an integer: "))
binary(dec)
```

**Output**

```
Enter an integer: 5
```