Assignment - 22 More on Recursion

1. Write a recursive python function to calculate sum of first N natural numbers.

```python
def Nsum(n):
    if n==1:
        return 1
    return n+Nsum(n-1)
n=int(input("enter the number  "))
res=Nsum(n)
print(res)
```

2. Write a recursive python function to calculate sum of first N odd natural numbers.

```python
def sum_odd(n):
    if n==1:
        return 1
    return ((2*n)-1)+sum_odd(n-1)
n=int(input("enter the number  "))
res=sum_odd(n)
print(res)
```

3. Write a recursive python function to calculate sum of first N even natural numbers.

```python
def sum_even(n):
    if n==1:
        return 2
    return (2*n)+sum_even(n-1)
n=int(input("enter the number  "))
res=sum_even(n)
print(res)
```

4. Write a recursive python function to calculate sum of squares of first N natural numbers.

```python
def sum_square(n):
    if n==1:
        return 1
    return (n**2)+sum_square(n-1)
n=int(input("enter the number  "))
res=sum_square(n)
print(res)
```

5. Write a recursive python function to calculate sum of cubes of first N natural numbers.

```python
def sum_cube(n):
    if n==1:
        return 1
    return (n**3)+sum_cube(n-1)
```

```python
n=int(input("enter the number "))
res=sum_cube(n)
print(res)
```

6. Write a recursive python function to calculate the factorial of a number.

```python
def fact(n):
    if n==0:
        return 1
    return  n*fact(n-1)
n=int(input("enter the number "))
res=fact(n)
print(res)
```

7. Write a recursive python function to calculate sum of the digits of a given number.

```python
def digit_sum(n):
    if n!=0:
        return n%10 + digit_sum(n//10)
    else:
        return n

n=int(input("enter the number \n"))
result=digit_sum(n)
print(result)
```

8. Write a recursive python function to print binary of a given decimal number.

```python
def dec_bin(n):
    if n==0:
        return 0
    return ((n%2)+10*dec_bin(n//2))

n=int(input("enter the number \n"))
result=dec_bin(n)
print("decimal of {} is binary {}".format(n,result))
```

9. Write a recursive python function to print octal of a given decimal number.

```python
def dec_oct(n):
    if n==0:
        return 0
    return ((n%8)+10*dec_oct(n//8))

n=int(input("enter the number \n"))
result=dec_oct(n)
print("decimal of {} is octal {}".format(n,result))
```

10. Write a recursive python function to find the Nth term of the Fibonacci series.

```python
def nth_term(n):
    if n==1:
        return 0
    elif n==2:
        return 1
    else:
        while n>0:
            return nth_term(n-1)+nth_term(n-2)
n=int(input("enter the number\n "))
res=nth_term(n)
print("on {}th term  {} element in fib series ".format(n,res))
```