Assignment - 21 Recursion

1. Write a recursive python function to print first N natural numbers.

```
def printNumber(n):
  if n > 0:
    printNumber(n - 1)
    print(n, end = ' ')
n=int(input("Enter a number:"))
printNumber(n)
```

Output:-

```
Enter a number:10
1 2 3 4 5 6 7 8 9 10
```

2. Write a recursive python function to print first N natural numbers in reverse order.

```
def printNumber(n):
  if n > 0:
    print(n, end = ' ')
    printNumber(n - 1)
n=int(input("Enter a number:"))
printNumber(n)
```

Output:-

```
Enter a number:10
10 9 8 7 6 5 4 3 2 1
```

3. Write a recursive python function to print first N odd natural numbers.

```
def printNumber(n):
  if n > 0:
    printNumber(n - 1)
    print(2*n-1, end = ' ')
```

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

Output:-

```
Enter a number:10
1 3 5 7 9 11 13 15 17 19
```

4. Write a recursive python function to print first N odd natural numbers in reverse order.

```
def printNumber(n):
  if n > 0:
    print(2*n-1, end = ' ')
    printNumber(n - 1)
n=int(input("Enter a number:"))
printNumber(n)
```

Output:-

```
Enter a number:10
19 17 15 13 11 9 7 5 3 1
```

5. Write a recursive python function to print first N even natural numbers.

```
def printNumber(n):
  if n > 0:
    printNumber(n - 1)
    print(2*n, end = ' ')
n=int(input("Enter a number:"))
printNumber(n)
```

Output:-

```
Enter a number:10
2 4 6 8 10 12 14 16 18 20
```

6. Write a recursive python function to print first N even natural numbers in reverse order.

```
def printNumber(n):
  if n > 0:
    print(2*n,end=' ')
    printNumber(n - 1)
n=int(input("Enter a number:"))
printNumber(n)
```

Output:-

```
Enter a number:10
20 18 16 14 12 10 8 6 4 2
```

7. Write a recursive python function to print squares of first N natural numbers.

```
def printNumber(n):
  if n > 0:
    printNumber(n - 1)
    print(n*n,end=' ')
n=int(input("Enter a number:"))
printNumber(n)
```

Output:-

```
Enter a number:10
1 4 9 16 25 36 49 64 81 100
```

8. Write a recursive python function to print cubes of first N natural numbers.

```
def printNumber(n):
  if n > 0:
    printNumber(n - 1)
    print(n*n*n,end=' ')
```

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

Output:-

```
Enter a number:10
1 8 27 64 125 216 343 512 729 1000
```

9. Write a recursive python function to print first N multiples of a given number.

```
def printNumber(n,m):
  if n > 0:
    printNumber(n - 1,m)
    print(n*m,end=' ')
n=int(input("Enter a number:"))
multiple=int(input("Enter a number which represents to multiple:"))
printNumber(n,multiple)
```

Output:-

```
Enter a number:10
Enter a number which represents to multiple:4
4 8 12 16 20 24 28 32 36 40
```

10. Write a recursive python function to print a number in reverse order.

```
def reverse(n,r):
    if n==0:
        return r
    else:
        return reverse(n//10,r*10+n%10)
number=int(input("Enter a number:"))
reversed_number=reverse(number,0)
print("Reverse of %d is %d"%(number,reversed_number))
```

Output:-

Enter a number:456

Reverse of 456 is 654