# Chapter 3: Working With Functions

## Returning values from functions:

*Functions may or may not* return a value. There can be broadly *two types* of *functions* in Python.

- *Function returning some value (non-void functions)*
- *Function not returning any value (void functions)*

### 1. Function returning some value (non-void functions):

The *functions* that return some computed result in terms of a *value* fall in this category. The computed value is returned using return statement as per syntax:

*return <value>*

The value being returned can be one of the following:

i) A literal:
*e.g.*

```
return 180          # literal being returned
```

ii) A variable:
*e.g.*

```
return a            # Variable being returned
```

iii) An expression
*e.g.*

```
return (d+9**3)/b   # Expression involving variables and literals,
                    # being returned
```

### 2. Function not returning any value (void functions):

The *function* that perform some *action or do some work but do not return any computed value or final value* to the caller called *void functions*. A *void function* may or may not have the return statement. If void function has a return statement, then it takes the following form:

***return***

***# Prg.1- Menu driven interactive program to demonstrate returning values from functions***

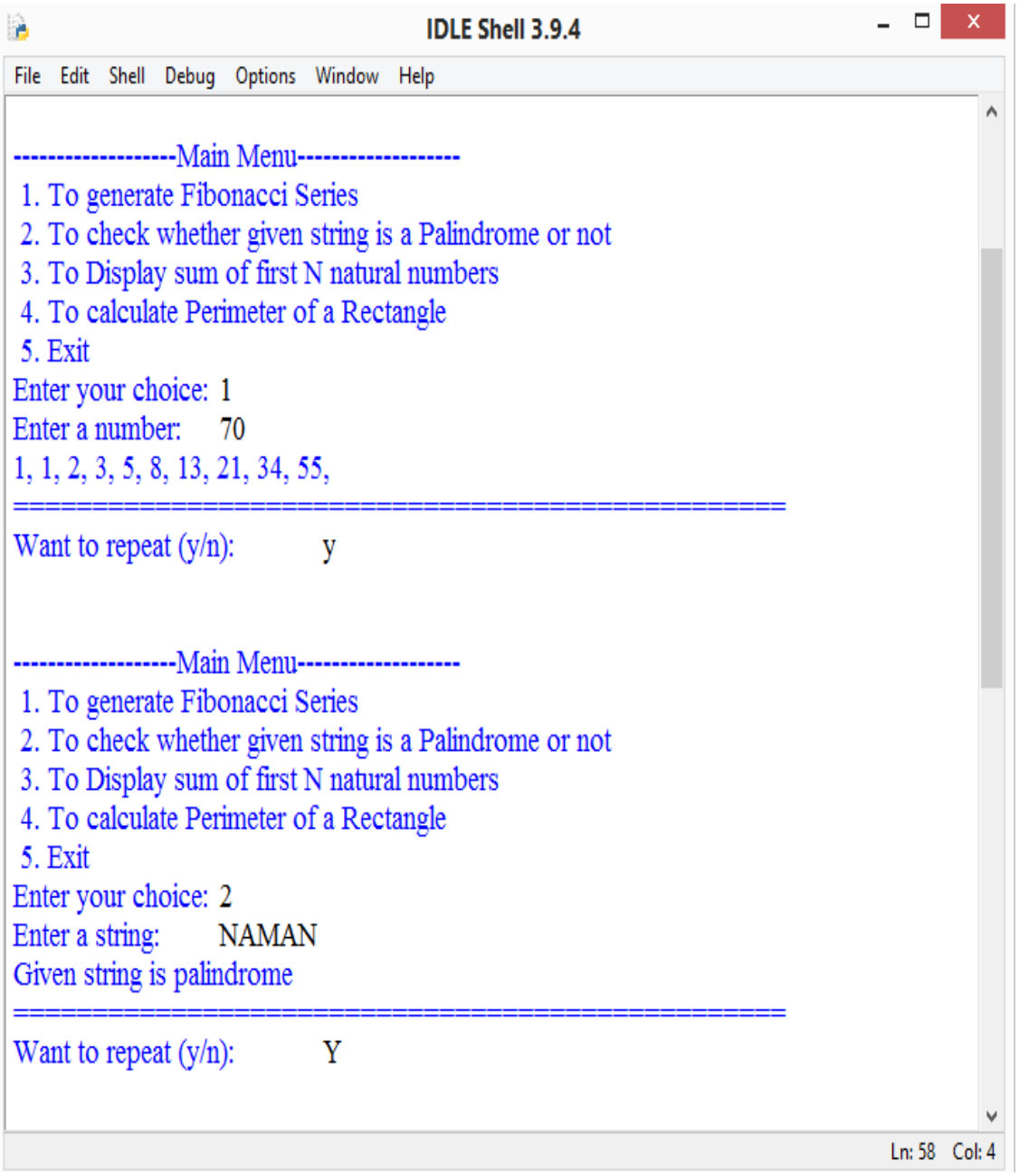
***Code:***

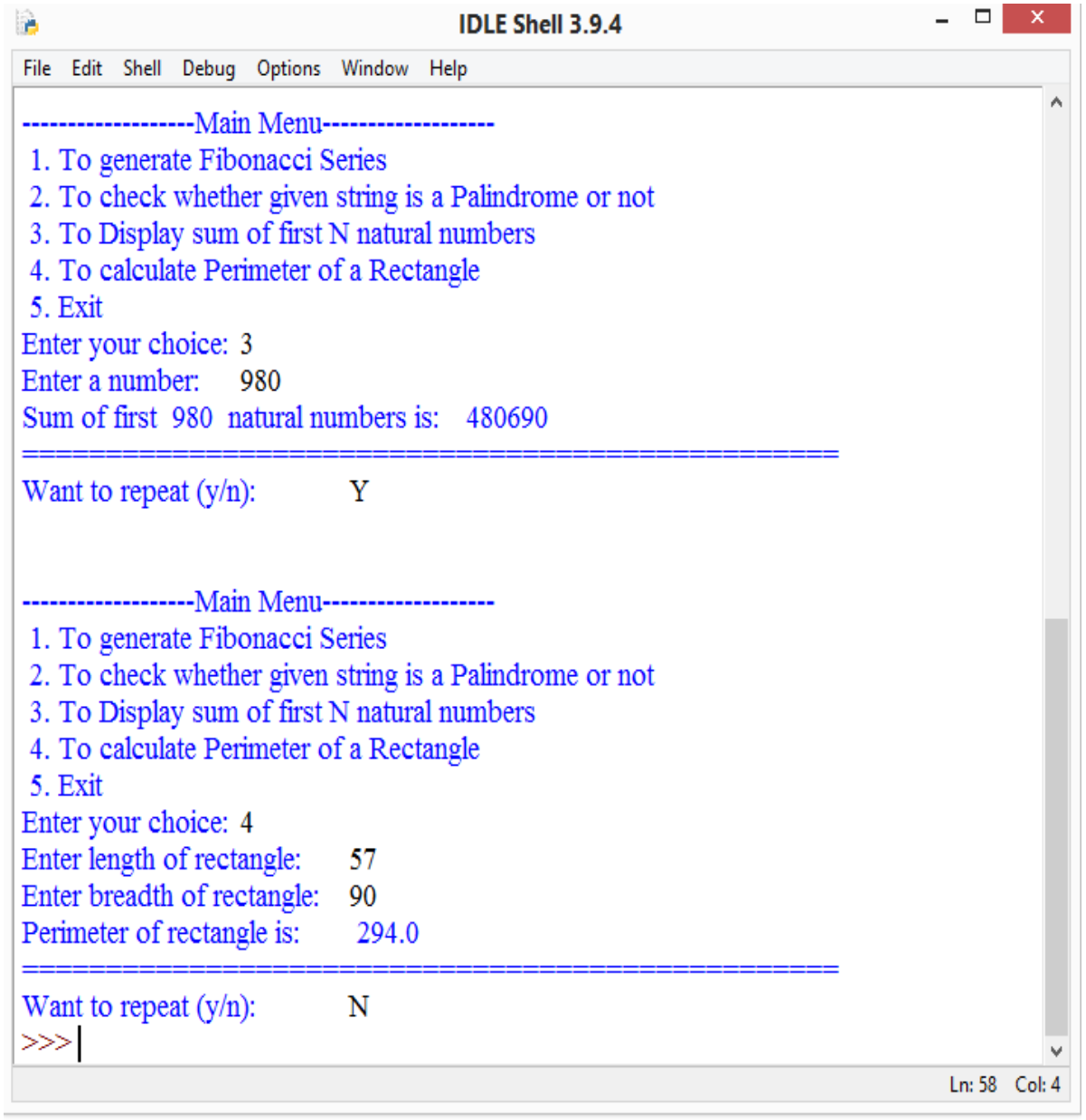
```
def Fibonacci(num):                 # Function 1 - void function, return nothing
    a=0
    b=1
    S=1
    while(b<=num):
        print(b,end=', ')
        a=b
        b=S
        S=a+b
    print()
    return

def Palindrome(STR):                # Function 2 - Function returning a literal
```

```
    length =len(STR)
    mid=length//2
    rev= -1
    for a in range(mid):
        if STR[a]==STR[rev]:
            rev-=1
        else:
            return 0
    else:
        return 1


def Sum_natural(x):                 # Function 3- Function returning a variable
    S=0
    for a in range(1,x+1):
        S+=a
    return S

def Rect_Perimeter(length,breadth):   #Function 4-  returning an expression
    return 2*(length+breadth)

def Menu():                     # void Function with no return statement
    print("\n\n--------------------Main Menu--------------------")
    print(" 1. To generate Fibonacci Series")
    print(" 2. To check whether given string is a Palindrome or not")
    print(" 3. To Display sum of first N natural numbers")
    print(" 4. To calculate Perimeter of a Rectangle")
    print(" 5. Exit")

# ----main--------------

rep='y'
while rep=='y' or rep=='Y':
    Menu()
    choice =int(input("Enter your choice:\t"))
    if(choice==1):
        N=int(input("Enter a number:\t"))
        Fibonacci(N)
    elif choice ==2:
        Str=input("Enter a string:\t")
        P=Palindrome(Str)
        if P==1:
            print("Given string is palindrome")
        else:
            print("Not a palindrome")
    elif choice ==3:
        N=int(input("Enter a number:\t"))
        SN=Sum_natural(N)
        print("Sum of first ",N," natural numbers is:\t",SN)
    elif choice ==4:
        length=float(input("Enter length of rectangle:\t"))
        breadth=float(input("Enter breadth of rectangle:\t"))
        P=Rect_Perimeter(length,breadth)
```

```
        print("Perimeter of rectangle is:\t",P)
    elif choice ==5:
        break
    else:
        print("Wromg choice")
    print("================================================")
    rep=input("Want to repeat (y/n):\t")
```

***Output:***




IDLE Shell 3.9.4
File Edit Shell Debug Options Window Help
----------Main Menu----------
1. To generate Fibonacci Series
2. To check whether given string is a Palindrome or not
3. To Display sum of first N natural numbers
4. To calculate Perimeter of a Rectangle
5. Exit
Enter your choice: 3
Enter a number: 980
Sum of first 980 natural numbers is: 480690
==========
Want to repeat (y/n): Y
----------Main Menu----------
1. To generate Fibonacci Series
2. To check whether given string is a Palindrome or not
3. To Display sum of first N natural numbers
4. To calculate Perimeter of a Rectangle
5. Exit
Enter your choice: 4
Enter length of rectangle: 57
Enter breadth of rectangle: 90
Perimeter of rectangle is: 294.0
==========
Want to repeat (y/n): N
>>>
Ln: 58 Col: 4