13. Write a program to find the factorial of a number using recursion.

Function which calls itself is called as recursive function

```python
def facto(n):
    if n == 0 | n == 1:
        return n
    else:
        return n * facto(n-1)


n = int(input("enter n value"))
print(f" Factorial of {n} is {facto(n)}")
```

14 A). Write a program to find the Nth term in a Fibonacci series using recursion.

```python
def fibbo(n):
    if n == 0:
        return 0
    if n == 1:
        return 1
    else:
        return fibbo(n-1)+fibbo(n-2)
n = int(input("Enter n value"))
print(f"{n}th term in the Fibonacci series is {fibbo(n)}")
```

14 B) Write a program to display Fibonacci series using Recursive function

```python
def fibonacci_recursive(n):
    if n <= 1: # Base cases
        return n
    else:
        return fibonacci_recursive(n-1) + fibonacci_recursive(n-2)


# Number of terms to display
n = int(input("Enter n value"))
print("Fibonacci sequence:")
for i in range(n):
    print(fibonacci_recursive(i), end=" ")
```

15. Write a program to create, concatenate and print a string and access sub-string from a given string.

```python
string1 = input("Enter a string")
string2 = input("Enter a string")


#string concatenation
string3 = string1+" "+string2
print(f"Concatenation of {string1} and {string2} is \"{string3}\"")


#string repetition
string4 = string1 * 2
print(f"Repetition of {string1} for 2 times is \"{string4}\"")


#string slicing
print(f"Substring of {string3} is \"{string3[3:8]}\"")


#string join() function
string5 = "Hello How are you"
#String is splitted into words and stored into list
l = string5.split(" ")
string6 = "-".join(l)
print(f"Joined list elements with \'-\' is \"{string6}\"")
```

16. Write a program to check whether a string is palindrome or not.

```python
str1 = input("enter a string for palindrome checking")
if str1 == str1[::-1]:
    print(f"{str1} is Palindrome string")
else:
    print(f"{str1} is not palindrome string")

'''
#without using slice operator and buitin methods
str1 = str1.lower().replace(" ", "")
l = len(str1)
flag = 0
for i in range(0,l-1):
    j = l-i-1
```

```python
                    if str1[i] == str1[j]:
                      if i <= j:
                        continue
                      else:
                          flag = 0
                          break
                  else:
                      flag = 1
                      break


            if flag == 1:
              print(f"{str1} is not palindrome")
            else:
              print(f"{str1} is palindrome")
            '''
```

17. Write a program to create a list and display the sum of list members.

```python
    list1 =  list(map(int, input("Enter comma separated interger values").split(",")))
    '''
    print(f"Sum of all the list1 elements is {sum(list1)}")
    '''
    sum = 0
    for i in list1:
        sum+=i
    print(f"Sum of all the list1 elements are {sum}")
```

18. Write a program to implement linear and binary search.

#Linear Search

```python
    arr = list(map(int, input("Enter comma separated values and press enter").split(",")))
    key = int(input("Enter a value to be searched"))
    for i in arr:
      if i == key:
        print(f"{key} found at {arr.index(i)} position")
        break
    else:
      print(f"{key} is not found in the list")
```

#Binary Search without recursion

```python
#Binary Search without recusrion
def binarysearch(arr, key):
    low = 0
    high = len(arr)-1
    while low<=high:
        mid = (low+high)//2
        if arr[mid]==key:
            print(f"{key} is found at {mid} position")
            break
        elif arr[mid]<key:
            low = mid+1
        else:
            high = mid-1
    else:
        print(f"{key} is not available in the given list")

arr = list(map(int, input("Enter comma separated values then press enter").split(",")))
arr.sort()
print("sorted array", arr)
key = int(input("Enter element to search in the list"))
binarysearch(arr, key)
```

19. Write a program to find the largest and smallest number in a list without using built-in function.

```python
list1 = list(map(int, input("Enter comma separated integer numbers").split(",")))
maximum = minimum = list1[0]
for i in list1:
    if maximum < i:
        maximum = i
    if minimum > i:
        minimum = i
print("Maximum value of the list is ", maximum)
print("Minimum value of the list is ", minimum)
```

20. Write a program to create a dictionary and print all the items in a dictionary.

```
#dict1 = {"name":"Bob", "age":35, "Dept":"CSE", "College":"MECS"}

dict1 = {}
for i in range(4):  # Example: Adding 4 items
   key = input("Enter key: ")  # User inputs key
   value = input("Enter value: ")  # User inputs value
   dict1[key] = value

print(dict1)
print("List of the keys are:", dict1.keys())
print("List of the values are:", dict1.values())
print("List of dictionary Items are:", dict1.items())
```