2.a) Defined as a function F as Fn = Fn-1 + Fn-2. Write a Python program which accepts a value for N(where N >0) as input and pass this value to the function. Display suitable error message if the condition for input value is not followed.

```
def fn(n):
    if n == 1:
        return 0
    elif n == 2:
        return 1
    else:
        return fn(n-1) + fn(n-2)

num = int(input("Enter a number : "))
if num > 0:
    print("fn(",num,") = ",fn(num))
else:
    print("Error in input")
```

Output: Enter a number **:** 10
fn(10)=34

b**) Develop a python program to convert binary to decimal, octal to hexadecimal using functions.**

```
def  bin2Dec(val):
      rev=val[::-1]
      dec = 0
      i = 0
      for dig in rev:
          dec = dec + int(dig) * 2**i
           i = i+1
      return dec

num1 = input("Enter a binary number : ")
print('The decinal number is', bin2Dec(num1))
```

Output:
Enter a binary number: 01110
The decimal number is 14

```
def oct2hex(octal):
    dec = 0
    i = 0
    while octal != 0:
        dec =dec + (octal % 10) * 8 ** i  # modulo or remainder finding
        octal=octal // 10  # Integer division
        i = i+1

    hex_digits = []
    while dec != 0:
        hex_digits.append(dec % 16)
        dec = dec//16

    nl=[]
    for elem in hex_digits[::-1]:
        if elem <= 9:
            nl.append(str(elem))
        else:
            nl.append(chr(ord('A') + (elem -10)))
    hexa = "".join(nl)
    return hexa

# Input octal number
octal_num = input("Enter an octal number: ")
hexadecimal_result = oct2hex(int(octal_num))
print("Hexadecimal equivalent: {hexadecimal_result}")
```

Output:

```
Enter an octal number:245
Hexadecimal equivalent:A5
```