PRACTICAL NO 1

a) Create a program that asks the user to enter their name and their age. Print out a message addressed to them that tells them the year that they will turn 100 years old.

Code :

```
from datetime import date

#user input details
Name       = input("Enter your name           : ")
BirthDay   = int(input("enter your day of birth   : "))
BirthMonth = int(input("enter your Month of birth : "))
BirthYear  = int(input("enter your Year of birth  : "))

#getting current details dynamically from system
CurrentDay   = date.today().day
CurrentMonth = date.today().month
CurrentYear  = date.today().year

#Monthwise numbers of days
MonthOf30Days = [4,6,9,11]
MonthOf31Days = [1,3,5,7,8,10,12]

#Logic for calculating the age of a person
#start
if CurrentDay < BirthDay :
    CurrentMonth = CurrentMonth - 1
    if CurrentMonth in MonthOf30Days :
        CurrentDay = CurrentDay + 30
    elif CurrentMonth in MonthOf31Days :
        CurrentDay = CurrentDay + 30
    elif CurrentYear%4 == 0 :
        CurrentDay = CurrentDay + 29
    else :
        CurrentDay = CurrentDay + 28
AgeDay = CurrentDay - BirthDay
if CurrentMonth < BirthMonth :
    CurrentYear = CurrentYear - 1
    CurrentMonth = CurrentMonth + 12
AgeMonth = CurrentMonth - BirthMonth
AgeYear = CurrentYear - BirthYear
if AgeYear < 0 :
    print("Current Date cannot Exceds Your Date Of Birth !")
else :
    print(f"{Name} Your Current Age is {AgeYear} Years {AgeMonth}
    Months {AgeDay} Days")
    print(f"and it will turn 100 on {BirthDay}-{BirthMonth}-
    {BirthYear+100}")
#end
```

Output :

```
Enter your name           : yashodip
enter your day of birth   : 23
enter your Month of birth : 12
enter your Year of birth  : 2003
yashodip Your Current Age is 20 Years 6 Months 7 Days
and it will turn 100 on 23-12-2103
```

b) Enter the number from the user and depending on whether the number is even or odd, print out an appropriate message to the user.

Code :

```
#function to check the number is odd or even
#start
def EvenOdd(Num):
    if Num == 0 :
        print("entered number is zero")
    elif Num%2== 0 :
        print(f"{Num} is a even number")
    else :
        print(f"{Num} is a odd number")
#end

#taking user input
Number = int(input("Enter the number : "))
#function call
EvenOdd(Number)
```

Output :

```
Enter the number : 45
45 is a odd number

Enter the number : 30
30 is a even number

Enter the number : 0
entered number is zero
```

c) Write a program to generate the Fibonacci series.

Code :

```
#taking user input number
Number = int(input("Enter the number : "))
FibonacciList = []

# To print fist and second numbers
FirstNum = 0
SecondNum = 1
if Number == 1 :
    FibonacciList.append(FirstNum)
elif Number == 2 :
    FibonacciList.append(FirstNum)
    FibonacciList.append(SecondNum)
else :
    FibonacciList.append(FirstNum)
    FibonacciList.append(SecondNum)
    #logic for printing remaining numbers of fibonacci series
    #start
    Number = Number - 2
    for i in range(Number):
        NextNum = FirstNum + SecondNum
        FibonacciList.append(NextNum)
        FirstNum = SecondNum
        SecondNum = NextNum
    #end
print(FibonacciList)
```

Output :

```
Enter the number : 1
[0]

Enter the number : 2
[0, 1]

Enter the number : 10
[0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
```

d) Write a function that reverses the user defined value.

Code :

```
#fuction to check the type of user input value
#start
def CheckVal(UserInput):
    try :
        if int(UserInput):
            print(f"enter value is integer type and its reverse
            value is {ReverseFunction(UserInput)}")
    except ValueError :
        try :
            if float(UserInput) :
                print(f"enter value is float type and its reverse
                value is {ReverseFunction(UserInput)}")
        except ValueError :
            print(f"enter value is string type and its reverse
            string is {ReverseFunction(UserInput)}")
#end

#function to reverse the user entered value
#start
def ReverseFunction(UserInput):
    String1 = str(UserInput)
    String2 = ""
    Length = len(String1)
    Length = Length - 1
    while Length >= 0 :
        String2 = String2 + String1[Length]
        Length = Length - 1
    return String2
#end

#taking user input
UserInput = input("Enter the value : ")
CheckVal(UserInput)
```

Output:

```
Enter the value : 45
enter value is integer type and its reverse value is 54

Enter the value : 45.6
enter value is float type and its reverse value is 6.54

Enter the value : yash
enter value is string type and its reverse string is hsay
```

e) Write a function to check the input value is Armstrong and also write the function for Palindrome.

Code :

```
#function to check number is palindrome or not
#start
def PalindromeFun(UserNum):
    Temp = UserNum
    Rem = 0
    Rev = 0
    while Temp != 0 :
        Rem = Temp % 10
        Rev = Rev * 10 + Rem
        Temp = Temp // 10
    if Rev == UserNum :
        print(f"{UserNum} is a palindrome number")
    else :
        print(f"{UserNum} is not a palindrome number")
#end

#function to check number is armstrong or not
#start
def ArmstrongFun(UserNum):
    Temp = UserNum
    Rem = 0
    Arm = 0
    Length = len(str(UserNum))
    while Temp != 0 :
        Rem = Temp % 10
        Arm = Arm + Rem ** Length
        Temp = Temp // 10
    if Arm == UserNum :
        print(f"{UserNum} is a armstrong number")
    else :
        print(f"{UserNum} is not a armstrong number")
#end

#taking user input
Number = int(input("Enter a Number : "))
PalindromeFun(Number)
ArmstrongFun(Number)
```

Output :

```
Enter a Number : 153
153 is not a palindrome number
153 is a armstrong number

Enter a Number : 121
121 is a palindrome number
121 is not a armstrong number

Enter a Number : 0
0 is a palindrome number
0 is a armstrong number
```

f) Write a recursive function to print the factorial for a given number.

Code :

```
#function to calculate the factorial
#start
def FactorialFun(Num):
    if Num == 1 or Num == 0:
        return 1
    else :
        return Num * FactorialFun(Num - 1)
#end

#taking user input
Num = int(input("Enter the Number : "))
print(f"factorial of {Num} is {FactorialFun(Num)}")
```

Output :

```
Enter the Number : 0
factorial of 0 is 1

Enter the Number : 5
factorial of 5 is 120
```