In [1]:
```
# function to calculate average of factorials in a given range
def avgFact(lb,ub):
    tot=0
    count=0
    for i in range(lb,ub+1):
        sum=1
        for j in range(1,i+1):
            sum=sum*j
        count=count+1
        tot=tot+sum
    print(tot/count)
lb=int(input("enter lower bound"))
ub=int(input("enter upper bound"))
avgFact(lb,ub)
```

```
enter lower bound1
enter upper bound5
30.6
```

In [2]:
```
# function to generage N odd armstrong numbers
def armstrong(n):
    i=1
    count=0
    while count<n:
        j=i
        sum=0
        while j!=0:
            rem=j%10
            sum=sum+rem**len(str(i))
            j=j//10
        if sum==i and i%2==1:
            print(i,end=" ")
            count=count+1
        i=i+1
n=int(input("enter a number"))
armstrong(n)
```

```
enter a number9
1 3 5 7 9 153 371 407 92727
```

In [5]:
```
#function to print the alternate values in a range
def alternateValues(start,end):
    for i in range(start,end+1,2): ## last 2 represent the incrementation---i=i+
        print(i,end=" ")
    return
start=int(input("enter start"))
end=int(input("enter end"))
alternateValues(start,end)
```

```
enter start1
enter end80
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55
57 59 61 63 65 67 69 71 73 75 77 79
```

In [6]:
```
# function to print reverese of a given range in a same line
def rev(n):
    for i in range(n,0,-1):
        print(i,end=" ")
    return
rev(10)
```

```
10 9 8 7 6 5 4 3 2 1
```

In [9]:
```
# Function to generate multiplication table for a number in a given range
def table(n,lb,ub):
    for i in range(lb,ub+1):
        print(n,"x",i,"=",n*i)
    return
n=int(input("enter a number"))
lb=int(input("enter start"))
ub=int(input("enter end"))
table(n,lb,ub)
```

```
enter a number3
enter start2
enter end5
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
```

In [ ]:
```
# Function to print odd numbers in reverse order in a range
def revOdd(lb,ub):
    for i in range(ub,lb-1,-1):
        if i%2==1:
            print(i,end=" ")
    return
lb=int(input("enter start"))
ub=int(input("enter end"))
revOdd(lb,ub)
```

In [ ]:
```
# function to calculate sum of numbers in a given range
def sumOfNumbers(lb,ub):
    sum=0
    for i in range(lb,ub+1):
        sum=sum+i
    print(sum)
    return
lb=int(input("enter start"))
ub=int(input("enter end"))
sumOfNumbers(lb,ub)
```

In [ ]:
```
# calculate number of days in a given time period using leapyearlogic
def noOfDays(start,end):
    days=0
    for i in range(start,end+1):
        if i%400==0 or (i%100!=0 and i%4==0):
            days=days+366
        else:
            days=days+365
    return days
start=int(input("enter start year"))
end=int(input("enter end year"))
noOfDays(start,end)
```

In [ ]:
```
# function to generate a series
# if a given number n is even then make it 3n+1
#if 3n+1 is odd then make it 2n
def series(n):
    count=0
    while(n>0):
        if n%2==0:
            n=3*n+1
        else:
            n=2*n
        count=count+1
    return count

n=int(input("enter a number"))
series(n)
```

In [20]:
```
# function to calculate number of hours in a given period
# numberOfHours(11,1975,3,1999)
# 2,2016, 6,2019
# No of hours=24*No of days
# 3 steps
    #1.start year month to end of year-calculate the number of days
    #2.calculate days for all years between start year and end year exclusive
            # 2017, 2018 - 365*no of years
    #3.end year month start to end of the end year-calculate the number of days
# Excluding Feb
# First Seven months - 1, 3, 4, 5, 6, 7
                    # All odd months have 31 days
                    # All Even months have 30 days
# Last five months - 8,9,10,11,12
                    # All even months have 31 days
                    # All odd months have 30 days


def leapYear(year):
    if year%400==0 or (year%100!=0 and year%4==0):
        return True
    else:
        return False
def numberOfDays(month,year):
    if month==2:
        if leapYear(year):
            return 29
        return 28
    elif month <=7 and month%2!=0 or (month%2==0 and month>7):
        return 31
    else:
        return 30
def daysInStartYear(startmonth,startyear):
    days=0
    for month in range(startmonth,13):
        days=days+numberOfDays(month,startyear)
    return days
def daysInEndYear(endmonth,endyear):
    days=0
    for month in range(1,endmonth+1):
        days=days+numberOfDays(month,endyear)
    return days
def noOfDays(start,end):
    days=0
    for i in range(start,end+1):
        if leapYear(i):
            days=days+366
        else:
            days=days+365
    return days
def numberOfHours(startmonth,startyear,endmonth,endyear):
    days=0
    if startyear!=endyear:
        days+=daysInStartYear(startmonth,startyear)
        days+=daysInEndYear(endmonth,endyear)
        if endyear-startyear==2:
```

```
            days+=noOfDays(startyear+1,startyear+1)
        elif endyear-startyear>2:
            days+=noOfDays(startyear+1,endyear-1)
    else:
        for month in range(startmonth,endmonth+1):
            days+=numberOfDays(month,startyear)
    return 24*days


startmonth=int(input("enter start month"))
startyear=int(input("enter start year"))
endmonth=int(input("enter end month"))
endyear=int(input("enter end year"))

numberOfHours(startmonth,startyear,endmonth,endyear)
```

```
enter start month6
enter start year2018
enter end month7
enter end year2018
```

Out[20]: 1464

In [ ]:

In [ ]: