1. Write a program to print all the Non-Prime numbers between A

and B? Sample Input: A = 12 B = 19

Sample Output:

14, 15, 16,

18

a = int(input())

b = int(input())

for x in range (a, b+1):

if x &gt; 1:

for i in range (2, x):

if (x%i)== 0:

break

else:

print (x)

2. Find the year of the given Anniversary is leap year or not. If leap year then

print the next Anniversary, if not leap year then print the previous Anniversary.

Sample Input:

Enter Date: 04/11/1947 Sample Output:

Given Anniversary Year: Non Leap Year. Anniversary Date: 04/11/1946

date = input(&quot;Enter the date to be checked: &quot;)

c=date.split(&quot;/&quot;)

b = list(map(int,c))

input\_year=(b[2])

if(input\_year%4 == 0):

if(input\_year%100 == 0):

if(input\_year%400 == 0):

print(&quot;%d is Leap Year&quot; %input\_year)

else:

print(&quot;%d is not the Leap Year&quot; %input\_year)

else:

print(&quot;%d is the Leap Year&quot; %input\_year)

else:

print(&quot;%d is not the Leap Year&quot; %input\_year)

x=input\_year%4

if x!=0:

print(&quot;Previous Leap year:&quot;, input\_year-x)

else:

print(&quot;Next leap year:&quot;, input\_year+4)

3. Write a program to print the given number is Perfect number or not?

Sample Input: Given Number: 6

Sample Output: Its a Perfect Number

Number = int(input(&quot; Please Enter any Number: &quot;))

Sum = 0

for i in range(1, Number):

if(Number % i == 0):

Sum = Sum + i

if (Sum == Number):

print(&quot; %d is a Perfect Number&quot; %Number)

else:

print(&quot; %d is not a Perfect Number&quot; %Number)

4. Write a program to generate Pythagorean Triplets for the given limit.

Enter upper limit: 10

3 4 5

8 6 10

A=input(&quot;Enter upper limit:&quot;)

c=0

m=2

if A.isnumeric():

x=int(A)

while(c&lt;x):

for n in range(1,m+1):

a=m\*m-n\*n

b=2\*m\*n

c=m\*m+n\*n

if(c&gt;x):

break

if(a==0 or b==0 or c==0):

break

print(a,b,c)

m=m+1

else:

print(&quot;invalid input&quot;)

5. Write a program to find the sum of digits of N digit number (sum should be

single digit)

Sample Input: Enter N value : 3 Enter 3 digit number: 143

Sample Output: Sum of 3 digit number: 8

num=int(input(&quot;Enter the number:&quot;))

Sum=0

temp=num

while temp&gt;0:

digit=temp%10

Sum+=digit

temp=temp//10

print(&quot;Sum of Digits:&quot;, Sum)

6. Program to find whether the given number is Armstrong number or not

Sample Input: Enter number: 153

Sample Output: Given number is Armstrong number

num=int(input(&quot;Enter the number:&quot;))

Sum=0

temp=num

while temp&gt;0:

digit=temp%10

Sum+=digit\*\*3

temp=temp//10

if Sum==num:

print(&quot;Armstrong Number&quot;)

else:

print(&quot;Not a Armstrong Number&quot;)

7. Program to find whether the given number is Harshad number or not

Sample Input: Enter number: 21

Sample Output: Given number is Harshad number

num=int(input(&quot;Enter the number:&quot;))

Sum=0

temp=num

while temp&gt;0:

digit=temp%10

Sum+=digit

temp=temp//10

if num%Sum==0:

print(&quot;Harshad Number&quot;)

else:

print(&quot;Not a Harshad Number&quot;)

8. Program to find whether the given number is Happy number or not

Sample Input: Enter number: 19

Sample Output: Given number is happy number

def happy(n):

temp=n

sum=0

while temp&gt;0:

digit=temp%10

sum=digit\*\*2+sum

temp=temp//10

return sum

# Main Program

num=int(input(&quot;Enter the number:&quot;))

result=num

while result!=1 and result!=4:

result=(happy(result))

if result==1:

print(&quot;True&quot;)

elif result==4:

print(&quot;False&quot;)

9. Program to find whether the given number is Tech number or not

Sample Input: Enter number: 3025

Sample Output: Given number is Tech number

n = 3025

m = str(n)

a = m[:len(m)//2]

b = m[len(m)//2:]

c = int(a)+int(b)

d = c\*\*2

if(d==n):

print(&quot;Tech number&quot;)

else:

print(&quot;Not a Tech number&quot;)

10. Write a program using function to calculate the simple interest. Suppose the

customer is a senior citizen. She is being offered 15 percent rate of interest; he is

being offered 12 percent rate of interest for all other customers, the ROI is 10

percent.

Sample Input:

Enter the principal amount: 200000 Enter the no of years: 3

Gender (m/f): m

Is customer senior citizen (y/n): n Sample Output:

Interest: 60000

p=int(input(&quot;Enter the Principle amount:&quot;))

n=int(input(&quot;Enter the number of years:&quot;))

SC=input(&quot;Senior Citizen Yes/No:&quot;)

G=input(&quot;Male/Female:&quot;)

if SC==&#39;Y&#39; and G==&#39;M&#39;:

print(&quot;SI=&quot;,(p\*n\*12)/100)

elif SC==&#39;Y&#39; and G==&#39;F&#39;:

print(&quot;SI=&quot;,(p\*n\*15)/100)

else:

print(&quot;SI=&quot;,(p\*n\*10)/100)

11. Find the number of factors for the given number and print the 1st N factors of

the given number.

Sample Input: Given number: 100

N: 4

Sample Output: Number of factors = 9

1st 4 factors are: 1, 2, 4, 5

x=int(input(&quot;Enter the number:&quot;))

y=[]

print(&quot;The factors of&quot;,x,&quot;are:&quot;)

for i in range(1, x):

if x % i == 0:

y.append(i)

print(y)

print(&quot;Number of factors:&quot;, len(y))

n=int(input(&quot;Enter N value:&quot;))

if n&gt;len(y):

print(&quot;Invalid&quot;)

else:

print(&quot;First&quot;, n, &quot;factors:&quot;)

for k in range(0,n):

print(y[k], end=&#39; &#39;)

12. Write a program to print number of factors and to print nth factor of the

given number.

Sample Input: Given Number: 100

N = 4

Sample Output:

Number of factors = 9 4th factor of 100 = 5

x=int(input(&quot;Enter the number:&quot;))

y=[]

print(&quot;The factors of&quot;,x,&quot;are:&quot;)

for i in range(1, x + 1):

if x % i == 0:

y.append(i)

print(y)

print(&quot;Number of factors:&quot;, len(y))

n=int(input(&quot;Enter N value:&quot;))

print(n, &quot;th factor is:&quot;,y[n-1])

13. Write a program to print unique permutations of a given number Sample

Input:

Given Number: 143 Sample Output:

Permutations are:

134

143

314

341

413

431

import itertools

n=input(&quot;Enter the number&quot;)

P=list(itertools.permutations(n))

print(\*[&#39;&#39;.join(p) for p in P])

14. Write a program to find the square, cube of the given decimal number

Sample Input:

Given Number: 0.6

Sample Output: Square Number: 0.36 Cube Number:0.216

import math

num=float(input(&quot;Enter the number:&quot;))

print(&quot;Square number=&quot;,math.pow(num,2))

print(&quot;Cube number=&quot;,round(math.pow(num,3),3))

15. Write a program to convert the Binary to Decimal, Octal Sample Input:

Given Number: 1101 Sample Output:

Decimal Number: 13 Octal: 15

num=input(&quot;Enter the binary number:&quot;)

bin\_num=&quot;01&quot;

for i in range(len(num)):

binary=True

if num[i] not in bin\_num:

print(&quot;Invalid input&quot;)

binary=False

break

if binary:

dec\_number=int(num,2)

oct\_number=oct(dec\_number)

hexa=hex(dec\_number)

print(&quot;Decimal Equivalent=&quot;,dec\_number)

print(&quot;Octal Equivalent=&quot;,oct\_number)

print(&quot;Hexa Equivalent=&quot;,hexa)