1. Python Program for Find largest prime factor of a number

In [2]:

```
import math

def maxPrimeFactors (n):

    maxPrime = -1

    while n % 2 == 0:
        maxPrime = 2
        n >>= 1     # equivalent to n /= 2

    # n must be odd at this point,
    # thus skip the even numbers and
    # iterate only for odd integers
    for i in range(3, int(math.sqrt(n)) + 1, 2):
        while n % i == 0:
            maxPrime = i
            n = n / i

    # This condition is to handle the
    # case when n is a prime number
    # greater than 2
    if n > 2:
        maxPrime = n

    return int(maxPrime)

# Driver code to test above function
n = 15
print(maxPrimeFactors(n))

n = 25698751364526
print(maxPrimeFactors(n))
```

```
5
328513
```

2. Python Program for Product of unique prime factors of a number

In [3]:

```
import math

def productPrimeFactors(n):
    product = 1
    if (n % 2 == 0):
        product *= 2
        while (n%2 == 0):
            n = n/2

    for i in range (3, int(math.sqrt(n)), 2):

        if (n % i == 0):
            product = product * i
            while (n%i == 0):
                n = n/i

    if (n > 2):
        product = product * n

    return product

# main()
n = 10
print (int(productPrimeFactors(n)))
```

```
10
```

3. Python Program to find Factorial of Number

In [10]:

```
def Factorial(n):

    fact=1

    if n < 0 :
        print("Factorial Does not Exist")

    if n == 0:
        print (" Factorial of 0 is 1")

    else:
        for i in range(1,n+1):
            fact *= i

    return fact

Factorial(5)
```

Out[10]:

```
120
```

4. Python Program for Find sum of odd factors of a number

In [14]:

```
def Sum_Odd_Fact(n):

    sum=0

    for i in range(1,n+1):
        if i%2 != 0:
            sum += i
    return sum

Sum_Odd_Fact(5)
```

Out[14]:

```
9
```

5. Python Program to Check if binary representation is a palindrome

In [16]:

```
def check_palindrome(num):
    bin1 = bin(num)
    print("Original number",bin1)
    # remove ob from bin1

    bin2 = bin1[2:]
    print(bin2)
    if bin2 == "".join(reversed(bin2)):
        print("It is palindrome")
    else:
        print("Not palindrome")

num = int(input("Enter the numbers:"))

check_palindrome(num)
```

```
Enter the numbers:5
Original number 0b101
101
It is palindrome
```

6. Python Program for Number of elements with odd factors in a given range

In [17]:

```
def count_odd_factors(num):

    count = 0

    for i in range(1,num+1):
        if i % 2 != 0:
            count +=1
    return count

num = int(input("Enter the num : "))
count_odd_factors(num)
```

```
Enter the num : 10
```

Out[17]:

```
5
```

7. Python Program for Common Divisors of Two Numbers

In [18]:

```
n1 = 6  #3 x 5
n2 = 2   #3 x 3
fact1 = 1
fact2 =1

set1 = set()
set2 = set()
for i in range(1,1+n1):
    fact1  *=i
    set1.add(i)
for i in range(1,1+n2):
    fact2 *=i
    set2.add(i)

set1.intersection(set2)
```

Out[18]:

```
{1, 2}
```

8. Python Program to Check if a count of divisors is even or odd

In [19]:

```
import math
def countDivisors(n) :

    count = 0

    for i in range(1, (int)(math.sqrt(n)+2)) :
        if (n % i == 0) :


            if( n // i == i) :
                count = count + 1
            else :
                count = count + 2

    if (count % 2 == 0) :
        print("Even")
    else :
        print("Odd")


print("The count of divisor: ")
countDivisors(9)
```

```
The count of divisor:
Odd
```

In [20]:

```
# Efficient Solution to find
# find if count of divisors
# is even or odd

def NumOfDivisor(n):
    if n < 1:
        return
    root_n = n**0.5

    # If n is a perfect square,
    # then it has odd divisors
    if root_n**2 == n:
        print("Odd")
    else:
        print("Even")

# Driver code
if __name__ == '__main__':
    print("The count of divisor"+
        "of 10 is: ")
    NumOfDivisor(16)

# This code is contributed by Yt R
```

```
The count of divisorof 10 is:
Odd
```

9. Python Program to Find the minimum sum of factors

of a number

In [21]:

```
def findMinSum(num):
    sum = 0
    i = 2
    while(i * i <=num):
        while(num % i == 0):
            sum += i
            num //= i
        i += 1
    sum += num

    return sum

num = int(input("Enter the num"))
print (findMinSum(num))
```

```
Enter the num10
7
```

10. Python Program to find Difference between sums of odd and even digits¶

In [22]:

```
#num = int(input("Enter the digits:-"))
num = 789462
print(num,type(num))

num_str = str(num)
print(num_str,type(num_str))

even_digit = num_str[1]+num_str[3]+num_str[5]
odd_digit = num_str[0]+num_str[2]+num_str[4]

print(even_digit)
print(odd_digit)

difference = int(odd_digit)-int(even_digit)

difference
```

```
789462 <class 'int'>
789462 <class 'str'>
842
796
```

Out[22]:

```
-46
```

In [23]:

```
num = int(input())
string1 = str(num)
evensum = 0
oddsum = 0


for i in range(0, len(string1)):
    if(i % 2 == 0):
        evensum += int(string1[i])
    else:
        oddsum += int(string1[i])


print(oddsum-evensum)
```

```
12345678
4
```

11. Python Program for Largest and Smallest K digit number divisible by X

In [24]:

```
def divisible():
    x=eval(input("Enter a diciser X= "))
    k=eval(input("Enter hoe many digita K = "))
    num =10**(k-1)
    if num % x==0:
        print('Smallest K digit number divisible by X= ',num)
    else:
        print('Smallest K digit number divisible by X ',(num+x)-(num+x)%x)

    num1=(10**k)-1
    print('Largest K digit number divisible by X ',num1-(num1%x))


divisible()
```

```
Enter a diciser X= 6
Enter hoe many digita K = 2
Smallest K digit number divisible by X  12
Largest K digit number divisible by X  96
```

12. Python Program to calculate the area of a Tetrahedron

In [ ]:

```
# """In geometry, a tetrahedron, also known as a triangular pyramid, is a polyhedron compos
six straight edges, and four vertex corners. The tetrahedron is the simplest of all the ord
only one that has fewer than 5"""
```

In [25]:

```
#four triangular faces
#area = 0.5 * b * h *4

def area(b,h):

    result = 0.5 * b * h* 4
    return result

area(4,5)
```

Out[25]:

```
40.0
```

13. Python Program to Find the perimeter of a cylinder

In [2]:

```
def perimeter_cylinder(diameter,height):

    perimeter = 2 * (height + diameter)

    return perimeter


diameter = float(input("Enter the radius of cylinder: "))
height = float(input("Enter the Height of cylinder: "))
perimeter_cylinder(diameter,height)
```

```
Enter the radius of cylinder: 5
Enter the Height of cylinder: 10
```

Out[2]:

```
30.0
```

14. Python Program to Find the vertex, focus, and directrix of a parabola

In [3]:

```
def parabola(a, b, c):
    print ("Vertex: (" , (-b / (2 * a)) , ", "
        ,(((4 * a * c) - (b * b)) / (4 * a)) , ")" )

    print ("Focus: (" , (-b / (2 * a)) , ", "
        , (((4 * a * c) - (b * b) + 1) / (4 * a)) , ")" )

    print ("Directrix: y="
            , (int)(c - ((b * b) + 1) * 4 * a ))


a = 5
b = 3
c = 2

parabola(a, b, c)
```

```
Vertex: ( -0.3 ,  1.55 )
Focus: ( -0.3 ,  1.6 )
Directrix: y= -198
```

15. Python program to find the most occurring character and its count

In [4]:

```
def occurence(str1):
    print("Original string:  ",str1)

    list1 = list(str1)

    dict1 = {}

    for i in str1:
        dict1[i] = list1.count(i)


    return dict1

str1 = input("Enter the string:")
occurence(str1)
```

```
Enter the string:aacscacaACCAaacscssvdsa
Original string:   aacscacaACCAaacscssvdsa
```

Out[4]:

```
{'a': 7, 'c': 5, 's': 5, 'A': 2, 'C': 2, 'v': 1, 'd': 1}
```

16. Python Program to Find the sum of even factors of a number

In [5]:

```
def sum_Even_factors(num):

    sum = 0
    for i in range(1,1+num):
        if num%i ==0:
            if i %2 ==0:
                sum += i
    return sum


num = int(input("Enter the number:>"))
sum_Even_factors(num)
```

```
Enter the number:>20
```

Out[5]:

```
36
```

17. Python Program to Check if all digits of a number divide it

In [6]:

```
num =input("Enter a number= ")
x=int(num)
l1=[]
for i in num:
    l1.append(i)
for i in l1:
    if int(i) ==0:
        print("All digits of a number are not divide it")
        break
    elif x % int(i)!=0:
        print("All digits of a number are not divide it")
        break
    else:
        print("All digits of a number divide it")
```

```
Enter a number= 77
All digits of a number divide it
All digits of a number divide it
```

18. Python program to convert float decimal to Octal number¶

In [7]:

```
def convert_octal(num):

    print("Float decimal is : ",num)

    num_int = int(num)

    octal = oct(num_int)

    print("The octal number is :", octal)


num= float(input("Enter the float number:"))
convert_octal(num)
```

```
Enter the float number:5
Float decimal is :  5.0
The octal number is : 0o5
```

19. Python program to copy odd lines of one file to other

In [8]:

```
with open("file1.txt","w") as f:
    f.write("data science \n machine learning \n deep laerning ")

with open("file02.txt","w") as f:
    f.write("java python pear \n")

f1= open("file1.txt","r")
f2= open("file2.txt","w")
lines=f1.readlines()
for i in range(0,len(lines)):
    if i %2==0:
        f2.write(lines[i])
    else:
        pass
f2.close()
f2=open("file02.txt","r")
x=f2.read()
print(x)
f1.close()
f2.close()
```

```
java python pear
```

20. Write a Python program to replace whitespaces with an underscore and vice versa

In [9]:

```
def repalce_str(str1):
    str2 = str1.replace(" ","@")

    str3 = str2.replace("_"," ")

    str4 = str3.replace("@","_")

    return str4

str1 = "python Data_science"
repalce_str(str1)
```

Out[9]:

```
'python_Data science'
```

21. Write a Python program to convert a date or yyyy-mm-dd format to dd-mm-yyyy

In [11]:

```
def convert_date(str1):
        print("original date format : ",str1)

        final = str1[-2:]+str1[4:8]+str1[:4]

        return final


#str1 = "yyyy-mm-dd"
str1 = "1947-08-15"

convert_date(str1)
```

```
original date format :  1947-08-15
```

Out[11]:

```
'15-08-1947'
```

22. Write a Python program to find all words starting with 'a' or 'e' in a given string.

In [12]:

```
def words_with(str1):
    str_list = str1.split()
    final_list = []

    for i in str_list:
        if i.startswith('a') or i.startswith('e'):
            final_list.append(i)
    print("All words starting with a or e is ", final_list)

str1 = "ant cat bat anty egg eight nine ten"
#str1 = input('Enter the strings: ')

words_with(str1)
```

```
All words starting with a or e is  ['ant', 'anty', 'egg', 'eight']
```

23. Write a Python program to abbreviate 'Road' as 'Rd.' in a given string.

In [13]:

```
str1 = "ant cat bat anty egg eight Road nine ten"

str_list = str1.split()
str2 = ""
for i in str_list:
    if i =="Road":
        str_list.index(i)
        str_list.insert(str_list.index(i),'Rd')
        str_list.remove("Road")

print(str_list)
```

```
['ant', 'cat', 'bat', 'anty', 'egg', 'eight', 'Rd', 'nine', 'ten']
```

In [ ]:

```

```