Assignment 5

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GitHub : https://github.com/ORION-22/RegexSoftware_ASSIGNMENT.git

Q1. Given a list of integers, write a function to return the sum of all prime numbers in that list.

In [9]:
```
def primeSum( arr, n):

    max_val = max(arr)
    prime=[True for i in range(max_val + 1)]
    prime[0] = False
    prime[1] = False
    for p in range(2, max_val + 1):
        if(p * p > max_val):
            break
        if (prime[p] == True):
            for i in range(p * 2, max_val+1, p):
                prime[i] = False
    sum = 0
    for i in range(n):
        if (prime[arr[i]]):
            sum += arr[i]
    return sum


arr =[]
noele=int(input('Enter number of element in list:'))
for i in range (noele):
    print(f'Enter element no {i+1}:')
    app=int(input())
    arr.append(app)

n = len(arr)
print('Sum of all prime number:',primeSum(arr, n))
```

```
Enter number of element in list:5
Enter element no 1:
2
Enter element no 2:
3
Enter element no 3:
1
Enter element no 4:
6
Enter element no 5:
7
Sum of all prime number: 12
```

Q2. Given a list of integers, write a function to check whether the list is strictly increasing or not.

In [37]:
```
def solve( nums):
    if len(nums) <= 2:
         return True
    if len(set(nums)) != len(nums):
         return False
    ordered = sorted(nums)
    return nums == ordered or nums == ordered[::-1]

arr =[]
noele=int(input('Enter number of element in list:'))
for i in range (noele):
    print(f'Enter element no {i+1}:')
    app=int(input())
    arr.append(app)
print('List is strictly increasing:',solve(arr))
```

```
Enter number of element in list:5
Enter element no 1:
5
Enter element no 2:
6
Enter element no 3:
7
Enter element no 4:
8
Enter element no 5:
9
List is strictly increasing: True
```

Q3. Write a function to check whether a given list is expanding or not (the difference between adjacent elements should keep on increasing).

In [38]:
```
def solve( nums):
    if len(nums) <= 2:
         return True
    if len(set(nums)) != len(nums):
         return False
    ordered = sorted(nums)
    return nums == ordered or nums == ordered[::-1]

arr =[]
noele=int(input('Enter number of element in list:'))
for i in range (noele):
    print(f'Enter element no {i+1}:')
    app=int(input())
    arr.append(app)

print ("Original list : " + str(arr))

diff_list = []
for i in range(1, len(arr)):
    diff_list.append(arr[i] - arr[i-1])
print ("Difference list: ", str(diff_list))

print('List is strictly increasing:',solve(diff_list))
```

```
Enter number of element in list:5
Enter element no 1:
4
Enter element no 2:
6
Enter element no 3:
7
Enter element no 4:
2
Enter element no 5:
4
Original list : [4, 6, 7, 2, 4]
Difference list:  [2, 1, -5, 2]
List is strictly increasing: False
```

Q4. Write a function to calculate all permutations of a given string. (Without using itertools)

In [16]:
```
def permute(s, answer):
    if (len(s) == 0):
        print(answer, end = "  ")
        return
    for i in range(len(s)):
        ch = s[i]
        left_substr = s[0:i]
        right_substr = s[i + 1:]
        rest = left_substr + right_substr
        permute(rest, answer + ch)


answer = ""
s = input("Enter the string : ")
print("All possible strings are : ")
permute(s, answer)
```

```
Enter the string : ABC
All possible strings are :
ABC  ACB  BAC  BCA  CAB  CBA
```

In [ ]:
```

```