

# ANCC SHIVALIK 2023

## WEEK-4

From : 19-Dec-23 Tuesday.

To : 24-Dec-23 Sunday.

### **Introduction**

Up solving the problems of the before contests is very important, you can learn new topic easily from up-solving by reading the editorial and how others approached the same problem.

There is not practice sheet for this week, this week open all the previous contests you attempted and practice sheets we provided and solve at least one problem more than what you have attempted in the contest for each contest you have attempted (use editorials ...etc, post doubts in group ...etc).

### **What are we going to learn this week**

1. Primes
2. Range queries-(part-1)

### **What and from where to do this things**

1. Primes numbers
  1. [Sieve of Eratosthenes](#) (You may wish to ignore the proof of time complexity's here)
  2. [Linear Sieve](#)
  3. [Primality tests](#)
    1.  $O(\sqrt{n})$  approach
    2. Fermat primality test
      1. [Carmichael numbers](#)
    3. Miller-Rabin
  4. [Integer factorization](#)
    1. Till pollard's p-1 method.
2. Range Queries-(part-1)
  1. page 83 to 86 of CP-Hand Book. (not including binary index tree.)