

ANCC SHIVALIK 2023

WEEK-3(2)

From : 03-Dec-23 Sunday.

To : 10-Dec-23 Sunday.

Introduction

Topics in covered here are independent of programming, they are mostly mathematical. Yet the concepts are often used in CP.

What are we going to learn this week

1. Binary search (Week-3(1))
2. Delta encoding (First problem in practice sheet of Week-3(1))
3. Modular arithmetic (In this PDF)

What and from where to do this things

1. Basic modular properties related to addition, subtraction and multiplication
 1. CP Hand book page 201 and 202 (Till modular exponentiation.)
2. Modular inverse (Very important topic).
 1. This part is a bit hard to reach, one may directly read the formula and call it a day but the proofs are interesting to read.
 2. Direct formula read path
 1. CP Hand book page 202 Modular inverse
 3. Proof oriented path
 1. Learn Euler Totient function
 2. Learn Chinese remainder theorem
 3. Using those prove the Fermat's little theorem
 4. Use it to get to Inverse Modulus.
 5. You can find everything online(Wikipedia..etc) easily (in case of doubts, remember group is to ask doubts.)
4. Also remember doing the proof oriented path helps us prove many other theorems later on.