CSE221: Algorithms
Lab 02
Spring 2025

Assignment 02:

codeforces Invitation Link:
https://codeforces.com/contestInvitation/af34eaad9777158b662bcd65111940aac6d39880

Deadline: 11:59 pm, March 8, 2025
No submission will be considered after the deadline ends.

Learning Outcome:

We have already learned about time complexity in theory. Now, we will focus on improving our naive solution approach. In this lab, we will explore the two-pointer technique. Some problems that can be solved using the two-pointer approach may also be solvable with searching techniques. However, our primary focus will be on solving them using the two-pointer method. Since searching is closely related to the two-pointer technique, this lab also includes a few problems on binary search.

Understanding Two-Pointer Technique

- Learn how to optimize naive solutions using the two-pointer approach.
- Understand when and why two-pointer techniques are applicable.
- Differentiate between the **opposite-direction** and **same-direction** two-pointer strategies.

Searching

- Review the concepts of **lower bound** and **upper bound** and their applications. ● Find out if there is any alternative way to solve the problem you have solved using two-pointer approach [Self Study]

Performance Analysis

- Compare brute-force, two-pointer, and binary search approaches in terms of time complexity.