

## **COP 3502 Fall 2023 Section 1 Recitation Program #4**

### **CD**

**Kattis link: <https://open.kattis.com/problems/cd>**

For each recitation program, in order to get full credit, you must submit your solution to open.kattis.com and get your solution accepted on all test cases. In addition, each one will have some separate requirements to fulfill based on your code. When submitting your work to Webcourses, please carefully read the corresponding directions document before submitting all of your files.

**NOTE: Over the course of the semester, you must submit TWO out of the four recitation programs. It is expected that while you are in recitation, you start working on each of them. But, afterwards, you can choose which two to finish up.**

### **What This Program Is Testing/Implementation Requirements**

While there are many ways to correctly solve this problem, one method involves storing each input number in a hash table, and then looking up if other input numbers are already in the hash table.

To earn full credit on this problem, **you must implement your own idea of a hash function and hash table** using linear probing, quadratic probing or separate chaining hashing. The recommended table sizes for these techniques are 5 million, 2 million and 1 million, respectively, but feel free to play around with the table sizes. Your implementation must properly use dynamically allocated memory (automatic point deductions for Variable Length Arrays) and free that memory.

### **Fun Challenge**

Students who can beat an execution time on Kattis of .5 seconds may get some extra credit added to their grade (you must show Arup this in office hours to claim credit.)

### **What to Submit**

Please submit the following:

- 1) Your source file, cd.c.
- 2) A screenshot of your solution's accepted status on Kattis. **This screen shot needs to include your name at the top right and all of the check marks as well as the starting of your code below.**