CS2001 – Data Structures

Assignment # 06

General Guidelines

1. Write neat and clean code. Avoid any memory leaks and dangling pointers while implementing the scenarios required in this assignment.
2. You can lose the marks if conventions are not strictly followed.
3. Peer plagiarism and the late submissions are strictly not allowed. In case, zero marks will be awarded for whole assignment. You're not allowed to use any built-in libraries.
4. Total Marks: 100

Submission Guidelines

1. You will upload the assignment on CLASSROOM in given timeline.
2. Don't email your solution to instructor or TA for submission. Submit your assignment in given deadline said LMS.
3. You have already given one extra day for submission. No submission will be accepted later than said deadline.
4. Set file name as **Roll-no_Section_Assignment#**

Deadline: Monday, December 12, 2022, 4:00 PM

Task 1: Open Hashing [50 Marks]

Consider the following keys:

17, 26, 15, 9, 11, 43, 75, 19, 35, 45, 55, 9, 10, 21, 61, 23

Implement the hash table with hash table size 15. However, in this question you will consider the following collision resolution techniques:

a. *Linear Probing*
b. *Linear probing with Step Size*
c. *Quadratic Probing*

Additionally, also consider the double hashing in part ii, iii considering the load factor of 70%, you may need to keep the track of the node count for this.

Task 2: Closed Hashing [50 Marks]

In this question, consider the same keys as in question 1. Implement the hash table with closed hashing using each of the following collision resolution techniques:

a. *Chaining*
b. *Bucketing*

However, for bucketing, you can consider three buckets for your hash table. Additionally, you can also use rehashing if you feel any need of it. The criteria for rehashing will be same as in question 1.