

Assignment 1

CSE341 File Organization
Fall 2023

Your task is to write member functions of a class that stores numbers using Brent's Method. A header file with the class definition inside; a source file, main file is provided to you. In the source file(brent.cpp), I defined hash functions and calculateLQ function. **calculateLQ** function takes two parameters: index and increment value. Returns a vector of possible indexes with corresponding increment value.

You have five member functions to implement:

- Constructor for the class: The parameter passed to the constructor represents the desired size of the hash table. Write the necessary code to accommodate this.
- insert: The parameter passed is the value to be inserted into the hash table. Write the necessary code to insert this value into the hash table using Brent logic. You must use **calculateLQ** function to calculate the index you will insert into.
- find_num_probes: This function's job is to find out how many 'hops' are required to find a certain key inside the hash table. Note that the number of probes for a given key must be at least 1 (i.e. if you find the key directly without following any links, the result should be 1). The parameter passed is the key to search for in the hash table. You can assume that the searched key always exists in the table.
- find_average_num_probes: Computes the average number of probes required to find a key in this table. Find how many probes it takes to find all keys inside the hash table, and divide it by the number of valid entries.

Note: Use i_{min} when selecting which entry to move.

DO NOT make any changes to the header file.

DO NOT send a main function along with your work.

DO NOT change the names of the files.

Note 2: Submit your own code. Similar codes will not be graded.