COSC 2436 HW3

1. Implement a hash table data structure in C++ to store integer values.

2. Read the input data from a file where:

    The first line contains the size of the hash table

    Second line determines the type of the probing

    Third line is the list of integers separated by commas.

    You can assume all the inputs are in the correct format

3. Handle collisions based on the chosen method: - For Linear probing, use the following constant for linear probing: `c1 = 1`. For quadratic probing, use the following constants: `c1 = 3` and `c2 = 5`. (reminder: linear probing works f=c1*x and quadratic works with f=c1*x+c2*x^2)

4. Your hash table should have the following functionality:

    - Insertion of elements.

    - Searching for elements (to find and remove the duplicates)

5. Implement the Heap algorithm to store the elements in your hash table in a min heap.

6. Output: Provide the output by printing two lines: - The first line should display the contents of the hash table. - The second line should display the contents of the heap.

7. Requirements: Homework is individual. Your homework will automatically be screened for code plagiarism against other students and code from external sources. Code that is copied from another student (for instance, renaming variables, changing for and while loops, changing indentation, etc. will be treated as copy) will be detected and result in ”0” in this homework. The limit is 50% similarity.

7. Turn in your homework

Make sure to create a folder under your root directory, name it “hw3” (case sensitive), and copy all your .cpp and .h file to this folder, “ArgumentManager.h” need to be included as well.

PS: This document may have typos, if you think something is illogical, please email TAs for confirmation.