Name: - _____

Answer the following question:

Create a new C++ project to demonstrate your understanding for the concept of hash tables. In this project:

1- The following pairs will be used as entries to the has table:
   1. (“100”,”Adam”)
   2. (“101”,”Steve”)
   3. (“151”,”John”)
   4. (“111”,”Kratos”)
   5. (“190”,”Lara”)
   6. (“201”,”Mario”)
   7. (“133”,”Nathan”)
   8. (“913”,”Zelda”)
   9. (“555”,”Cortana”)
   10. (“717”,”Gordon”)

2- Create a hash table (array) of a size 7.
3- The data type of the array is a single linked list with a data type of string (each element of the array is a linked list of a data type string).
4- Use chaining method to solve the problem of possible collisions.
5- The hash function is the summation of the digits of the key module 7. For example, if the key is “341” the result of applying the hash function using this key will be: (3+4+1)%7 = 1.
6- After building the hash table, create a search function to search for the following pairs: (“111”,”Kratos”), (“555”,”Cortana”), (“190”,”Lara”) & (“111”,” Malukah”)
7- If the value does exist, return a pair of the index and the iterator value which hold the address of the element in the linked list.
8- If the value does not exist, the returned pair should contain the value -1 for the index and the iterator should hold NULL Value.
9- Feel free to use any standard library to finish this project.