CSC 212 – Data Structures

Assignment7

Make sure your code is readable and well-documented. Each function must also begin with a title block that describes the task of the function, input parameters and return value.

1. Write a recursive function that takes a string as an input and returns the reverse of the string.
2. Write a recursive function rec\_string that produces the output shown below for the corresponding function calls. Write a main function to test the function.

Method call rec\_string(‘abcde’), will produce the following output:

\*

e

de

cde

bcde

abcde

Method call rec\_string(‘abc’), will produce the following output:

\*

c

bc

abc

1. Draw the 11-item hash table resulting from hashing the keys 12, 44, 13, 88, 23, 94, 11, 39, 20, and 16, using the hash function h(i) = (2i + 5) mod 11 and assuming collisions are handled by linear probing.
2. How many comparisons are needed to find39 in the table?
3. How many comparisons are needed to determine that 5 is not in the table? Briefly explain.
4. Draw the 11-item hash table of the previous exercise, assuming collisions are handled by chaining?
5. How many comparisons are needed to find39 in the table?
6. How many comparisons are needed to determine that 5 is not in the table? Briefly explain.