COSC 3304 – Algorithms Design and Analysis

Assignment 6

Due: 23:59:00pm, 02/27/2024

1. Please describe how to insert a new element into an array that is already full (10 points)

2. Please describe how to remove a node from a doubly linked list (10 points)

3. What is the worst time complexity (big O) when inserting an element into an array? Why? (10 points)

4. Let us consider an empty hash table with 10 positions indexed from 0 to 9. Please illustrate the content of the hash table after inserting the elements 69, 18, 49, 89, 93, 0, and 60.

   (1) Linear probing (20 points)

   (2) Quadratic probing (25 points)

   (3) Double hashing with
   $h(k, i)=(h(k)+i*h'(k))\%10$, $h(k) = k\%10$, and $h'(k)= 7-k\%7$
   (25 points)