

## **Assignment-2 (WT)**

1. Write a java program to compare two strings lexicographically (without using library function).
2. Write a program to implement counting sort (with input in the range 0 to 20 and input can be repeated multiple times)
3. Write a program to sort strings (without using library function).
4. Find the smallest  $n$  such that  $\sum_{i=1}^n i$  where  $1 \leq i \leq n$  is too large to be represented as an int.
5. Let us define a couple of sets of integers, and let Java compute the set-theoretical operations (union, intersection and complement). We first fix our universe, which will consist of the 11 elements, Universe = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}, A and B will be entered by users.
  - a. Only array can be used as data structure
  - b. Using any efficient data-structure available in Java
  - c. Compare the time to compute the operations
6. Write a `ConsoleProgram` that reads in a number from the user and then displays the Hailstone sequence for that number (Pick some positive integer and call it  $n$ . If  $n$  is even, divide it by two. If  $n$  is odd, multiply it by three and add one. Continue this process until  $n$  is equal to one)