Assignment

1. Write a function to implement count sort algorithm. Illustrate the operation of count sort on array A = { 6, 0, 2, 0, 6, 3, 2 }
2. Write a recursive function to calculate sum of a given array.
3. Sort the following set of elements using insertion sort. Show the content of array after every pass.

   34, 56, 12, 8, 92, 9, 44, 23

4. Given the following code. Write its recursive function.

```
void f(int n)
{
     for (int i=n; i>=1; i--)
     {
          if (i%2==0)
               cout<<i*i*i<<endl;
     }
}
```

5. List any 5 differences between arrays and linked list data structure.
6. Write insertion sort function to sort a given array. Also give best and worst-case analysis for the same.
7. What is binary recursion. Write a program in C++ for computing Fibonacci numbers via binary recursion.
8. Write a C++ program to display lower triangle matrix.

```
Input : matrix[3][3] = { 1 2 3
                         4 5 6
                         7 8 9}

Output :
1 0 0
4 5 0
7 8 9
```

9. Solve the following recurrence relation using tree method.

   $T(n) = T(n/4) + T(3n/4) + cn$, if $n>1$ and 1 otherwise