

Assignment - 03

(Week - 4)

Question 1:

Write a merge sort algorithm by using java programming language and pseudocodes which are shared below.

After finishing your implementation, you should write random, best and worst case for the merge sort algorithm and count the iterations for each.

MergeSort ()

```
function mergesort(m)
  var list left, right
  if length(m) ≤ 1
    return m
  else
    middle = length(m) / 2
    for each x in m up to middle
      add x to left
    for each x in m after middle
      add x to right
    left = mergesort(left)
    right = mergesort(right)
    result = merge(left, right)
    return result
```

Merge ()

```
function merge(left, right)
  var list result
  while length(left) > 0 and length(right) > 0
    if first(left) ≤ first(right)
      append first(left) to result
      left = rest(left)
    else
      append first(right) to result
      right = rest(right)
  if length(left) > 0
    append left to result
  if length(right) > 0
    append right to result
  return result
```