**DAA-Lab**

**LAB - 5**

LQ1. Aim of the experiment : Rewrite the program Lab 4 LQ2 by using an user defined function to implement merge sort without a recursion (bottom-up version of mergesort) by starting with merging adjacent elements of a given array, then merging sorted pairs, and so on. Sample Input/Output Enter how many random numbers : 10 The content of the array with random input are as follows : 10, 40, 35, 47, 68, 22, 40, 46, 98, 10 The sorted array (ascending order) is as follows : 10, 10, 22, 35, 40, 40, 46, 47, 68, 98

CASE-1

**INPUT:**

Enter how many random numbers: 10

**OUTPUT:**

The content of the array with random input is as follows: 10, 40, 35, 47, 68, 22, 40, 46, 98, 10

The sorted array (ascending order) is as follows: 10, 10, 22, 35, 40, 40, 46, 47, 68, 98

CASE-2

**INPUT**

Enter how many random numbers: 8

**OUTPUT:**

The content of the array with random input is as follows: 57, 32, 84, 19, 65, 44, 76, 91

The sorted array (ascending order) is as follows: 19, 32, 44, 57, 65, 76, 84, 91

CASE-3

**INPUT:**

Enter how many random numbers: 12

**OUTPUT:**

The content of the array with random input is as follows: 54, 76, 23, 41, 12, 87, 29, 65, 99, 15, 43, 78

The sorted array (ascending order) is as follows: 12, 15, 23, 29, 41, 43, 54, 65, 76, 78, 87, 99

LQ2. Aim of the experiment : A and B are playing a guessing game where B first thinks up an integer X (positive, negative or zero, and could be of arbitrarily large magnitude) and A tries to guess it. In response to A's guess, B gives exactly one of the following three replies : a) Try a bigger number b) c) You got it. Write a program by designing an efficient algorithm to minimize the number of guesses A has to make. Try a smaller number or

CASE-1

**INPUT / OUTPUT:**

A's guess: 50

B's response: Try a smaller number

A's guess: 25

B's response: Try a bigger number

A's guess: 37

B's response: Try a smaller number

A's guess: 31

B's response: Try a bigger number

A's guess: 34

B's response: Try a bigger number

A's guess: 36

B's response: Try a smaller number

A's guess: 35

B's response: You got it.