**Lab 8 – Implementing merge sort and searching algorithms**

**Part I Implementing the Merge Sort Algorithm**

1. Implement the merge sort algorithm, from your notes, in C. Your program should work as follows:
   1. Input 8 random numbers, which should be put into the starting array.
   2. Once input, display the array to be sorted.
   3. Once executed, the sorted array should be printed out.

**Part II Implementing Search Algorithms**

1. Implement the algorithm, that searches for a particular card (e.g., the Queen of Hearts) in a deck of cards. This algorithm was derived in Friday’s class. . The program should print the index of the array where the playing card has been found.
2. Implement the Binary Search algorithm in C using the array output in the Part I of this lab. The program should print the index of array where the number has been found.