**Lab 7 – 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. Derive an algorithm, that searches for a particular card (e.g., the Queen of Hearts) in a deck of cards. Implement this algorithm in C. 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.