Computer Science II	Lab 19B – QUICK SORT	Lab Value - 100

Lab Goal : This lab was designed to teach you more about sorting and searching and specifically about quick sort.

Lab Description : Write a program that demonstrates you know how to implement a quick sort.

Sample Data :

```
9 5 3 2
19 52 3 2 7 21
68 66 11 2 42 31
```

Sample Output :

```
pass 0 [2, 5, 3, 9]
pass 1 [2, 5, 3, 9]
pass 2 [2, 3, 5, 9]


pass 0 [7, 2, 3, 52, 19, 21]
pass 1 [3, 2, 7, 52, 19, 21]
pass 2 [2, 3, 7, 52, 19, 21]
pass 3 [2, 3, 7, 21, 19, 52]
pass 4 [2, 3, 7, 19, 21, 52]


pass 0 [31, 66, 11, 2, 42, 68]
pass 1 [2, 11, 66, 31, 42, 68]
pass 2 [2, 11, 66, 31, 42, 68]
pass 3 [2, 11, 42, 31, 66, 68]
pass 4 [2, 11, 31, 42, 66, 68]
```

quickSort Algorithm

```
method quicksort(array,low,high)
   as long as low is less than high
      split = partition(array, low, high)
      quicksort(array, low, split)
      quicksort(array, split+1, high)


method partition(array,low,high)
   pivot is the left most value in array
   bot = one less than low
   top = one more than high

   while bot is less than top
      loop as long as bot + 1 is less than pivot
      loop as long as top - 1 is more than pivot
      check to see if bot and top have crossed
          return top
      swap bot spot and top spot
```