**Assignment - 4**

1. Write a program to search for an integer in an array of integers. Use each one of the following approach.
   1. Linear Search
   2. Binary Search

***Input/Output*** (an array of integers is hardcoded in the program as “*int a[] = {12, 14, 4, 9, 17, 3};”*)

Enter a number: 12

It is found!

Enter a number: 1

It is not found!

1. Write a program implementing binary search algorithm using recursion (The input/output is the same as Question.1.)
2. Write a program to sort a set of numbers in ascending order using bubble sort algorithm.

Enter the numbers: 4 8 2 1 5 3

Sorted output: 1 2 3 4 5 8

1. Write a program to sort a set of numbers in ascending order using insertion sort algorithm.

Enter the numbers: 4 8 2 1 5 3

Sorted output: 1 2 3 4 5 8

1. Write a program [to Input a few Numbers & Perform Merge Sort on them using Recursion](http://www.sanfoundry.com/c-program-merge-sort-using-recursion/).

Enter the elements: 2 1 6 7 8 2 5 9

Sorted elements are: 1 2 2 5 6 7 8 9

1. Write a program [to input a few Numbers & sort them using algorithm Quick Sort](http://www.sanfoundry.com/c-program-merge-sort-using-recursion/).

1. i) Write a program to generate 1000, 100000, 100000, 200000, 500000, and 1000000 numbers randomly( use srand() and rand()) and sort them using the following algorithms
   1. Insertion sort
   2. Bubble sort
   3. Merge sort
   4. Quick sort

ii) Measure the time taken to run each of the above algorithm and print it.(use time() and clock() functions)

1. [Write a Program to Sort n Names in an Alphabetical Order](http://www.sanfoundry.com/c-program-sort-names-alphabetical-order/) (also called lexicographic order or dictionary order).

Enter the value of n: 5

Enter the names: Stack, Queue, List, Heap, Bubble

Sorted names are: Bubble, Heap, List, Stack, Queue