Assignment 6 – Searching and Sorting (2 weeks)

Problem 1. Show the steps that linear search finds a given value x = 4 in an array A = {10, 8, 2, 7, 3, 4, 9, 1, 6, 5}.

Problem 2. Show the steps that binary search finds a given value x = 4 in a sorted array A = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}.

Problem 3. Given an array A = {10, 8, 2, 7, 3, 4, 9, 1, 6, 5}. Visualize how the array is sorted step by step in case of:

   a) Insertion sort
   b) Selection sort.
   c) Bubble sort.
   d) Estimate the computational complexity of the above algorithms.

Problem 4. Given an array A = {10, 8, 2, 7, 3, 4, 9, 1, 6, 5}. Visualize how the array is sorted step by step in case of:

   a) Quick sort.
   b) Merge sort.
   c) Estimate the computational complexity of the above algorithms.