Assignment − 3

1. Given an array of size n (not sorted) integers, using Divide and Conquer algorithm, solve the following problems.

   (a) Find maximum of n integers.
   (b) Find maximum and minimum of n integers.
   (c) Find maximum and second maximum of n integers.

2. Your input list of length n consists of of $n - 1$ consecutive non-negative integers in the range of 1 to $n + 1$ and one of the integers is missing in the list. For example:

   Input : $[1, 2, 3, 4, 6, 7, 8]$ Output: 5

   Assume that there are no duplicates in list. Suggest the most efficient divide and conquer algorithm to find the missing number in this list.

3. Given an integer array A, find a subarray that has the largest product, and return the product. Use divide and conquer algorithm to solve it.