CSE110 Assignment 5

Task 1) Assume that we have the following array contains marks of 5 students.

int[] marks = new int[] {10, 30, 20, 50, 40}; Find the max, min, average mark.
Output:

Highest mark is 50
Lowest mark is 10
Average mark is 30

Task 2) Assume that we have the following array contains marks. int[] marks = new int[] {10, 30, 20, 50, 40};

Find how many students are better than average.
Output:

2 students are better than average.
They received following marks
50
40

Hint: First calculate average marks. Then loop through the marks array and count how many marks are greater than average. Print this count. Then again, loop through the marks and count how many elements were greater than average marks.

Task 3) Assume that we have the following array. int[] a = new int[] {10, 30, 20, 50, 40};

Find the largest number and print it along with its location. Output:

Largest number is 50
Largest number was found at location 3

Task 4) Assume that we have the following array. int[] a = new int[] {10, 30, 20, 50, 40};

Modify Task 3. Swap the first number with largest number. Your output should be 50, 30, 20, 10, 40

Hint:

Find largestNumber and largestNumberLocation. backup = a[0];
a[0]=largestNumber;
a[largestNumberLocation]=backup;

Task 5) Assume that we have the following array. int[] a = new int[] {50, 30, 20, 10, 40};
Modify Task 4.

Find largest number among all numbers between 2nd and last number (30, 20, 10, 40).

Swap the 2nd number with this largest number.
Thus you just put 2nd largest in 2nd position.

Task 6) Combine ideas from Task 4 and 5.
Ask the user for a number n, and then find nth highest number

Hint:
Repeat the idea (from task 4, 5) n times.

Then you will find nth highest number in nth position in array.
Read https://sites.google.com/site/bucse110/sort

Task 7) Modify Task 5 to sort / arrange all numbers in the array.
Your output should be 50, 40, 30, 20, 10

Hint:
Read https://sites.google.com/site/bucse110/sort

Task 8) Find median among some numbers.
Ask user how many numbers and input those numbers.

Definition of Median:

For example, if a < b < c, then the median of the list {a, b, c} is b, and, if a < b < c < d, then the median

of the list {a, b, c, d} is the mean of b and c; i.e., it is (b + c)/2.

Hint:
Sort numbers

if there are odd number of numbers, say 9, then the median is the middle number, at 5th position

if there are even number of numbers, say 10, then the median is average of two middle numbers, (5th+6th)/2

Sample Input
1: 5 10 50 40
20 30

Sample Output
1: 30

Sample Input 2: 6
10 50 40 20 30
60

Sample Output
2: 35