**Exercise (184101R)**

**1)**

* **Algorithm 01**

Class FirstSecondMax{

public static void main(String[] args){

findFirstSecondMax (new int[]{5,86,4,78,45,12,36,21});

}

public static void findFirstSecondMax (int[] array){

int Max = array[0];

int secondMax = array[0];

for (int i = 0; i<array.length; i++){

if (Max < array[i]){

secondMax = Max;

Max = array[i];

}else if (secondMax < array[i]){

secondMax = array[i];

}

}

System.out.println("Max = " + Max);

System.out.println("Second Max = " + SecondMax);

}

}

* **Algorithm 02**

class FirstSecondMax{

int x[] = { 5,86,4,78,45,12,36,21};

Array.sort(x, Collections.reverseOrder());

System.out.println("Max = " + x[0]);

System.out.println("Second Max = " + x[1]);

}

* **Algorithm 03**

class FirstSecondMax {

int x[] = { 5,86,4,78,45,12,36,21};

const int y = x.length

int Max = x[0];

for( int i = 0; i < y; i++ ) {

if( x[i] > Max ) {

Max = x[i];

}

}

int SecondMax = x[0];

for( int i = 0; i < y; i++ ) {

if( x[i] > SecondMax && x[i] < Max) {

SecondMax = x[i];

}

}

System.out.println("Max = " + Max);

System.out.println("Second Max = " + SecondMax);

}

2)

Algorithm 2 is the most time efficient.

Reason- Number of comparisons are low in algorithm 2.