1-

a) What is the return value of the following calls to the method mystery:

```java
public static int[] mystery(int[] nums) {
    int temp = nums[0];
    for(int i=0;i<nums.length-1;i++)
        nums[i] = nums[i+1];
    nums[nums.length-1] = temp;
    return nums;
}
```

mystery({6, 2, 5, 3}) →  
mystery({1, 2}) → 

b) What is method mystery doing?

c) if this method is called by following statements, does array inputArr change after the method call? Why?

```java
int[] inputArr = {4,5,6};
int[] outputArr = mystery(inputArr);
```

d) suppose another method as follows, if this method is called by following statements, does array inputArr change after the method call? Why?

```java
public static int mystery2(int num){
    num += 2;
    return num;
}
```

```java
int[] inputArr = {4,5,6};
int output= mystery2(inputArr[0]);
```
2) Assume a sort1D method is given which sorts a given 1D array in place and returns it.

\[
\text{Sort1D}\{2,5,3,1\} \rightarrow \{1,2,3,5\}
\]

a) Write a method named sort2DRows: given a 2D array of integers (as a matrix), sorts each row in place using sort1D method and returns it.

\[
\text{Sort2DRows}\{\{2,15,3,11\},\{3,10,6,1\},\{25,7,18,23\}\} \rightarrow \{\{2,3,11,15\},\{1,3,6,10\},\{7,18,23,25\}\}
\]
b) Write a method named sort2DCols: given a 2D array of integers (as a matrix), sorts each column in place using sort1D method and returns it.

Sort2DCols({{2,15,3,11},{3,10,6,1},{25,7,18,23}}) → {{2,7,3,1},{3,10,6,11},{25,15,18,23}}