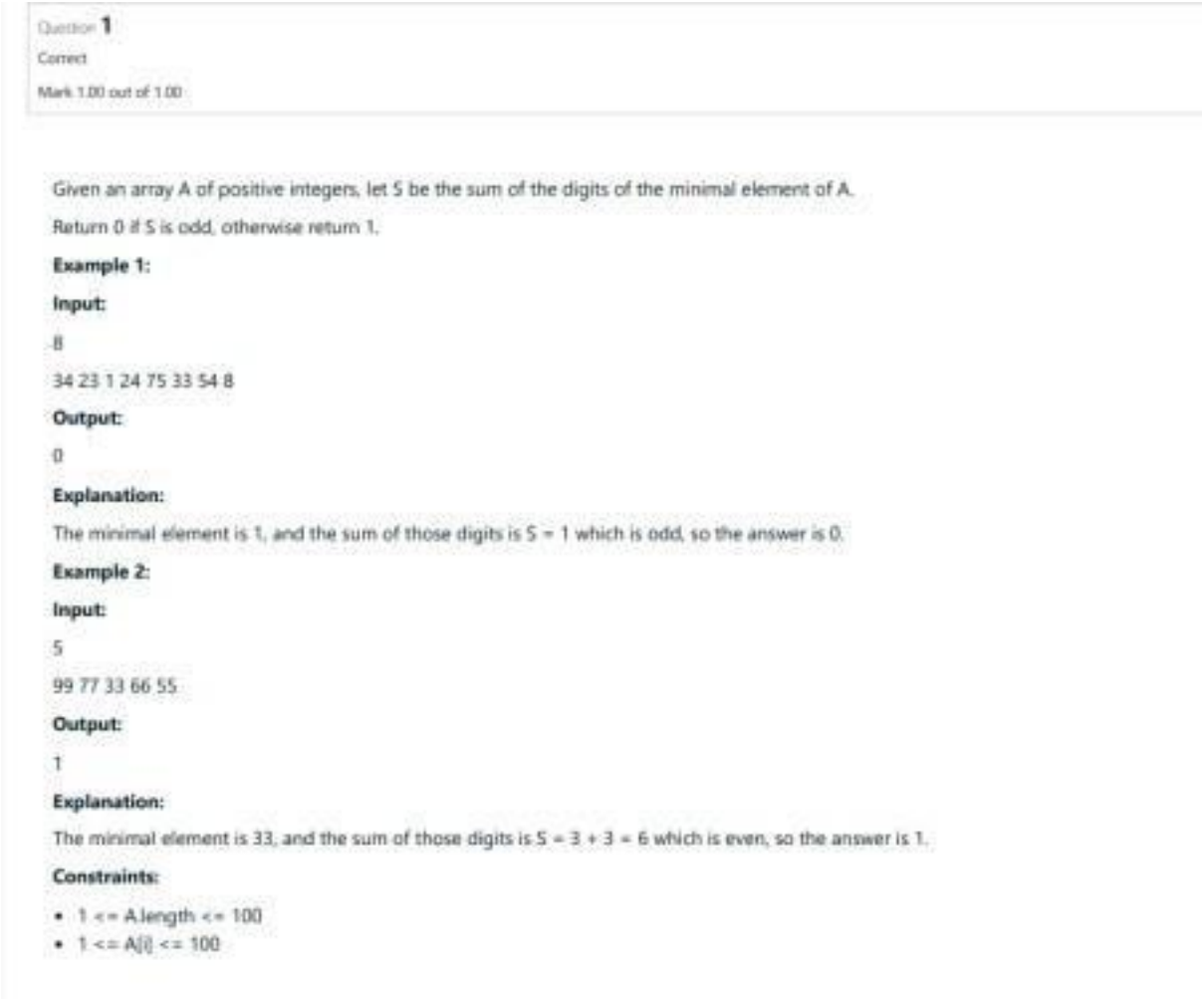
Week 5 sample program

1.



Question 1

Correct

Mark 1.00 out of 1.00

Given an array A of positive integers, let S be the sum of the digits of the minimal element of A.

Return 0 if S is odd, otherwise return 1.

Example 1:

Input:

8

34 23 1 24 75 33 54 8

Output:

0

Explanation:

The minimal element is 1, and the sum of those digits is S = 1 which is odd, so the answer is 0.

Example 2:

Input:

5

99 77 33 66 55

Output:

1

Explanation:

The minimal element is 33, and the sum of those digits is S = 3 + 3 = 6 which is even, so the answer is 1.

Constraints:

- 1 <= A.length <= 100
- 1 <= A[i] <= 100

Program:

```
import java.util.Scanner; public class MinElementDigitSum
{
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter the number of elements in the array: ");        int
size = scanner.nextInt();        if (size <= 0) {
         System.out.println("Array size must be greater than zero.");
         return;
      }
      int[] array = new int[size];
```

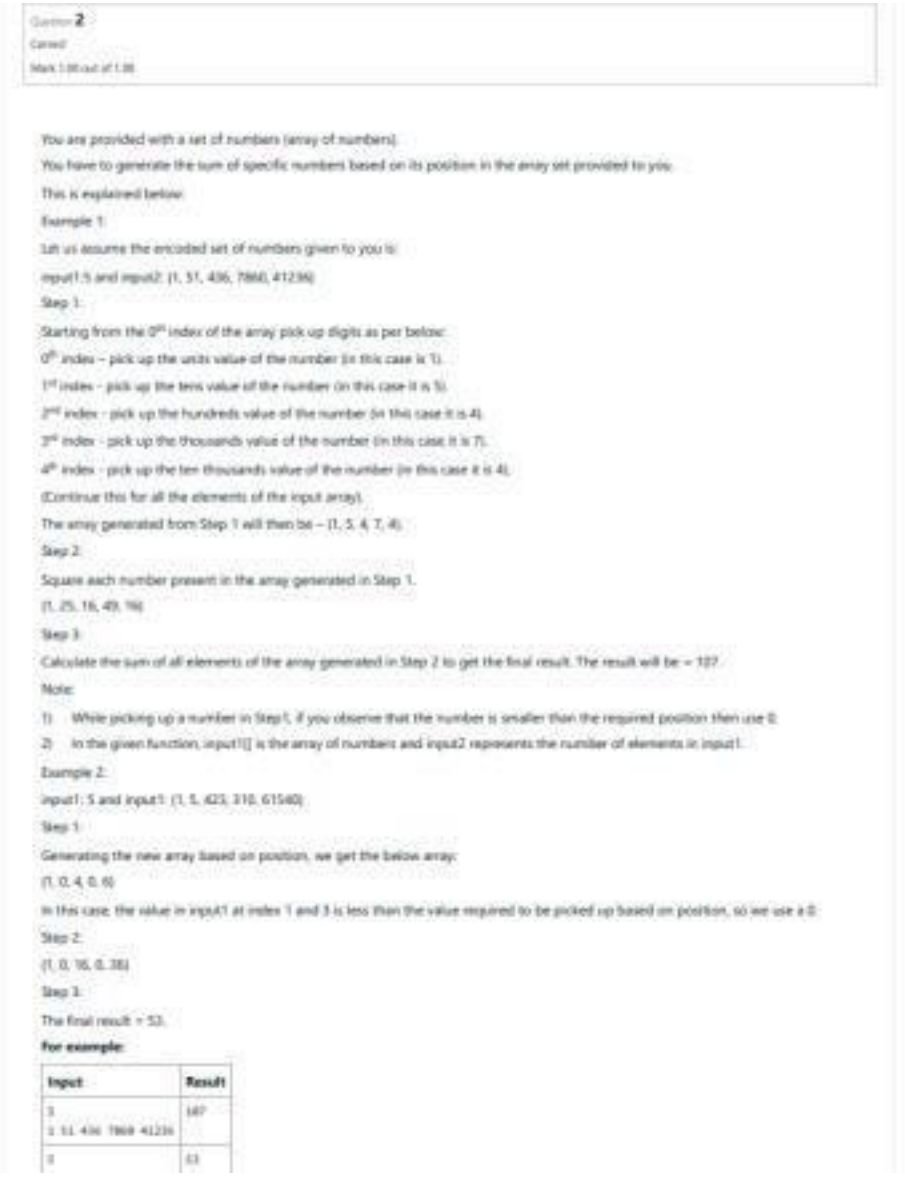
```
        System.out.println("Enter the elements of the array:");
        for (int i = 0; i < size; i++) {
array[i] = scanner.nextInt();
        }
        int minElement = array[0];
        for (int i = 1; i < size; i++) {            if (array[i]
< minElement) {
minElement = array[i];
          }
        }
        int sumOfDigits = 0;        int
number = minElement;        while
(number > 0) {            sumOfDigits
+= number % 10;
          number /= 10;
        }
        System.out.println(sumOfDigits % 2 == 0 ? 1 : 0);
    }
}
```

Output:

```
Enter the number of elements in the array: 8
Enter the elements of the array:
34
23
1
24
75
33
54
8
0
```

```
Enter the number of elements in the array: 5
Enter the elements of the array:
99
77
33
66
55
1
```

2.



Question 2

Correct

Mark 1.00 out of 1.00

You are provided with a set of numbers (array of numbers).

You have to generate the sum of specific numbers based on its position in the array set provided to you.

This is explained below:

Example 1:

Let us assume the encoded set of numbers given to you is:

input1:5 and input2: {1, 51, 436, 7860, 41236}

Step 1:

Starting from the 0th index of the array pick up digits as per below:

0th index – pick up the units value of the number (in this case is '1').

1st index – pick up the tens value of the number (in this case it is '5').

2nd index – pick up the hundreds value of the number (in this case it is 4).

3rd index – pick up the thousands value of the number (in this case it is 7).

4th index – pick up the ten thousands value of the number (in this case it is 4).

(Continue this for all the elements of the input array).

The array generated from Step 1 will then be – {1, 5, 4, 7, 4}.

Step 2:

Square each number present in the array generated in Step 1.

{1, 25, 16, 49, 16}

Step 3:

Calculate the sum of all elements of the array generated in Step 2 to get the final result. The result will be = 107.

Note:

1) While picking up a number in Step1, if you observe that the number is smaller than the required position then use 0.

2) In the given function, input1[] is the array of numbers and input2 represents the number of elements in input1.

Example 2:

input1: 5 and input1: {1, 5, 423, 310, 61540}

Step 1:

Generating the new array based on position, we get the below array:

{1, 0, 4, 0, 6}

In this case, the value in input1 at index 1 and 3 is less than the value required to be picked up based on position, so we use a 0.

Step 2:

{1, 0, 16, 0, 36}

Step 3:

The final result = 53.

For example:

Input	Result
3 1 51 436 7860 41236	107
1	53

Program:

```
import java.util.Scanner; public class
DigitSumCalculator { public static void
main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    System.out.println("Enter the number of elements in the array:");
int n = scanner.nextInt();      int[] input = new int[n];
System.out.println("Enter the elements of the array:");
    for (int i = 0; i < n; i++) {
input[i] = scanner.nextInt();
    }
```

```
        int finalSum = calculateFinalSum(input);

        System.out.println("Final result = " + finalSum);
    }
    public static int calculateFinalSum(int[] input) {
int finalSum = 0;        for (int i = 0; i < input.length; i++)
{           int currentNumber =
input[i];           int digitPosition = i + 1;           int digit =
getDigitAtPosition(currentNumber, digitPosition);           finalSum +=
digit * digit;
        }
        return finalSum;
    }
    public static int getDigitAtPosition(int number, int position) {        String
numberStr = Integer.toString(number);        int length =
numberStr.length();        if (length < position) {
            return 0;
        }
        char digitChar = numberStr.charAt(length - position);
return Character.getNumericValue(digitChar);
    }
}
```

Output:

```
Enter the number of elements in the array:
5
Enter the elements of the array:
1
5
423
310
61540
Final result = 53
```

3.

Question 3

Correct

Mark 1.00 out of 1.00

The program must accept **N** integers and an integer **K** as the input. The program must print every K integers in descending order as the output.

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Note: If **N % K != 0**, then sort the final N%K integers in descending order.

Boundary Condition(s):

1 <= N <= 10^4
-99999 <= Array Element Value <= 99999

Input Format:

The first line contains the values of N and K separated by a space.
The second line contains N integers separated by space(s).

Output Format:

The first line contains N integers.

Example Input/Output 1:

Input:

7 3
48 541 23 68 13 41 6

Output:

541 48 23 68 41 13 6

Explanation:

The first three integers are 48 541 23, after sorting in descending order the integers are **541 48 23**.
The second three integers are 68 13 41, after sorting in descending order the integers are **68 41 13**.
The last integer is **6**.
The integers are **541 48 23 68 41 13 6**
Hence the output is **541 48 23 68 41 13 6**.

Program:

```
import java.util.Arrays; import java.util.Scanner; public class SegmentSorter { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.println("Enter the values of N and
```

```
K:");       int N = scanner.nextInt();       int K
=                                scanner.nextInt();
System.out.println("Enter  the  "  +  N  +  "
elements:");      int[] arr = new int[N];      for
(int i = 0; i < N; i++) {
arr[i] = scanner.nextInt();
      }
      for (int i = 0; i < N; i += K) {
int end = Math.min(i + K, N);
Arrays.sort(arr, i, end);          reverse(arr, i,
end - 1);
      }
      for (int num : arr) {
         System.out.print(num + " ");
      }
   }
   public static void reverse(int[] arr, int start, int end) {       while
(start < end) {          int temp = arr[start];          arr[start]
= arr[end];          arr[end] = temp;
         start++;
end--;
      }
   }
}
```

Output:

```
Enter the values of N and K:
7 3
Enter the 7 elements:
48
541
23
68
13
41
6
541 48 23 68 41 13 6
```