Arrays - 2

Assignment Solutions

PW SKILLS

Q1 - Given an unsorted array arr[] of size N having both negative and positive integers, place all negative elements at the end of array without changing the order of positive elements and negative elements (Medium)

Input :

N = 8

arr[] = {1, -1, 3, 2, -7, -5, 11, 6 }

Output :

1 3 2 11 6 -1 -7 -5

Code:

```
import java.util.Scanner;
public class Test {
  public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    System.out.println("Enter the length of array: ");
    int n = scn.nextInt();
    int[] arr = new int[n];
    for(int i = 0; i < n; i++){
      arr[i] = scn.nextInt();
    }
    int[] ans = new int[n];
    int idx = 0;
    for(int i = 0; i < n; i++){
      if(arr[i] ≥ 0){
        ans[idx] = arr[i];
        idx++;
      }
    }
    for(int i = 0; i < n; i++){
      if(arr[i] < 0){
        ans[idx] = arr[i];
        idx++;
      }
    }
    for(int i = 0; i < n; i++){
      System.out.print(ans[i] + " ");
    }
}
}
```

```
/Library/Java/JavaVirtualMachines/jdk-19.jdk/Contents/Home/bin/
8
1 -1 3 2 -7 -5 11 6
1 3 2 11 6 -1 -7 -5
Process finished with exit code 0
```

Q2 - Given two arrays a[] and b[] of size n and m respectively where m >= n. The task is to find union between these two arrays and print the number of elements of the union set. Union of the two arrays can be defined as the set containing distinct elements from both the arrays. If there are repetitions, then only one occurrence of element should be printed in the union. (Medium)

Input:

5 3

1 2 3

1 2 3 4 5

Output:

5

Code:

```
import java.util.Scanner;
public class Test {
  public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    System.out.println("Enter the length of arrays: ");
    int n = scn.nextInt();
    int m = scn.nextInt();
    int[] a = new int[n];
    int[] b = new int[n];
    for(int i = 0; i < n; i++){
      a[i] = scn.nextInt();
    }
    for(int i = 0; i < m; i++){
      b[i] = scn.nextInt();
      boolean check = false;
      for(int j = 0; j < n; j++){
        if(b[i] == a[j]){
          check = true;
          break;
        }
      }
      if(!check){
        System.out.println(b[i]);
      }
   }
}
}
```

```
/Library/Java/JavaVirtualMachines/jdk-19.jdk/Contents/Home/bin/
5 3
1 2 3
1 2 3 4 5
4
5

Process finished with exit code 0
```

Q3 - Given an array arr[] and an integer K where K is smaller than size of array, the task is to find the Kth smallest element in the given array. It is given that all array elements are distinct. (Easy)

Input:

N = 6

arr[] = 7 10 4 3 20 15

K = 3

Output:

7

Code:

```
import java.util.Scanner;
import java.util.Arrays;
public class Test {
  public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    System.out.println("Enter the length of array: ");
    int n = scn.nextInt();
    int[] arr = new int[n];
    for(int i = 0; i < n; i++){
      arr[i] = scn.nextInt();
    }
    int k = scn.nextInt();
    Arrays.sort(arr);
    System.out.print(arr[k-1]);
  }
}
```

```
/Library/Java/JavaVirtualMachines/jdk-19.jdk/Contents/Home/bi
6
7 10 4 3 20 15
3
7
Process finished with exit code 0
```

Q4 - Given an unsorted array A of size N that contains only non-negative integers, find a continuous sub-array which adds to a given number S.
In case of multiple subarrays, return the subarray which comes first on moving from left to right.
You need to print the start and end index of answer subarray.

(Medium)

Input:

N = 5, S = 12

A[] = {1,2,3,7,5}

Output:

1 3

Code:

```
import java.util.Scanner;
public class Test {
  public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    System.out.println("Enter the length of array: ");
    int n = scn.nextInt();
    int s = scn.nextInt();
    int[] arr = new int[n];
    for(int i = 0; i < n; i++){
      arr[i] = scn.nextInt();
    }
    int i = 0;
    int j = 0;
    int sum = 0;
    while(j < n){
      sum += arr[j];
      if(sum > s){
        while(sum > s && i < j){
          sum -= arr[i];
          i++;
        }
      }
      if(sum == s){
        System.out.print(i + " ");
        System.out.print(j);
        break;
      }
      j++;
    }
  }
}
```

```
/Library/Java/JavaVirtualMachines/jdk-19.jdk/Contents/Home/bin/
5
12
1 2 3 7 5
1 3
Process finished with exit code 0
```

Q5 - Write a Java program to test the equality of two arrays. (Easy)

Input:

5
2 5 7 9 11
2 5 7 9 13

Output:

false

Code:

```
import java.util.Scanner;
public class Test {
  public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    System.out.println("Enter the length of array: ");
    int n = scn.nextInt();
    int[] arr1 = new int[n];
    int[] arr2 = new int[n];
    for(int i = 0; i < n; i++){
      arr1[i] = scn.nextInt();
    }
    boolean ans = true;
    for(int i = 0; i < n; i++){
      arr2[i] = scn.nextInt();
      if(arr2[i] != arr1[i]){
        ans = false;
        break;
      }
    }
    System.out.print(ans);
}
}
```

```
/Library/Java/JavaVirtualMachines/jdk-19.jdk/Contents/Home/bin/
5
2 5 7 9 11
2 5 7 9 13
false
Process finished with exit code 0
```