

SortedSetADT

Write a Java Program to define the SortedSet that extends the Set ADT (You have implemented the Set ADT as part of the Week - 2 Exam).

SortedSet where all the elements should be in sorted order. As part of the SortedSet ADT, the methods such as size(), contains(), indexOf(), toString() intersection() retainsAll(), cartesianProduct() methods need not be implemented. All these methods can be reusable from the Set. (This can be achieved by extending the features of the Set to SortedSet).

Following are the other methods which you need to implement:

- subSet(int fromElement, int toElement) : Returns a view of the portion of this set whose elements range from fromElement, inclusive, to toElement, exclusive. If fromElement is greater than toElement, then print a message "Invalid Arguments to Subset Exception".
- headSet(int toElement) : Returns a view of the portion of this set whose elements are strictly less than toElement.
- last() : Returns the last (highest) element currently in this set. If set is Empty, then print a message "Set Empty Exception"
- addAll(int[]) : which adds all the elements of the given array into the sorted set.
Create a class SortedSetADT and a constructor SortedSetADT(int[]) which takes a int[] as parameter and initialize the global int Array.
 - 1) int[] subSet(int fromElement, int toElement) : returns int[]
 - 2) int[] headSet(int toElement) : returns int[]
 - 3) int last() : returns int
 - 4) void addAll(int[]) : returns nothing

Input Format :

- The first line contains the number of operations
- Each line contains the method name and values separated by space.

Output Format :

- After each operation, display the set or the values returned by the method based on the operation performed.

Note : Check the input and output files

Sample Input #01:

```
15
addAll -1,-2,3,-7,-9,6,9
print
subSet -2,6
subSet -6,9
subSet -2,10
subSet 4,10
subSet 10,4
headSet 6
```

```
headSet 100
headSet -10
print
last
addAll 3,19,-9,-2,-1,2,3,3,2
last
print
```

Sample Output #01 :

```
{-9, -7, -2, -1, 3, 6, 9}
```

```
{-2, -1, 3}
```

```
{-2, -1, 3, 6}
```

```
{-2, -1, 3, 6, 9}
```

```
{6, 9}
```

Invalid Arguments to Subset Exception

```
{-9, -7, -2, -1, 3}
```

```
{-9, -7, -2, -1, 3, 6, 9}
```

```
{}
```

```
{-9, -7, -2, -1, 3, 6, 9}
```

```
9
```

```
19
```

```
{-9, -7, -2, -1, 2, 3, 6, 9, 19}
```