

Next Permutation

Saturday, November 20, 2021 12:48 AM

```
packagedsaProblems;

import java.util.ArrayList;
import java.util.Arrays;
import java.util.List;

public class Next_Permutation_Main {
    static List<Integer> nextPermutation(int N, int arr[]) {
        //code here
        List<Integer> list = new ArrayList<>();
        int k = arr.length - 1;

        int n = arr.length;

        for (k = n - 2; k >= 0; k--) {
            if (arr[k] < arr[k + 1]) {
                break;
            }
        }
        int l = 0;
        if (k < 0) {
            //reverse from start to end
            reverse(arr, 0, n - 1);
        }
        else {
            for (int i = n - 1; i > k; i--) {
                {
                    if (arr[i] > arr[k]) {
                        {
                            System.out.println("l-->" + i);

                            l = i;
                            break;
                        }
                    }
                }
            }
            //swap
            System.out.println("k and l are : " + k + " --- " + l);

            swap(arr, k, l);

            //reverse
            reverse(arr, k + 1, n - 1);

            fillElements(arr, list);
            printList(list);
        }
    }
}
```

OUTPUT

Initial Arrays :: [1, 2, 3, 6, 5, 4]
l-->0
k and l are : 2 --- 5
[1, 2, 4, 3, 5, 6]

Process finished with exit code 0

```

return list;

}

private static void printList(List<Integer> list){
    System.out.println(list);
}

private static void fillElements(int[] arr, List<Integer> list){
    for(int ele: arr)
        list.add(ele);
}

private static void reverse(int[] arr, int i, int j){

    while(i <= j){
        swap(arr, i, j);
        i++;
        j--;
    }

}

private static void swap(int[] arr, int i, int j){
    int temp = arr[i];
    arr[i] = arr[j];
    arr[j] = temp;
}

public static void main(String[] args){
    int arr[] = {1, 2, 3, 6, 5, 4};
    System.out.println("Initial Arrays::" + Arrays.toString(arr));
    nextPermutation(arr.length, arr);

}

}

```