/*

Given an array arr[] of N nodes representing preorder traversal of some BST.

You have to build the exact PostOrder from it's given preorder traversal.

In Pre-Order traversal, .

N = 5

arr[] = {40,30,35,80,100}

35 30 100 80 40 PreOrder: 40 30 35 80 100

Therefore, the BST will be:

Hence, the postOrder traversal will

be: 35 30 100 80 40

N = 8

arr[] = {40,30,32,35,80,90,100,120}

35 32 30 120 100 90 80 40

***/**

// Solution:

```
import java.util.ArrayList;
import java.util.Scanner;

public class PreOrderToPostOrder {
   static int INDEX; // INDEX is declared as a globel variable
```

```
    public static void convertPreToPost(int preOrder[],int n,int minVal,
    int maxVal,ArrayList<Integer> postOrder){
        if(INDEX == n || preOrder[INDEX] < minVal || preOrder[INDEX] > maxVal)
            return;

        int value = preOrder[INDEX];
        INDEX++;

        convertPreToPost(preOrder, n, minVal, value,postOrder);
        convertPreToPost(preOrder, n, value, maxVal,postOrder);
        postOrder.add(value);
    }

    public static ArrayList<Integer> preToPost(int preOrder[], int N){
        INDEX = 0; // Globally declared value is set to 0 for beginning the process
        ArrayList<Integer> postOrder = new ArrayList<>();
        convertPreToPost(preOrder, N, Integer.MIN_VALUE,
Integer.MAX_VALUE,postOrder);
        return postOrder;
    }

    public static void printArrayList(ArrayList<Integer> postOrder){
        // printing the passed ArrayList
        for (int num : postOrder) {
            System.out.print(num + " ");
        }
```

```
        System.out.println();
    }

    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter the no of nodes: ");
        int N = scan.nextInt(); // getting the no of nodes from the user
        System.out.println("Enter " + N + " numbers:");
        int preOrder[] = new int[N];
        // getting the post order array data
        for (int i = 0; i < preOrder.length; i++) {
            preOrder[i] = scan.nextInt();
        }
        System.out.print("Post order: ");
        // passing the post order and it will return the pre order in an arraylist
       // and again passing that arraylist to printArrayList() function for printing
        printArrayList(preToPost(preOrder, N));
    }
}
```

// Output: