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**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.**

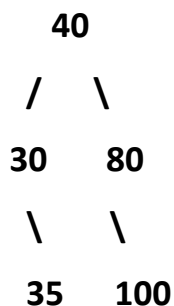
**In Pre-Order traversal, .**

**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 global 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:



```

PS C:\Users\asakt\Desktop\Internship> cd "c:\Users\asakt\Desktop\Internship\Assignments\PostOrderToPreOrder\"
; if ($?) { javac PreOrderToPostOrder.java } ; if ($?) { java PreOrderToPostOrder }
Enter the no of nodes: 5
Enter 5 numbers:
40 30 35 80 100
Post order: 35 30 100 80 40
PS C:\Users\asakt\Desktop\Internship\Assignments\PostOrderToPreOrder> cd "c:\Users\asakt\Desktop\Internship\A
ssignments\PostOrderToPreOrder\" ; if ($?) { javac PreOrderToPostOrder.java } ; if ($?) { java PreOrderToPost
Order }
Enter the no of nodes: 8
Enter 8 numbers:
40 30 32 35 80 90 100 120
Post order: 35 32 30 120 100 90 80 40
PS C:\Users\asakt\Desktop\Internship\Assignments\PostOrderToPreOrder>

```