PIMPRI CHINCHWAD EDUCATION TRUST's.

**PIMPRI CHINCHWAD COLLEGE OF ENGINEERING**

(An Autonomous Institute)



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**Class : SY BTech Acad. Yr. 2025-26 Semester : I**

**Name of the student: Varad Amol Pisale PRN : 124B1B043**

**Department: Computer Engineering Division : A**

**Course Name :** **Data Structures Laboratory Code:BCE23PC02**

**Completion Date : 13/08/2025**

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**Assignment No. 11**

Problem Statement: Find the next greater element of some element x in an array is the first greater element that is to the right of x in the same array.

Source Code :

#include <bits/stdc++.h>

using namespace std;

vector<int> nextGreaterElement(vector<int> &nums1, vector<int> &nums2)

{

    vector<int> ans(nums1.size(), -1), nge(nums2.size());

    stack<int> st;

    unordered\_map<int, int> hash;

    for (int i = 0; i < nums2.size(); i++)

    {

        hash[nums2[i]] = i;

    }

    for (int i = nums2.size() - 1; i >= 0; i--)

    {

        while (!st.empty() && st.top() <= nums2[i])

        {

            st.pop();

        }

        if (st.empty())

        {

            nge[i] = -1;

        }

        else

        {

            nge[i] = st.top();

        }

        st.push(nums2[i]);

    }

    for (int i = 0; i < nums1.size(); i++)

    {

        ans[i] = nge[hash[nums1[i]]];

    }

    return ans;

}

int main(){

    vector<int> nums1 = {4,1,2}, nums2 = {1,3,4,2},ans;

    ans=nextGreaterElement(nums1,nums2);

    for (int i = 0; i < ans.size(); i++)

    {

        cout<<ans[i]<<" ";

    }

    return 0;

}

Screen Shot of Output :



Conclusion: Hence we created an algorithm to find NGE using monotonic stack