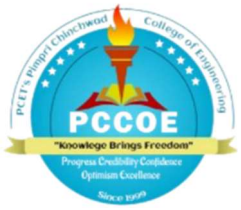

PIMPRI CHINCHWAD EDUCATION TRUST's.

PIMPRI CHINCHWAD COLLEGE OF ENGINEERING

(An Autonomous Institute)

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

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 :

```
-1 3 -1
```

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