Find the next greater element consider for 10 go from 4to 9 then start from starting point which is 9 till before 10.

Here consider for 9 go to starting 3 to before 2 to find next greater.

Here next greater store in a array and this is like **circular type of array**.

First, we will work on first variant and hence on straight array not circular the sol is brute force.

Stack will be used for optimal solution.

Here we will like in 2 will check in stack any smaller element no and hence take the topmost element and put 2 in stack and 4 which is top become stored in array.

Same for 1.

Now for 3 important->here 1 2 is smaller and hence remove them and then put 3 in stack and put 4 in the next greater element array.

This logic same for other

Now go to 12.

Till 5 given for 12 it will remove 5 and 6 and hence stack is empty and hence -1 should be stored.

Same logic for 4.

This logic was for straight one.

The circular one logic is.

Just copy the array another time.

Run only for that array original size.

Her we don’t need to increase size of array but only need to i%n to find the index.

Code:

Her for loop 2n and while loop too 2n.how while loop 2n times.

https://takeuforward.org/data-structure/next-greater-element-using-stack/

This is for the circular stack and not for normal array

For normal array is:

#include <bits/stdc++.h>

using namespace std;

class Solution {

public:

vector<int> nextGreaterElements(vector<int>& nums) {

int n = nums.size();

vector<int> nge(n, -1); // Initialize result array with -1

stack<int> st;

// Iterate through the array from right to left

for (int i = n - 1; i >= 0; i--) {

// Pop elements from the stack until we find a greater element or the stack becomes empty

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

st.pop();

}

// If the stack is not empty, the top element is the next greater element

if (!st.empty()) {

nge[i] = st.top();

}

// Push the current element onto the stack

st.push(nums[i]);

}

return nge;

}

};

int main() {

Solution obj;

vector<int> v {5, 7, 1, 2, 6, 0};

vector<int> res = obj.nextGreaterElements(v);

cout << "The next greater elements are: ";

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

cout << res[i] << " ";

}

return 0;

}