Softnerve Tech Assessment

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//Question 1 : Leader in the Array

Solution 1:

class Main

{

void printLeaders(int arr[], int size)

{

int max\_from\_right = arr[size-1];

System.out.print(max\_from\_right + " ");

for (int i = size-2; i >= 0; i--)

{

if (max\_from\_right < arr[i])

{

max\_from\_right = arr[i];

System.out.print(max\_from\_right + " ");

}

}

}

public static void main(String[] args)

{

Main lead = new Main();

int arr[] = new int[] {7, 10, 4, 10, 6, 5, 2};

int n = arr.length;

lead.printLeaders(arr, n);

}

}

Solution 2:

class Solution{

static ArrayList<Integer> leaders(int arr[], int n){

ArrayList<Integer> list = new ArrayList<>();

int lead=0;

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

{

if(arr[i]>=lead)

{

lead =arr[i];

list.add(arr[i]);

}

}

Collections.reverse(list);

return list;

}

}

//Question 2 :Best Time to Buy and Sell Stock

Solution:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

// Prices array

int prices[] = new int[]{7, 1, 5, 3, 6, 4};

// Calculating the max profit

int ans = maxProfit(prices, prices.length);

// Print the answer

System.out.println(ans);

}

private static int maxProfit(int[] prices, int n) {

int maxSP[] = new int[n];

int max = Integer.MIN\_VALUE;

// Construct the maxSP array

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

if (prices[i] > max) {

max = prices[i];

maxSP[i] = Integer.MIN\_VALUE;

} else {

maxSP[i] = max;

}

}

int profit = 0;

for (int i = 0; i < n; i++) {

if (maxSP[i] != Integer.MIN\_VALUE) {

profit = Math.max(profit, maxSP[i] - prices[i]);

}

}

// Return profit

return profit;

}

}

//Question 3:Sum of All Subset XOR Totals

Solution:

class Main {

// Returns sum of XORs of all subsets

static int xorSum(int arr[], int n)

{

int bits = 0;

// Finding bitwise OR of all elements

for (int i = 0; i < n; ++i)

bits |= arr[i];

int ans = bits \* (int)Math.pow(2, n-1);

return ans;

}

public static void main(String[] args)

{

int arr[] = {1, 3};

//int arr[] = {5, 1, 6};

int size = arr.length;

System.out.print(xorSum(arr, size));

}

}