Data Structure and Algorithms

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**Q 1) Monk and Rotation**

<https://www.hackerearth.com/practice/codemonk/>

Java source code:

import java.util.\*;

public class Main {

public static void main(String args[] ) throws Exception {

Scanner sc = new Scanner(System.in);

int TestCase = sc.nextInt();

while(TestCase>0){

int n = sc.nextInt();

int rotations = sc.nextInt();

int r = rotations%n;

sc.nextLine();

String[] str = sc.nextLine().split(" ");

reverse(str,0,n-1);

reverse(str,0,r-1);

reverse(str,r,n-1);

for(String s : str){

System.out.print(s+" ");

}

System.out.println("");

TestCase--;

}

sc.close();

}

public static void reverse(String[] arr,int start,int end){

while(start<end){

String temp = arr[start];

arr[start] = arr[end];

arr[end] = temp;

start++;

end--;

}

}

}

**Q 2) Monk and Inversions**

<https://www.hackerearth.com/practice/codemonk/>

Java source code:

import java.util.\*;

public class Main {

public static void main(String args[] ) throws Exception {

Scanner sc = new Scanner(System.in);

int testCase = sc.nextInt();

while(testCase>0){

int n = sc.nextInt();

int[][] matrix = new int[n][n];

int counter=0;

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

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

matrix[i][j] = sc.nextInt();

}

}

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

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

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

for(int col=j;col<n;col++){

if(matrix[i][j]>matrix[row][col]){

counter++;

}

}

}

}

}

System.out.println(counter);

testCase--;

}

}

}

**Q 3) Minimum AND xor OR**

<https://www.hackerearth.com/practice/codemonk/>

Java source code:

import java.util.\*;

class TestClass

{

public static void main(String args[])

{

Scanner sc = new Scanner(System.in);

int TestCase = sc.nextInt();

while(TestCase>0)

{

int n = sc.nextInt();

int[] arr = new int[n];

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

{

arr[i] = sc.nextInt();

}

//Arrays sorting

Arrays.sort(arr);

int min = arr[0]^arr[1];

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

{

if(min > (arr[i]^arr[i-1]))

{

min = arr[i]^arr[i-1];

}

}

System.out.println(min);

TestCase--;

}

}

}

**Q 4) Monk and Nice Strings**

<https://www.hackerearth.com/practice/codemonk/>

Java source code:

import java.util.\*;

class TestClass {

public static void main(String args[] ) throws Exception {

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

String[] str = new String[n];

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

str[i] = sc.next();

int counter = 0;

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

if(str[i].compareTo(str[j])>0){

counter++;

}

}

System.out.println(counter);

}

}

}

**Q 5) Monk and Suffix Sort**

<https://www.hackerearth.com/practice/codemonk/>

Java source code:

import java.util.\*;

class TestClass {

public static void main(String args[] ) throws Exception {

Scanner sc = new Scanner(System.in);

String str = sc.next();

int k = sc.nextInt();

String[] arr = new String[str.length()];

for(int i=0;i<str.length();i++) {

arr[i] = str.substring(i);

}

Arrays.sort(arr);

System.out.println(arr[k-1]);

}

}

**Q 6) Monk and Sorting Algorithm**

<https://www.hackerearth.com/practice/codemonk/>

Python source code:

n = int(input())

arr = list(map(int, input().strip().split(" ")))

max\_arr = max(arr)

mul = 1

r = 10\*\*5

while max\_arr:

arr.sort(key = lambda x: (x/mul)%r)

print(' '.join(map(str, arr)))

mul \*= r

max\_arr //= r