

QUESTION BANK DOCKET

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# Source

Enter the name of the source where you got the question from

Codility

# Tech

Programming, Java, .NET, SQL, Angular

**(.NET)**

# Focus Area

As given in the form for respective categories

**C#(Coding)**

# Complexity

Simple / Medium / Complex

Simple

# Question

Compute number of distinct values in an array, that, given an array A consisting of N integers, returns the number of distinct values in array A.

For example, given array A consisting of six elements such that:

A0] = 2 A[1] = 1 A[2] = 1 A[3] = 2 A[4] = 3 A[5] = 1

the function should return 3, because there are 3 distinct values appearing in array A, namely 1, 2 and 3.

# Answer

static void Distinct(int[] arr, int n)

{

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

{

int j;

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

if (arr[i] == arr[j])

break;

if (i == j)

Console.Write(arr[i] + " ");

}

}

public static void Main()

{

int[] arr = { 2, 1, 1, 2, 3, 1 };

int n = arr.Length;

Distinct(arr, n);

}

# References

[Discussion Boards, Comments, Links, etc..]

https://www.geeksforgeeks.org/print-distinct-elements-given-integer-array/

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Codility

# Tech

Programming, Java, .NET, SQL, Angular

**(.NET)**

# Focus Area

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**C#(Coding)**

# Complexity

Simple / Medium / Complex

Simple

# Question

Write a program convert any decimal number (base-10 (i.e. 0 to 9)) into binary number (base-2 (i.e. 0 or 1)).

# Answer

public class Program

{

static void Main(string[] args)

{

Console.Write("Enter the Decimal Number : ");

int number = int.Parse(Console.ReadLine());

int i;

int[] numberArray = new int[10];

for (i = 0; number > 0; i++)

{

numberArray[i] = number % 2;

number = number / 2;

}

Console.Write("Binary Represenation of the given Number : ");

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

{

Console.Write(numberArray[i]);

}

}

}

}

# References

[Discussion Boards, Comments, Links, etc..]

https://dotnettutorials.net/lesson/decimal-to-binary-conversion-in-csharp/

# Source

Enter the name of the source where you got the question from

.NET Tutorials

# Tech

Programming, Java, .NET, SQL, Angular

**(.NET)**

# Focus Area

As given in the form for respective categories

**C#(Coding)**

# Complexity

Simple / Medium / Complex

Simple

# Question

Write a program to sort the given elements using Bubble Sort.

# Answer

class Program

{

static void Main(string[] args)

{

int count = 0;

int[] intArray = new int[5];

Console.WriteLine("Enter the Array Elements : ");

for (int i = 0; i < intArray.Length; i++)

{

intArray[i] = int.Parse(Console.ReadLine());

}

for (int j = 0; j <= intArray.Length - 2; j++)

{

for (int i = 0; i <= intArray.Length - 2; i++)

{

count = count + 1;

if (intArray[i] > intArray[i + 1])

{

int temp = intArray[i + 1];

intArray[i + 1] = intArray[i];

intArray[i] = temp;

}

}

}

Console.WriteLine("After Sorting Array :");

foreach (int item in intArray)

{

Console.Write(item + " ");

}

Console.WriteLine();

Console.WriteLine("The Loop iterates :" + count);

Console.ReadKey();

}

}

# References

[Discussion Boards, Comments, Links, etc..]

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**C#(Coding)**

# Complexity

Simple / Medium / Complex

Medium

# Question

## Write a program to Find the smallest positive integer that does not occur in a given sequence.

that, given an array A of N integers, returns the smallest positive integer (greater than 0) that does not occur in A.

For example, given A = [1, 3, 6, 4, 1, 2], the function should return 5.

Given A = [1, 2, 3], the function should return 4.

Given A = [−1, −3], the function should return 1.

# Answer

namespace ConsoleApp1

{

public class Program

{

public static void Main()

{

int[] A = { 1, 3, 6, 4, 1, 2 };

var smallestInt = 1;

smallestInt = GetSmallestPositiveInteger(A);

Console.WriteLine(smallestInt);

}

public static int solution(int[] array)

{

HashSet<int> found = new HashSet<int>();

for (int i = 0; i < array.Length; i++)

{

if (array[i] > 0)

{

found.Add(array[i]);

}

}

int result = 1;

while (found.Contains(result))

{

result++;

}

return result;

}

public static int solution1(int[] A)

{

int flag = 1;

A = A.OrderBy(x => x).ToArray();

for (int i = 0; i < A.Length; i++)

{

if (A[i] <= 0)

continue;

else if (A[i] == flag)

{

flag++;

}

}

return flag;

}

public static int GetSmallestPositiveInteger(int[] A)

{

var smallestInt = 1;

var arrLn = A.Length;

if ((A == null) || (A.Length == 0)) { return 1; }

return arrLn;

A = A.OrderBy(x => x).ToArray();

for (int i = 0; i < A.Length; i++)

{

if (A[i] <= 0)

continue;

else if (A[i] == smallestInt)

{

smallestInt++;

}

}

return smallestInt;

}

}

}

# References

[Discussion Boards, Comments, Links, etc..]

https://dotnetfiddle.net/5eT3pk

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# Complexity

Simple / Medium / Complex

Simple

# Question

Compute number of integers divisible by k in range [a..b], that, given three integers A, B and K, returns the number of integers within the range [A..B] that are divisible by K, i.e.:

{ i : A ≤ i ≤ B, i mod K = 0 }

For example, for A = 6, B = 11 and K = 2, your function should return 3, because there are three numbers divisible by 2 within the range [6..11], namely 6, 8 and 10.

# Answer

public class Program

{

static int countDivisibles(int A, int B, int M)

{

int counter = 0;

for (int i = A; i <= B; i++)

if (i % M == 0)

counter++;

return counter;

}

public static void Main()

{

int A = 6, B = 12, M = 3;

Console.WriteLine(countDivisibles(A, B, M));

}

}

# References

[Discussion Boards, Comments, Links, etc..]

https://www.geeksforgeeks.org/count-numbers-divisible-m-given-range/

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**C#(Coding)**

# Complexity

Simple / Medium / Complex

Medium

# Question

Given array of integers, find the lowest absolute sum of elements, For a given array A of N integers and a sequence S of N integers from the set {−1, 1}, we define val(A, S) as follows:

val(A, S) = |sum{ A[i]\*S[i] for i = 0..N−1 }|

For example, given array:

A[0] = 1

A[1] = 5

A[2] = 2

A[3] = -2

# Answer

internal class Program

{

public static int sumOfMinAbsDifferences(int[] arr, int n)

{

var sum = 0;

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

{

var diff = int.MaxValue;

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

{

if (i != j)

{

diff = Math.Min(diff, Math.Abs(arr[i] - arr[j]));

}

}

sum += diff;

}

// required sum

return sum;

}

public static void Main(String[] args)

{

int[] arr = { 1,5,2,-2 };

var n = arr.Length;

Console.WriteLine("Sum = " + Program.sumOfMinAbsDifferences(arr, n).To.String());

}

}

# References

[Discussion Boards, Comments, Links, etc..]

https://www.geeksforgeeks.org/sum-minimum-absolute-difference-array-element/

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# Complexity

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Medium

# Question

Find an index of an array such that its value occurs at more than half of indices in the array, An array A consisting of N integers is given. The dominator of array A is the value that occurs in more than half of the elements of A.

For example, consider array A such that

A[0] = 3 A[1] = 4 A[2] = 3

A[3] = 2 A[4] = 3 A[5] = -1

A[6] = 3 A[7] = 3

The dominator of A is 3 because it occurs in 5 out of 8 elements of A (namely in those with indices 0, 2, 4, 6 and 7) and 5 is more than a half of 8.

# Answer

internal class Program

{

static void findMajority(int[] arr, int n)

{

int maxCount = 0;

int index = -1;

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

{

int count = 0;

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

{

if (arr[i] == arr[j])

count++;

}

if (count > maxCount)

{

maxCount = count;

index = i;

}

}

if (maxCount > n / 2)

Console.WriteLine(arr[index]);

else

Console.WriteLine("No Majority Element");

}

static public void Main()

{

int[] arr = { 3,4,3,2,3,-1,3,3 };

int n = arr.Length;

findMajority(arr, n);

}

}

# References

[Discussion Boards, Comments, Links, etc..]

<https://www.geeksforgeeks.org/majority-element/>

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Medium

# Question

Count the number of different ways of climbing to the top of a ladder. You have to climb up a ladder. The ladder has exactly N rungs, numbered from 1 to N. With each step, you can ascend by one or two rungs. More precisely:

* with your first step you can stand on rung 1 or 2,
* if you are on rung K, you can move to rungs K + 1 or K + 2,
* finally you have to stand on rung N.

Your task is to count the number of different ways of climbing to the top of the ladder.

For example, given N = 4, you have five different ways of climbing, ascending by:

* 1, 1, 1 and 1 rung,
* 1, 1 and 2 rungs,
* 1, 2 and 1 rung,
* 2, 1 and 1 rungs, and
* 2 and 2 rungs.

# Answer

internal class Program

{

static void Main(string[] args)

{

static int fib(int n)

{

if (n <= 1)

return n;

return fib(n - 1) + fib(n - 2);

}

static int countWays(int s)

{

return fib(s + 1);

}

int s = 5;

Console.WriteLine("Number of ways = " + countWays(s));

}

}

# References

[Discussion Boards, Comments, Links, etc..]

<https://www.geeksforgeeks.org/count-ways-reach-nth-stair/>

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**C#(Coding)**

# Complexity

Simple / Medium / Complex

Simple

# Question

Compute number of distinct absolute values of sorted array elements. A non-empty array A consisting of N numbers is given. The array is sorted in non-decreasing order. The absolute distinct count of this array is the number of distinct absolute values among the elements of the array.

For example, consider array A such that:

A[0] = -5

A[1] = -3

A[2] = -1

A[3] = 0

A[4] = 3

A[5] = 6

The absolute distinct count of this array is 5, because there are 5 distinct absolute values among the elements of this array, namely 0, 1, 3, 5 and 6.

# Answer

internal class Program

{

static void Main(string[] args)

{

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

{

HashSet<int> s = new HashSet<int>();

// Note that set keeps only one

// copy even if we try to insert

// multiple values

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

s.Add(Math.Abs(arr[i]));

return s.Count;

}

int[] arr = { -5, -3, -1, 0, 3, 6 };

int n = arr.Length;

Console.Write("Count of absolute distinct values : "

+ distinctCount(arr, n));

}

}

# References

[Discussion Boards, Comments, Links, etc..]

https://www.geeksforgeeks.org/absolute-distinct-count-array-sorted-absolute-values/