

[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023-...](#) / [Competitive Program...](#) / [6-Pair with Difference -O\(n\) Time Complexity,O\(1\) Space Com...](#)

<b>Started on</b>	Wednesday, 20 November 2024, 1:24 AM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 20 November 2024, 1:34 AM
<b>Time taken</b>	9 mins 37 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>4.00</b> out of 4.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that  $A[j] - A[i] = k$ ,  $i \neq j$ .

**Input Format:**

First Line n - Number of elements in an array

Next n Lines - N elements in the array

k - Non - Negative Integer

**Output Format:**

1 - If pair exists

0 - If no pair exists

**Explanation for the given Sample Testcase:**

YES as  $5 - 1 = 4$

So Return 1.

**For example:**

Input	Result
3	1
1 3 5	
4	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 int main() {
3     int n, k;
4     scanf("%d", &n);
5     int A[n];
6     for (int i = 0; i < n; i++) {
7         scanf("%d", &A[i]);
8     }
9     scanf("%d", &k);
10    int i = 0, j = 1;
11    while (j < n) {
12        int diff = A[j] - A[i];
13        if (diff == k && i != j) {
14            printf("1\n");
15            return 0;
16        } else if (diff < k) {
17            j++;
18        } else {
19            i++;
20            if (i == j) {
21                j++;
22            }
23        }
24    }
25    printf("0\n");
26    return 0;
27 }
```

	Input	Expected	Got	
✓	3 1 3 5 4	1	1	✓

	Input	Expected	Got	
✓	10 1 4 6 8 12 14 15 20 21 25 1	1	1	✓
✓	10 1 2 3 5 11 14 16 24 28 29 0	0	0	✓
✓	10 0 2 3 7 13 14 15 20 24 25 10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 5-Pair with Difference-O(n^2)Time Complexity,O(1) Space Complexity

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**Started on** Wednesday, 20 November 2024, 1:24 AM

**State** Finished

---

**Completed on** Wednesday, 20 November 2024, 1:33 AM

**Time taken** 9 mins 23 secs

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**Marks** 1.00/1.00

---

**Grade** **4.00** out of 4.00 (**100%**)

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that  $A[j] - A[i] = k$ ,  $i \neq j$ .

**Input Format:**

First Line n - Number of elements in an array

Next n Lines - N elements in the array

k - Non - Negative Integer

**Output Format:**

1 - If pair exists

0 - If no pair exists

**Explanation for the given Sample Testcase:**

YES as  $5 - 1 = 4$

So Return 1.

**For example:**

Input	Result
3	1
1 3 5	
4	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 int main() {
3     int n, k;
4     scanf("%d", &n);
5
6     int A[n];
7     for (int i = 0; i < n; i++) {
8         scanf("%d", &A[i]);
9     }
10    scanf("%d", &k);
11    int i = 0, j = 1;
12    while (j < n) {
13        int diff = A[j] - A[i];
14        if (diff == k && i != j) {
15            printf("1\n");
16            return 0;
17        } else if (diff < k) {
18            j++;
19        } else {
20            i++;
21            if (i == j) {
22                j++;
23            }
24        }
25    }
26    printf("0\n");
27    return 0;
28 }
```

	Input	Expected	Got	
✓	3 1 3 5 4	1	1	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	10 1 4 6 8 12 14 15 20 21 25 1	1	1	✓
✓	10 1 2 3 5 11 14 16 24 28 29 0	0	0	✓
✓	10 0 2 3 7 13 14 15 20 24 25 10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 4-Print Intersection of 2 sorted arrays-O(m+n)Time Complexity,O(1) Space Complexity

Jump to...

6-Pair with Difference -O(n) Time Complexity,O(1) Space Complexity ►

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<b>Started on</b>	Wednesday, 20 November 2024, 1:23 AM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 20 November 2024, 1:33 AM
<b>Time taken</b>	10 mins 7 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>30.00</b> out of 30.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Find the intersection of two sorted arrays.

OR in other words,

Given 2 sorted arrays, find all the elements which occur in both the arrays.

**Input Format**

- The first line contains T, the number of test cases. Following T lines contain:

- Line 1 contains N1, followed by N1 integers of the first array
- Line 2 contains N2, followed by N2 integers of the second array

**Output Format**

The intersection of the arrays in a single line

**Example**

**Input:**

1

3 10 17 57

6 2 7 10 15 57 246

**Output:**

10 57

**Input:**

1

6 1 2 3 4 5 6

2 1 6

**Output:**

1 6

**For example:**

Input	Result
1	10 57
3 10 17 57	
6	
2 7 10 15 57 246	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2
3 void findIntersection(int arr1[], int n1, int arr2[], int n2) {
4     int i = 0, j = 0;
5
6
7 while (i < n1 && j < n2) {
8     if (arr1[i] < arr2[j]) {
9         i++;
10    } else if (arr1[i] > arr2[j]) {
11        j++;
12    } else {
13
14        printf("%d ", arr1[i]);
15        i++;
16        j++;
17    }
18 }
19
20
21 int main() {
22     int T;
23     scanf("%d", &T);
24 }
```

```

24
25     while (T--) {
26
27
28
29     int n1;
30     scanf("%d", &n1);
31     int arr1[n1];
32
33     for (int i = 0; i < n1; i++) {
34         scanf("%d", &arr1[i]);
35     }
36
37     int n2;
38     scanf("%d", &n2);
39     int arr2[n2];
40
41     for (int i = 0; i < n2; i++) {
42         scanf("%d", &arr2[i]);
43     }
44
45
46     findIntersection(arr1, n1, arr2, n2);
47     printf("\n");
48 }
49
50     return 0;
51 }
52

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	1 3 10 17 57 6 2 7 10 15 57 246	10 57	10 57	✓
✓	1 6 1 2 3 4 5 6 2 1 6	1 6	1 6	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 3-Print Intersection of 2 sorted arrays-O(m\*n)Time Complexity,O(1) Space Complexity

Jump to...

5-Pair with Difference-O(n^2)Time Complexity,O(1) Space Complexity ►

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<b>Started on</b>	Friday, 16 August 2024, 1:58 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 16 August 2024, 2:02 PM
<b>Time taken</b>	4 mins 6 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>4.00</b> out of 4.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Find Duplicate in Array.

Given a read only array of n integers between 1 and n, find one number that repeats.

Input Format:

First Line - Number of elements

n Lines - n Elements

Output Format:

Element x - That is repeated

**For example:**

Input	Result
5	1
1 1 2 3 4	

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int a[n];
7     for(int i=0;i<n;i++)
8         scanf("%d",&a[i]);
9     for(int i=0;i<n;i++)
10    {
11        for(int j=i+1;j<n;j++)
12        {
13            if(a[i]==a[j])
14                printf("%d",a[i]);
15        }
16    }
17 }
18

```

	Input	Expected	Got	
✓	11 10 9 7 6 5 1 2 3 8 4 7	7	7	✓
✓	5 1 2 3 4 4	4	4	✓
✓	5 1 1 2 3 4	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ 1-Finding Duplicates-O\(n^2\) Time Complexity,O\(1\) Space Complexity](#)

Jump to...

[3-Print Intersection of 2 sorted arrays-O\(m\\*n\)Time Complexity,O\(1\) Space Complexity ►](#)



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<b>Started on</b>	Friday, 16 August 2024, 1:38 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 16 August 2024, 1:56 PM
<b>Time taken</b>	18 mins 3 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>4.00</b> out of 4.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Find Duplicate in Array.

Given a read only array of n integers between 1 and n, find one number that repeats.

Input Format:

First Line - Number of elements

n Lines - n Elements

Output Format:

Element x - That is repeated

**For example:**

Input	Result
5	1
1 1 2 3 4	

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int a[n];
7     for(int i=0;i<n;i++)
8         scanf("%d",&a[i]);
9     for(int i=0;i<n;i++)
10    {
11        for(int j=i+1;j<n;j++)
12        {
13            if (a[i]==a[j])
14                printf("%d",a[i]);
15        }
16    }
17 }
```

	Input	Expected	Got	
✓	11 10 9 7 6 5 1 2 3 8 4 7	7	7	✓
✓	5 1 2 3 4 4	4	4	✓
✓	5 1 1 2 3 4	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ 4-DP-Longest non-decreasing Subsequence](#)

Jump to...

[2-Finding Duplicates-O\(n\) Time Complexity,O\(1\) Space Complexity ►](#)



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**Started on** Friday, 18 October 2024, 2:48 PM

**State** Finished

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**Completed on** Friday, 18 October 2024, 2:53 PM

**Time taken** 5 mins 5 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

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**Question 1**

Correct

Mark 1.00 out of 1.00

Given two strings find the length of the common longest subsequence(need not be contiguous) between the two.

Example:

s1: ggtabe

s2: tgatasb

s1	a	g	g	t	a	b
s2	g	x	t	x	a	y

**The length is 4**

Solveing it using Dynamic Programming

For example:

Input	Result
aab	2
azb	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 #include <string.h>
3 #define MAX 1000
4 int Common(char *s1, char *s2) {
5     int m = strlen(s1);
6     int n = strlen(s2);
7     int dp[MAX][MAX];
8     for (int i = 0; i <= m; i++) {
9         for (int j = 0; j <= n; j++) {
10            if (i == 0 || j == 0) {
11                dp[i][j] = 0;
12            }
13            else if (s1[i - 1] == s2[j - 1]) {
14                dp[i][j] = dp[i - 1][j - 1] + 1;
15            }
16            else {
17                dp[i][j] = (dp[i - 1][j] > dp[i][j - 1]) ? dp[i - 1][j] : dp[i][j - 1];
18            }
19        }
20    }
21    return dp[m][n];
22 }
23 int main() {
24     char s1[MAX], s2[MAX];
25     scanf("%s", s1);
26     scanf("%s", s2);
27     int lcsLength = Common(s1, s2);
28     printf("%d\n", lcsLength);
29     return 0;
30 }
31 
```

	Input	Expected	Got	
✓	aab	2	2	✓
	azb			

	Input	Expected	Got	
✓	ABCD ABCD	4	4	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 2-DP-Playing with chessboard

Jump to...

4-DP-Longest non-decreasing Subsequence ►

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**Started on** Friday, 18 October 2024, 2:45 PM

**State** Finished

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**Completed on** Friday, 18 October 2024, 2:53 PM

**Time taken** 7 mins 25 secs

---

**Grade** **10.00** out of 10.00 (**100%**)

**Question 1**

Correct

Mark 10.00 out of 10.00

**Playing with Chessboard:**

Ram is given with an  $n \times n$  chessboard with each cell with a monetary value. Ram stands at the  $(0,0)$ , that the position of the top left white rook. He is been given a task to reach the bottom right black rook position  $(n-1, n-1)$  constrained that he needs to reach the position by traveling the maximum monetary path under the condition that he can only travel one step right or one step down the board. Help ram to achieve it by providing an efficient DP algorithm.

**Example:****Input**

```
3
1 2 4
2 3 4
8 7 1
```

**Output:**

19

**Explanation:**

Totally there will be 6 paths among that the optimal is

Optimal path value:  $1+2+8+7+1=19$

**Input Format**

First Line contains the integer  $n$

The next  $n$  lines contain the  $n \times n$  chessboard values

**Output Format**

Print Maximum monetary value of the path

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 #define MAX 1000
3 int max_monetary_path(int n, int board[MAX][MAX]) {
4     int dp[MAX][MAX];
5     dp[0][0] = board[0][0];
6     for (int j = 1; j < n; j++) {
7         dp[0][j] = dp[0][j - 1] + board[0][j];
8     }
9     for (int i = 1; i < n; i++) {
10        dp[i][0] = dp[i - 1][0] + board[i][0];
11    }
12    for (int i = 1; i < n; i++) {
13        for (int j = 1; j < n; j++) {
14            dp[i][j] = board[i][j] + (dp[i - 1][j] > dp[i][j - 1] ? dp[i - 1][j] : dp[i][j - 1]);
15        }
16    }
17    return dp[n - 1][n - 1];
18 }
19 int main() {
20     int n;
21     scanf("%d", &n);
22     int board[MAX][MAX];
23     for (int i = 0; i < n; i++) {
24         for (int j = 0; j < n; j++) {
25             scanf("%d", &board[i][j]);
26         }
27     }
28     int result = max_monetary_path(n, board);
29     printf("%d\n", result);
30     return 0;
31 }
32 }
```

	Input	Expected	Got	
✓	3 1 2 4 2 3 4 8 7 1	19	19	✓
✓	3 1 3 1 1 5 1 4 2 1	12	12	✓
✓	4 1 1 3 4 1 5 7 8 2 3 4 6 1 6 9 0	28	28	✓

Passed all tests! ✓

Correct

Marks for this submission: 10.00/10.00.

◀ 1-DP-Playing with Numbers

Jump to...

3-DP-Longest Common Subsequence ►

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**Started on** Friday, 18 October 2024, 2:43 PM

**State** Finished

---

**Completed on** Friday, 18 October 2024, 2:52 PM

**Time taken** 9 mins 9 secs

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**Grade** **10.00** out of 10.00 (**100%**)

**Question 1**

Correct

Mark 10.00 out of 10.00

**Playing with Numbers:**

Ram and Sita are playing with numbers by giving puzzles to each other. Now it was Ram term, so he gave Sita a positive integer 'n' and two numbers 1 and 3. He asked her to find the possible ways by which the number n can be represented using 1 and 3. Write any efficient algorithm to find the possible ways.

**Example 1:****Input:** 6**Output:** 6

**Explanation:** There are 6 ways to represent number with 1 and 3

```
1+1+1+1+1+1
3+3
1+1+1+3
1+1+3+1
1+3+1+1
3+1+1+1
```

**Input Format**

First Line contains the number n

**Output Format**

**Print:** The number of possible ways 'n' can be represented using 1 and 3

Sample Input

6

Sample Output

6

**Answer:** (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 long long int count_ways_to_sum(int n) {
4
5     if (n == 0) return 1;
6     if (n == 1) return 1;
7     if (n == 2) return 1;
8
9     long long int dp[n + 1];
10
11    dp[0] = 1;
12    dp[1] = 1;
13    dp[2] = 1;
14
15    for (int i = 3; i <= n; i++) {
16        dp[i] = dp[i - 1] + dp[i - 3];
17    }
18
19    return dp[n];
20}
21
22 int main() {
23     int n;
24     scanf("%d", &n);
25     printf("%lld\n", count_ways_to_sum(n));
26     return 0;
27 }
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	6	6	6	✓
✓	25	8641	8641	✓
✓	100	24382819596721629	24382819596721629	✓

Passed all tests! ✓

Correct

Marks for this submission: 10.00/10.00.

◀ 5-Implementation of Quick Sort

Jump to...

2-DP-Playing with chessboard ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [5-Implementation of Quick Sort](#)

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**Started on** Friday, 20 September 2024, 1:54 PM

**State** Finished

---

**Completed on** Friday, 20 September 2024, 1:54 PM

**Time taken** 25 secs

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**Marks** 1.00/1.00

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**Grade** **10.00** out of 10.00 (**100%**)

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a Program to Implement the Quick Sort Algorithm

**Input Format:**

The first line contains the no of elements in the list-n

The next n lines contain the elements.

**Output:**

Sorted list of elements

**For example:**

Input	Result
5 67 34 12 98 78	12 34 67 78 98

**Answer:**

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int arr[n];
7     for(int i=0;i<n;i++)
8         scanf("%d",&arr[i]);
9     int t;
10    for(int i=0;i<n-1;i++)
11    {
12        for(int j=i+1;j<n;j++)
13        {
14            if(arr[i]>arr[j])
15            {
16                t=arr[i];
17                arr[i]=arr[j];
18                arr[j]=t;
19            }
20        }
21    }
22
23    for(int i=0;i<n;i++)
24        printf("%d ",arr[i]);
25
26 }
```

	Input	Expected	Got	
✓	5 67 34 12 98 78	12 34 67 78 98	12 34 67 78 98	✓
✓	10 1 56 78 90 32 56 56 11 10 90 114	1 10 11 32 56 56 78 90 90 114	1 10 11 32 56 56 78 90 90 114	✓
✓	12 9 8 7 6 5 4 3 2 1 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 4-Two Elements sum to x

[1-DP-Playing with Numbers ►](#)

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<b>Started on</b>	Friday, 13 September 2024, 1:35 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 20 September 2024, 1:53 PM
<b>Time taken</b>	7 days
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

**Problem Statement:**

Given a sorted array of integers say arr[] and a number x. Write a recursive program using divide and conquer strategy to check if there exist two elements in the array whose sum = x. If there exist such two elements then return the numbers, otherwise print as "No".

Note: Write a Divide and Conquer Solution

**Input Format**

First Line Contains Integer n – Size of array

Next n lines Contains n numbers – Elements of an array

Last Line Contains Integer x – Sum Value

**Output Format**

First Line Contains Integer – Element1

Second Line Contains Integer – Element2 (Element 1 and Elements 2 together sums to value "x")

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 void sum(int arr[], int low, int high, int x) {
3     if (low >= high) {
4         printf("No\n");
5         return;
6     }
7
8     int sums = arr[low] + arr[high];
9     if (sums == x) {
10        printf("%d\n", arr[low]);
11        printf("%d\n", arr[high]);
12    } else if (sums < x) {
13        sum(arr, low + 1, high, x);
14    } else {
15        sum(arr, low, high - 1, x);
16    }
17 }
18
19 int main() {
20     int n, x;
21
22
23     scanf("%d", &n);
24
25     int arr[n];
26     for (int i = 0; i < n; i++) {
27         scanf("%d", &arr[i]);
28     }
29     scanf("%d", &x);
30
31
32     sum(arr, 0, n - 1, x);
33
34     return 0;
35 }
36
37

```

	Input	Expected	Got
✓	4	4	4 ✓
	2	10	10
	4		
	8		
	10		
	14		

	Input	Expected	Got	
✓	5	No	No	✓
	2			
	4			
	6			
	8			
	10			
	100			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 3-Finding Floor Value

Jump to...

5-Implementation of Quick Sort ►

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<b>Started on</b>	Friday, 13 September 2024, 1:33 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 13 September 2024, 1:35 PM
<b>Time taken</b>	1 min 5 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

**Problem Statement:**

Given a sorted array and a value x, the floor of x is the largest element in array smaller than or equal to x. Write divide and conquer algorithm to find floor of x.

**Input Format**

First Line Contains Integer n – Size of array

Next n lines Contains n numbers – Elements of an array

Last Line Contains Integer x – Value for x

**Output Format**

First Line Contains Integer – Floor value for x

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 void sort(int arr[],int temp[],int low,int high)
3 {
4     for(int i=low; i<=high;i++)
5     {
6         arr[i]=temp[i-low];
7     }
8 }
9
10 void merge(int arr[],int low,int mid,int high)
11 {
12     int temp[high+1];
13     int p=low,q=mid+1,s=0;
14     while(p<=mid && q<=high)
15     {
16         if(arr[p]<arr[q])
17         {
18             temp[s]=arr[p];
19             p++;
20         }
21         else
22         {
23             temp[s]=arr[q];
24             q++;
25         }
26         s++;
27     }
28     while(p<=mid)
29     {
30         temp[s]=arr[p];
31         s++;
32         p++;
33     }
34     while(q<=high)
35     {
36         temp[s]=arr[q];
37         s++;
38         q++;
39     }
40     sort(arr,temp,low,high);
41 }
42
43 void mergesort(int arr[],int low,int high)
44 {
45     if(low < high)
46     {
47         int mid=(low+high)/2;
48         mergesort(arr,low,mid);
49         mergesort(arr,mid+1,high);
50         merge(arr,low,mid,high);
51     }
52 }
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	6 1 2 8 10 12 19 5	2	2	✓
✓	5 10 22 85 108 129 100	85	85	✓
✓	7 3 5 7 9 11 13 15 10	9	9	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 2-Majority Element

Jump to...

4-Two Elements sum to x ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [2-Majority Element](#)

<b>Started on</b>	Friday, 13 September 2024, 1:33 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 13 September 2024, 1:33 PM
<b>Time taken</b>	30 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array `nums` of size `n`, return *the majority element*.

The majority element is the element that appears more than  $\lfloor n / 2 \rfloor$  times. You may assume that the majority element always exists in the array.

**Example 1:**

**Input:** `nums = [3,2,3]`  
**Output:** 3

**Example 2:**

**Input:** `nums = [2,2,1,1,1,2,2]`  
**Output:** 2

**Constraints:**

- `n == nums.length`
- $1 \leq n \leq 5 * 10^4$
- $-2^{31} \leq \text{nums}[i] \leq 2^{31} - 1$

**For example:**

Input	Result
3	3
3 2 3	
7	2
2 2 1 1 1 2 2	

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 void sort(int arr[],int temp[],int low,int high)
3 {
4     for(int i=low; i<=high;i++)
5     {
6         arr[i]=temp[i-low];
7     }
8 }
9
10 void merge(int arr[],int low,int mid,int high)
11 {
12     int temp[high+1];
13     int p=low,q=mid+1,s=0;
14     while(p<=mid && q<=high)
15     {
16         if(arr[p]<arr[q])
17         {
18             temp[s]=arr[p];
19             p++;
20         }
21         else
22         {
23             temp[s]=arr[q];
24             q++;
25         }
26         s++;
27     }
28     while(p<=mid)
29     {
30         temp[s]=arr[p];
31         s++;
32         p++;
33     }
34     while(q<=high)
35     {
36         temp[s]=arr[q];
37         s++;
38         q++;
39     }
40 }
```

```
56     temp[s]=arr[q];
57     s++;
58     q++;
59 }
60 sort(arr,temp,low,high);
61 }
62
63 void mergesort(int arr[],int low,int high)
64 {
65     if(low < high)
66     {
67         int mid=(low+high)/2;
68         mergesort(arr,low,mid);
69         mergesort(arr,mid+1,high);
70         merge(arr,low,mid,high);
71     }
72 }
```

	Input	Expected	Got	
✓	3 3 2 3	3	3	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 1-Number of Zeros in a Given Array

Jump to...

3-Finding Floor Value ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [1-Number of Zeros in a Given Array](#)

<b>Started on</b>	Friday, 30 August 2024, 2:03 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 13 September 2024, 1:40 PM
<b>Time taken</b>	13 days 23 hours
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

**Problem Statement**

Given an array of 1s and 0s this has all 1s first followed by all 0s. Aim is to find the number of 0s. Write a program using Divide and Conquer to Count the number of zeroes in the given array.

**Input Format**

First Line Contains Integer m – Size of array

Next m lines Contains m numbers – Elements of an array

**Output Format**

First Line Contains Integer – Number of zeroes present in the given array.

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int zerocheck(int arr[],int beg,int end)
3 {
4     int mid=(beg+end)/2 ;
5     if(arr[0]==0)
6         return (end-beg+1);
7     if(arr[end]==1)
8         return 0;
9
10    if(beg<end)
11    {
12        if(arr[mid]==0 && arr[mid-1]==1)
13            return end-mid+1;
14        else if(arr[mid]==1 && arr[mid+1]==0)
15            return zerocheck(arr,mid+1,end);
16        else
17            return zerocheck(arr,mid-1,end);
18    }
19    return 0;
20
21 }
22 int main()
23 {
24     int n;
25     scanf("%d",&n);
26     int arr[n];
27     for(int i=0;i<n;i++)
28         scanf("%d",&arr[i]);
29     int res = zerocheck(arr,0,n-1);
30     printf("%d",res);
31 }
```

	Input	Expected	Got	
✓	5 1 1 1 0 0	2	2	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	10 1 1 1 1 1 1 1 1 1	0	0	✓
✓	8 0 0 0 0 0 0 0 0 0	8	8	✓
✓	17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0	2	2	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ 5-G-Product of Array elements-Minimum](#)

Jump to...

[2-Majority Element ►](#)

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [5-G-Product of Array elements-Minimum](#)

---

**Started on** Friday, 30 August 2024, 1:33 PM

**State** Finished

---

**Completed on** Friday, 30 August 2024, 1:47 PM

**Time taken** 14 mins 28 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

**Question 1**

Correct

Mark 1.00 out of 1.00

Given two arrays array\_One[] and array\_Two[] of same size N. We need to first rearrange the arrays such that the sum of the product of pairs( 1 element from each) is minimum. That is SUM (A[i] \* B[i]) for all i is minimum.

**For example:**

Input	Result
3	28
1	
2	
3	
4	
5	
6	

**Answer:** (penalty regime: 0 %)

```

1 #include<math.h>
2 #include <stdio.h>
3 #include <stdlib.h>
4 int main()
5 {
6     int n;
7     scanf("%d",&n);
8     int a[n],b[n],temp,m=0;
9     for(int i=0;i<n;i++)
10    scanf("%d",&a[i]);
11    for(int i=0;i<n;i++)
12    scanf("%d",&b[i]);
13    for(int i=0;i<n-1;i++)
14    {
15        for(int j=i+1;j<n;j++)
16        {
17            if(a[j]<a[i])
18            {
19                temp=a[i];
20                a[i]=a[j];
21                a[j]=temp;
22            }
23            if(b[j]>b[i])
24            {
25                temp=b[i];
26                b[i]=b[j];
27                b[j]=temp;
28            }
29        }
30    }
31    for(int i=0;i<n;i++)
32    {
33        m+=(a[i]*b[i]);
34    }
35    printf("%d",m);
36 }
```

	Input	Expected	Got	
✓	3 1 2 3 4 5 6	28	28	✓

	Input	Expected	Got	
✓	4 7 5 1 2 1 3 4 1	22	22	✓
✓	5 20 10 30 10 40 8 9 4 3 10	590	590	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 4-G-Array Sum max problem

Jump to...

1-Number of Zeros in a Given Array ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [4-G-Array Sum max problem](#)

<b>Started on</b>	Friday, 30 August 2024, 1:32 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 30 August 2024, 1:32 PM
<b>Time taken</b>	44 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array of N integer, we have to maximize the sum of  $\text{arr}[i] * i$ , where  $i$  is the index of the element ( $i = 0, 1, 2, \dots, N$ ). Write an algorithm based on Greedy technique with a Complexity  $O(n\log n)$ .

Input Format:

First line specifies the number of elements-n

The next n lines contain the array elements.

Output Format:

Maximum Array Sum to be printed.

Sample Input:

```
5
2 5 3 4 0
```

Sample output:

```
40
```

**Answer:** (penalty regime: 0 %)

```

1 #include<math.h>
2 #include <stdio.h>
3 #include <stdlib.h>
4 void swap(int* a, int* b) {
5     int t = *a;
6     *a = *b;
7     *b = t;
8 }
9
10 int partition(int arr[], int low, int high) {
11     int pivot = arr[high];
12     int i = low - 1;
13
14     for (int j = low; j <= high - 1; j++) {
15         if (arr[j] < pivot) {
16             i++;
17             swap(&arr[i], &arr[j]);
18         }
19     }
20     swap(&arr[i + 1], &arr[high]);
21     return i + 1;
22 }
23
24 void quicksort(int arr[], int low, int high) {
25
26     if (low < high) {
27         int pi = partition(arr, low, high);
28         quicksort(arr, low, pi - 1);
29         quicksort(arr, pi + 1, high);
30     }
31 }
32 int main()
33 {
34     int n;
35     scanf("%d", &n);
36     int arr[n];
37     for(int i=0;i<n;i++)
38         scanf("%d", &arr[i]);
39     quicksort(arr, 0, n-1);
40     int ans=0;
41     for(int i=0;i<n;i++)
42     {
43         ans += arr[i]*i;
44     }
45     printf("%d", ans);
46 }
```

	Input	Expected	Got	
✓	5 2 5 3 4 0	40	40	✓
✓	10 2 2 2 4 4 3 3 5 5 5	191	191	✓
✓	2 45 3	45	45	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 3-G-Burger Problem

Jump to...

5-G-Product of Array elements-Minimum ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [3-G-Burger Problem](#)

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**Started on** Friday, 23 August 2024, 2:30 PM

**State** Finished

---

**Completed on** Friday, 23 August 2024, 2:54 PM

**Time taken** 24 mins 34 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

**Question 1**

Correct

Mark 1.00 out of 1.00

A person needs to eat burgers. Each burger contains a count of calorie. After eating the burger, the person needs to run a distance to burn out his calories.

If he has eaten  $i$  burgers with  $c$  calories each, then he has to run at least  $3^i * c$  kilometers to burn out the calories. For example, if he ate 3

burgers with the count of calorie in the order: [1, 3, 2], the kilometers he needs to run are  $(3^0 * 1) + (3^1 * 3) + (3^2 * 2) = 1 + 9 + 18 = 28$ .

But this is not the minimum, so need to try out other orders of consumption and choose the minimum value. Determine the minimum distance

he needs to run. Note: He can eat burger in any order and use an efficient sorting algorithm. Apply greedy approach to solve the problem.

**Input Format**

First Line contains the number of burgers

Second line contains calories of each burger which is  $n$  space-separate integers

**Output Format**

Print: Minimum number of kilometers needed to run to burn out the calories

**Sample Input**

```
3
5 10 7
```

**Sample Output**

```
76
```

**For example:**

Test	Input	Result
Test Case 1	3 1 3 2	18

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 #include<math.h>
3 int main()
4 {
5     int b,sum=0,temp;
6     scanf("%d",&b);
7     int n[b];
8     for(int i=0;i<b;i++)
9         scanf("%d ",&n[i]);
10    for(int i=0;i<b;i++)
11    {
12        for(int j=i+1;j<b;j++)
13        {
14            if(n[j]>=n[i])
15            {
16                temp=n[j];
17                n[j]=n[i];
18                n[i]=temp;
19            }
20        }
21    }
22    for(int i=0;i<b;i++)
23    {
24        sum+=(pow(b,i)*n[i]);
25    }
26    printf("%d",sum);
27 }
28

```

	Test	Input	Expected	Got	
✓	Test Case 1	3 1 3 2	18	18	✓
✓	Test Case 2	4 7 4 9 6	389	389	✓
✓	Test Case 3	3 5 10 7	76	76	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 2-G-Cookies Problem

Jump to...

4-G-Array Sum max problem ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [2-G-Cookies Problem](#)

---

**Started on** Friday, 23 August 2024, 1:54 PM

**State** Finished

---

**Completed on** Friday, 23 August 2024, 2:24 PM

**Time taken** 29 mins 30 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

**Question 1**

Correct

Mark 1.00 out of 1.00

Assume you are an awesome parent and want to give your children some cookies. But, you should give each child at most one cookie.

Each child  $i$  has a greed factor  $g[i]$ , which is the minimum size of a cookie that the child will be content with; and each cookie  $j$  has a size  $s[j]$ . If  $s[j] \geq g[i]$ , we can assign the cookie  $j$  to the child  $i$ , and the child  $i$  will be content. Your goal is to maximize the number of your content children and output the maximum number.

**Example 1:****Input:**

```
3
1 2 3
2
1 1
```

**Output:**

```
1
```

Explanation: You have 3 children and 2 cookies. The greed factors of 3 children are 1, 2, 3.

And even though you have 2 cookies, since their size is both 1, you could only make the child whose greed factor is 1 content.

You need to output 1.

**Constraints:**

$1 \leq g.length \leq 3 * 10^4$

$0 \leq s.length \leq 3 * 10^4$

$1 \leq g[i], s[j] \leq 2^{31} - 1$

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int main()
3 {
4     int n,m,arr1[100],arr2[100],count=0;
5     scanf("%d",&n);
6     for (int i=0;i<n;i++)
7     {
8         scanf("%d",&arr1[i]);
9     }
10    scanf("%d",&m);
11    for (int i=0;i<m;i++)
12    {
13        scanf("%d",&arr2[i]);
14    }
15    for (int i=0;i<n;i++)
16    {
17        for (int j=0;j<m;j++)
18        {
19            if(arr1[i]>=arr2[j])
20            {
21                count++;
22                break;
23            }
24        }
25    }
26    printf("%d",count);
27 }
28 }
```

	Input	Expected	Got	
✓	2	2	2	✓
	1 2			
	3			
	1 2 3			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 1-G-Coin Problem

Jump to...

3-G-Burger Problem ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [1-G-Coin Problem](#)

---

**Started on** Friday, 23 August 2024, 1:32 PM

**State** Finished

---

**Completed on** Friday, 23 August 2024, 1:54 PM

**Time taken** 21 mins 25 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

## Question 1

Correct

Mark 1.00 out of 1.00

Write a program to take value V and we want to make change for V Rs, and we have infinite supply of each of the denominations in Indian currency, i.e., we have infinite supply of { 1, 2, 5, 10, 20, 50, 100, 500, 1000} valued coins/notes, what is the minimum number of coins and/or notes needed to make the change.

Input Format:

Take an integer from stdin.

Output Format:

print the integer which is change of the number.

Example Input :

64

Output:

4

Explanation:

We need a 50 Rs note and a 10 Rs note and two 2 rupee coins.

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int arr[]={1,2,5,10,20,50,100,500,1000};
7     for(int i=0;i<9;i++)
8     {
9         for(int j=i+1;j<9;j++)
10        {
11            if(arr[i]<arr[j])
12            {
13                int temp=arr[i];
14                arr[i]=arr[j];
15                arr[j]=temp;
16            }
17        }
18    }
19    int count=0;
20    for(int i=0;i<9;i++)
21    {
22        if(n-arr[i]>0)
23            count++;
24    }
25    printf("%d",count);
26 }
```

	Input	Expected	Got	
✓	49	5	5	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Problem 5: Finding Complexity using counter method](#)

[Jump to...](#)[2-G-Cookies Problem ►](#)

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-24](#) / [Finding Time Complexity of Algorithms](#) / Problem 5: Finding Complexity using counter me...

<b>Started on</b>	Friday, 9 August 2024, 2:47 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:55 PM
<b>Time taken</b>	7 mins 22 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using counter method.

```
void reverse(int n)
{
    int rev = 0, remainder;
    while (n != 0)
    {
        remainder = n % 10;
        rev = rev * 10 + remainder;
        n/= 10;

    }
print(rev);
}
```

**Note:** No need of counter increment for declarations and scanf() and count variable printf() statements.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**Answer:**

```
1 #include<stdio.h>
2 int main()
3 {
4     int count=0;
5     int n;
6     scanf("%d",&n);
7
8     int rev = 0, remainder;
9     count++;
10    while (n != 0)
11    {
12        count++;
13        remainder = n % 10;
14        count++;
15        rev = rev * 10 + remainder;
16        count++;
17        n/= 10;
18        count++;
19
20    }
21    count++;
22    count++;
23    printf("%d",count);
24 }
```

	Input	Expected	Got	
✓	12	11	11	✓
✓	1234	19	19	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

[◀ Problem 4: Finding Complexity using Counter Method](#)[Jump to...](#)[1-G-Coin Problem ►](#)

[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023-...](#) / [Finding Time Complexity of Algorit...](#) / [Problem 3: Finding Complexity using Counter Me...](#)

<b>Started on</b>	Friday, 9 August 2024, 2:25 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:30 PM
<b>Time taken</b>	5 mins 14 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

## Question 1

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using counter method.

```
Factor(num) {
{
    for (i = 1; i <= num; ++i)
    {
        if (num % i == 0)
        {
            printf("%d ", i);
        }
    }
}
```

**Note:** No need of counter increment for declarations and scanf() and counter variable printf() statement.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**Answer:**

```
1 #include<stdio.h>
2 int main()
3 {
4     int num;
5     int count=0;
6     scanf("%d",&num);
7
8     for (int i = 1; i <= num; ++i)
9     { count++;
10     if (num % i == 0)
11     {
12         count++;
13     }
14     count++;
15     }
16     count++;
17     printf("%d",count);
18 }
```

	Input	Expected	Got	
✓	12	31	31	✓
✓	25	54	54	✓
✓	4	12	12	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Problem 2: Finding Complexity using Counter method](#)

Jump to...

[Problem 4: Finding Complexity using Counter Method ►](#)

[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023-...](#) / [Finding Time Complexity of Algorit...](#) / [Problem 2: Finding Complexity using Counter me...](#)

<b>Started on</b>	Friday, 9 August 2024, 2:20 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:21 PM
<b>Time taken</b>	1 min 2 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

## Question 1

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using the counter method.

```
void func(int n)
{
    if(n==1)
    {
        printf("*");
    }
    else
    {
        for(int i=1; i<=n; i++)
        {
            for(int j=1; j<=n; j++)
            {
                printf("*");
                printf("*");
                break;
            }
        }
    }
}
```

**Note:** No need of counter increment for declarations and scanf() and count variable printf() statements.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 void function(int n)
3 {
4     int c=0;
5     c++;
6     if(n==1)
7
8     {
9         c++;
10        c++;
11    }
12    else
13    {
14        for(int i=1; i<=n; i++)
15        {
16            c++;
17            for(int j=1; j<=n; j++)
18            {
19                c++;
20                c++;
21                c++;
22                break;
23
24            }
25            c++;
26
27        }
28        c++;
29
30    }
31
32    printf("%d",c);
33
34 }
35 int main(){
36     int n;
37     scanf("%d",&n);
38     function(n);
39 }
```

↻ | ↻

	Input	Expected	Got	
✓	2	12	12	✓
✓	1000	5002	5002	✓
✓	143	717	717	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ Problem 1: Finding Complexity using Counter Method](#)

Jump to...

[Problem 3: Finding Complexity using Counter Method ➤](#)

[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023-...](#) / [Finding Time Complexity of Algorit...](#) / [Problem 1: Finding Complexity using Counter Me...](#)

<b>Started on</b>	Friday, 9 August 2024, 2:13 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:19 PM
<b>Time taken</b>	6 mins 30 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using the counter method.

```
void function (int n)
{
```

```
    int i= 1;
```

```
    int s =1;
```

```
    while(s <= n)
    {
        i++;
        s += i;
    }
}
```

**Note:** No need of counter increment for declarations and scanf() and count variable printf() statements.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**For example:**

Input	Result
9	12

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 void function (int n)
3 {
4     int c=0;
5     int i= 1;
6     c++;
7     int s =1;
8     c++;
9     while(s <= n)
10    {
11        c++;
12        i++;
13        c++;
14        s += i;
15        c++;
16    }
17    c++;
18    printf("%d",c);
19 }
20 int main(){
21     int n;
22     scanf("%d",&n);
23     function(n);
24 }
```

	Input	Expected	Got	
✓	9	12	12	✓
✓	4	9	9	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Jump to...

[Problem 2: Finding Complexity using Counter method ►](#)

[Dashbo...](#) / [My cou...](#) / [CS23331-DAA-202...](#) / [Competitive Progra...](#) / [4-Print Intersection of 2 sorted arrays-O\(m+n\)Time Complexity,O\(1\) Sp...](#)

<b>Started on</b>	Wednesday, 20 November 2024, 1:23 AM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 20 November 2024, 1:33 AM
<b>Time taken</b>	10 mins 7 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>30.00</b> out of 30.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Find the intersection of two sorted arrays.

OR in other words,

Given 2 sorted arrays, find all the elements which occur in both the arrays.

**Input Format**

- The first line contains T, the number of test cases. Following T lines contain:

- Line 1 contains N1, followed by N1 integers of the first array
- Line 2 contains N2, followed by N2 integers of the second array

**Output Format**

The intersection of the arrays in a single line

**Example**

**Input:**

1

3 10 17 57

6 2 7 10 15 57 246

**Output:**

10 57

**Input:**

1

6 1 2 3 4 5 6

2 1 6

**Output:**

1 6

**For example:**

Input	Result
1	10 57
3 10 17 57	
6	
2 7 10 15 57 246	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2
3 void findIntersection(int arr1[], int n1, int arr2[], int n2) {
4     int i = 0, j = 0;
5
6
7 while (i < n1 && j < n2) {
8     if (arr1[i] < arr2[j]) {
9         i++;
10    } else if (arr1[i] > arr2[j]) {
11        j++;
12    } else {
13
14        printf("%d ", arr1[i]);
15        i++;
16        j++;
17    }
18 }
19
20
21 int main() {
22     int T;
23     scanf("%d", &T);
24 }
```

```

24
25     while (T--) {
26
27
28
29     int n1;
30     scanf("%d", &n1);
31     int arr1[n1];
32
33     for (int i = 0; i < n1; i++) {
34         scanf("%d", &arr1[i]);
35     }
36
37     int n2;
38     scanf("%d", &n2);
39     int arr2[n2];
40
41     for (int i = 0; i < n2; i++) {
42         scanf("%d", &arr2[i]);
43     }
44
45
46     findIntersection(arr1, n1, arr2, n2);
47     printf("\n");
48 }
49
50     return 0;
51 }
52

```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	1 3 10 17 57 6 2 7 10 15 57 246	10 57	10 57	✓
✓	1 6 1 2 3 4 5 6 2 1 6	1 6	1 6	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 3-Print Intersection of 2 sorted arrays-O(m\*n)Time Complexity,O(1) Space Complexity

Jump to...

5-Pair with Difference-O(n^2)Time Complexity,O(1) Space Complexity ►

[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023-...](#) / [Competitive Program...](#) / [5-Pair with Difference-O\(n^2\)Time Complexity,O\(1\) Space Com...](#)

---

**Started on** Wednesday, 20 November 2024, 1:24 AM

**State** Finished

---

**Completed on** Wednesday, 20 November 2024, 1:33 AM

**Time taken** 9 mins 23 secs

---

**Marks** 1.00/1.00

---

**Grade** **4.00** out of 4.00 (**100%**)

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that  $A[j] - A[i] = k$ ,  $i \neq j$ .

**Input Format:**

First Line n - Number of elements in an array

Next n Lines - N elements in the array

k - Non - Negative Integer

**Output Format:**

1 - If pair exists

0 - If no pair exists

**Explanation for the given Sample Testcase:**

YES as  $5 - 1 = 4$

So Return 1.

**For example:**

Input	Result
3	1
1 3 5	
4	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 int main() {
3     int n, k;
4     scanf("%d", &n);
5
6     int A[n];
7     for (int i = 0; i < n; i++) {
8         scanf("%d", &A[i]);
9     }
10    scanf("%d", &k);
11    int i = 0, j = 1;
12    while (j < n) {
13        int diff = A[j] - A[i];
14        if (diff == k && i != j) {
15            printf("1\n");
16            return 0;
17        } else if (diff < k) {
18            j++;
19        } else {
20            i++;
21            if (i == j) {
22                j++;
23            }
24        }
25    }
26    printf("0\n");
27    return 0;
28 }
```

	Input	Expected	Got	
✓	3 1 3 5 4	1	1	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	10 1 4 6 8 12 14 15 20 21 25 1	1	1	✓
✓	10 1 2 3 5 11 14 16 24 28 29 0	0	0	✓
✓	10 0 2 3 7 13 14 15 20 24 25 10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 4-Print Intersection of 2 sorted arrays-O(m+n)Time Complexity,O(1) Space Complexity

Jump to...

6-Pair with Difference -O(n) Time Complexity,O(1) Space Complexity ►

[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023-...](#) / [Competitive Program...](#) / [6-Pair with Difference -O\(n\) Time Complexity,O\(1\) Space Com...](#)

<b>Started on</b>	Wednesday, 20 November 2024, 1:24 AM
<b>State</b>	Finished
<b>Completed on</b>	Wednesday, 20 November 2024, 1:34 AM
<b>Time taken</b>	9 mins 37 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>4.00</b> out of 4.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that  $A[j] - A[i] = k$ ,  $i \neq j$ .

**Input Format:**

First Line n - Number of elements in an array

Next n Lines - N elements in the array

k - Non - Negative Integer

**Output Format:**

1 - If pair exists

0 - If no pair exists

**Explanation for the given Sample Testcase:**

YES as  $5 - 1 = 4$

So Return 1.

**For example:**

Input	Result
3	1
1 3 5	
4	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 int main() {
3     int n, k;
4     scanf("%d", &n);
5     int A[n];
6     for (int i = 0; i < n; i++) {
7         scanf("%d", &A[i]);
8     }
9     scanf("%d", &k);
10    int i = 0, j = 1;
11    while (j < n) {
12        int diff = A[j] - A[i];
13        if (diff == k && i != j) {
14            printf("1\n");
15            return 0;
16        } else if (diff < k) {
17            j++;
18        } else {
19            i++;
20            if (i == j) {
21                j++;
22            }
23        }
24    }
25    printf("0\n");
26    return 0;
27 }
```

	Input	Expected	Got	
✓	3 1 3 5 4	1	1	✓

	Input	Expected	Got	
✓	10 1 4 6 8 12 14 15 20 21 25 1	1	1	✓
✓	10 1 2 3 5 11 14 16 24 28 29 0	0	0	✓
✓	10 0 2 3 7 13 14 15 20 24 25 10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ 5-Pair with Difference-O\(n^2\)Time Complexity,O\(1\) Space Complexity](#)

Jump to...

[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023-...](#) / [Competitive Programm...](#) / [2-Finding Duplicates-O\(n\) Time Complexity,O\(1\) Space Comp...](#)

<b>Started on</b>	Friday, 16 August 2024, 1:58 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 16 August 2024, 2:02 PM
<b>Time taken</b>	4 mins 6 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>4.00</b> out of 4.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Find Duplicate in Array.

Given a read only array of n integers between 1 and n, find one number that repeats.

Input Format:

First Line - Number of elements

n Lines - n Elements

Output Format:

Element x - That is repeated

**For example:**

Input	Result
5	1
1 1 2 3 4	

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int a[n];
7     for(int i=0;i<n;i++)
8         scanf("%d",&a[i]);
9     for(int i=0;i<n;i++)
10    {
11        for(int j=i+1;j<n;j++)
12        {
13            if(a[i]==a[j])
14                printf("%d",a[i]);
15        }
16    }
17 }
18

```

	Input	Expected	Got	
✓	11 10 9 7 6 5 1 2 3 8 4 7	7	7	✓
✓	5 1 2 3 4 4	4	4	✓
✓	5 1 1 2 3 4	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ 1-Finding Duplicates-O\(n^2\) Time Complexity,O\(1\) Space Complexity](#)

Jump to...

[3-Print Intersection of 2 sorted arrays-O\(m\\*n\)Time Complexity,O\(1\) Space Complexity ►](#)



[Dashbo...](#) / [My cour...](#) / [CS23331-DAA-2023....](#) / [Competitive Program...](#) / [1-Finding Duplicates-O\(n^2\) Time Complexity,O\(1\) Space Com...](#)

<b>Started on</b>	Friday, 16 August 2024, 1:38 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 16 August 2024, 1:56 PM
<b>Time taken</b>	18 mins 3 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>4.00</b> out of 4.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Find Duplicate in Array.

Given a read only array of n integers between 1 and n, find one number that repeats.

Input Format:

First Line - Number of elements

n Lines - n Elements

Output Format:

Element x - That is repeated

**For example:**

Input	Result
5	1
1 1 2 3 4	

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int a[n];
7     for(int i=0;i<n;i++)
8         scanf("%d",&a[i]);
9     for(int i=0;i<n;i++)
10    {
11        for(int j=i+1;j<n;j++)
12        {
13            if (a[i]==a[j])
14                printf("%d",a[i]);
15        }
16    }
17 }
```

	Input	Expected	Got	
✓	11 10 9 7 6 5 1 2 3 8 4 7	7	7	✓
✓	5 1 2 3 4 4	4	4	✓
✓	5 1 1 2 3 4	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ 4-DP-Longest non-decreasing Subsequence](#)

Jump to...

[2-Finding Duplicates-O\(n\) Time Complexity,O\(1\) Space Complexity ►](#)



[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Dynamic Programming](#) / [3-DP-Longest Common Subsequence](#)

---

**Started on** Friday, 18 October 2024, 2:48 PM

**State** Finished

---

**Completed on** Friday, 18 October 2024, 2:53 PM

**Time taken** 5 mins 5 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

**Question 1**

Correct

Mark 1.00 out of 1.00

Given two strings find the length of the common longest subsequence(need not be contiguous) between the two.

Example:

s1: ggtabe

s2: tgatasb

s1	a	g	g	t	a	b
s2	g	x	t	x	a	y

**The length is 4**

Solveing it using Dynamic Programming

For example:

Input	Result
aab	2
azb	

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 #include <string.h>
3 #define MAX 1000
4 int Common(char *s1, char *s2) {
5     int m = strlen(s1);
6     int n = strlen(s2);
7     int dp[MAX][MAX];
8     for (int i = 0; i <= m; i++) {
9         for (int j = 0; j <= n; j++) {
10            if (i == 0 || j == 0) {
11                dp[i][j] = 0;
12            }
13            else if (s1[i - 1] == s2[j - 1]) {
14                dp[i][j] = dp[i - 1][j - 1] + 1;
15            }
16            else {
17                dp[i][j] = (dp[i - 1][j] > dp[i][j - 1]) ? dp[i - 1][j] : dp[i][j - 1];
18            }
19        }
20    }
21    return dp[m][n];
22 }
23 int main() {
24     char s1[MAX], s2[MAX];
25     scanf("%s", s1);
26     scanf("%s", s2);
27     int lcsLength = Common(s1, s2);
28     printf("%d\n", lcsLength);
29     return 0;
30 }
31 
```

	Input	Expected	Got	
✓	aab	2	2	✓
	azb			

	Input	Expected	Got	
✓	ABCD ABCD	4	4	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 2-DP-Playing with chessboard

Jump to...

4-DP-Longest non-decreasing Subsequence ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Dynamic Programming](#) / [2-DP-Playing with chessboard](#)

---

**Started on** Friday, 18 October 2024, 2:45 PM

**State** Finished

---

**Completed on** Friday, 18 October 2024, 2:53 PM

**Time taken** 7 mins 25 secs

---

**Grade** **10.00** out of 10.00 (**100%**)

**Question 1**

Correct

Mark 10.00 out of 10.00

**Playing with Chessboard:**

Ram is given with an  $n \times n$  chessboard with each cell with a monetary value. Ram stands at the (0,0), that the position of the top left white rook. He is been given a task to reach the bottom right black rook position ( $n-1, n-1$ ) constrained that he needs to reach the position by traveling the maximum monetary path under the condition that he can only travel one step right or one step down the board. Help ram to achieve it by providing an efficient DP algorithm.

**Example:****Input**

```
3
1 2 4
2 3 4
8 7 1
```

**Output:**

19

**Explanation:**

Totally there will be 6 paths among that the optimal is

Optimal path value:  $1+2+8+7+1=19$

**Input Format**

First Line contains the integer  $n$

The next  $n$  lines contain the  $n \times n$  chessboard values

**Output Format**

Print Maximum monetary value of the path

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 #define MAX 1000
3 int max_monetary_path(int n, int board[MAX][MAX]) {
4     int dp[MAX][MAX];
5     dp[0][0] = board[0][0];
6     for (int j = 1; j < n; j++) {
7         dp[0][j] = dp[0][j - 1] + board[0][j];
8     }
9     for (int i = 1; i < n; i++) {
10        dp[i][0] = dp[i - 1][0] + board[i][0];
11    }
12    for (int i = 1; i < n; i++) {
13        for (int j = 1; j < n; j++) {
14            dp[i][j] = board[i][j] + (dp[i - 1][j] > dp[i][j - 1] ? dp[i - 1][j] : dp[i][j - 1]);
15        }
16    }
17    return dp[n - 1][n - 1];
18 }
19 int main() {
20     int n;
21     scanf("%d", &n);
22     int board[MAX][MAX];
23     for (int i = 0; i < n; i++) {
24         for (int j = 0; j < n; j++) {
25             scanf("%d", &board[i][j]);
26         }
27     }
28     int result = max_monetary_path(n, board);
29     printf("%d\n", result);
30     return 0;
31 }
32 }
```

	Input	Expected	Got	
✓	3 1 2 4 2 3 4 8 7 1	19	19	✓
✓	3 1 3 1 1 5 1 4 2 1	12	12	✓
✓	4 1 1 3 4 1 5 7 8 2 3 4 6 1 6 9 0	28	28	✓

Passed all tests! ✓

Correct

Marks for this submission: 10.00/10.00.

◀ 1-DP-Playing with Numbers

Jump to...

3-DP-Longest Common Subsequence ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Dynamic Programming](#) / [1-DP-Playing with Numbers](#)

---

**Started on** Friday, 18 October 2024, 2:43 PM

**State** Finished

---

**Completed on** Friday, 18 October 2024, 2:52 PM

**Time taken** 9 mins 9 secs

---

**Grade** **10.00** out of 10.00 (**100%**)

**Question 1**

Correct

Mark 10.00 out of 10.00

**Playing with Numbers:**

Ram and Sita are playing with numbers by giving puzzles to each other. Now it was Ram term, so he gave Sita a positive integer 'n' and two numbers 1 and 3. He asked her to find the possible ways by which the number n can be represented using 1 and 3. Write any efficient algorithm to find the possible ways.

**Example 1:****Input:** 6**Output:** 6

**Explanation:** There are 6 ways to represent number with 1 and 3

```
1+1+1+1+1+1
3+3
1+1+1+3
1+1+3+1
1+3+1+1
3+1+1+1
```

**Input Format**

First Line contains the number n

**Output Format**

**Print:** The number of possible ways 'n' can be represented using 1 and 3

Sample Input

6

Sample Output

6

**Answer:** (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 long long int count_ways_to_sum(int n) {
4
5     if (n == 0) return 1;
6     if (n == 1) return 1;
7     if (n == 2) return 1;
8
9     long long int dp[n + 1];
10
11    dp[0] = 1;
12    dp[1] = 1;
13    dp[2] = 1;
14
15    for (int i = 3; i <= n; i++) {
16        dp[i] = dp[i - 1] + dp[i - 3];
17    }
18
19    return dp[n];
20}
21
22 int main() {
23     int n;
24     scanf("%d", &n);
25     printf("%lld\n", count_ways_to_sum(n));
26     return 0;
27 }
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	6	6	6	✓
✓	25	8641	8641	✓
✓	100	24382819596721629	24382819596721629	✓

Passed all tests! ✓

Correct

Marks for this submission: 10.00/10.00.

◀ 5-Implementation of Quick Sort

Jump to...

2-DP-Playing with chessboard ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [5-Implementation of Quick Sort](#)

---

**Started on** Friday, 20 September 2024, 1:54 PM

**State** Finished

---

**Completed on** Friday, 20 September 2024, 1:54 PM

**Time taken** 25 secs

---

**Marks** 1.00/1.00

---

**Grade** **10.00** out of 10.00 (**100%**)

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a Program to Implement the Quick Sort Algorithm

**Input Format:**

The first line contains the no of elements in the list-n

The next n lines contain the elements.

**Output:**

Sorted list of elements

**For example:**

Input	Result
5 67 34 12 98 78	12 34 67 78 98

**Answer:**

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int arr[n];
7     for(int i=0;i<n;i++)
8         scanf("%d",&arr[i]);
9     int t;
10    for(int i=0;i<n-1;i++)
11    {
12        for(int j=i+1;j<n;j++)
13        {
14            if(arr[i]>arr[j])
15            {
16                t=arr[i];
17                arr[i]=arr[j];
18                arr[j]=t;
19            }
20        }
21    }
22
23    for(int i=0;i<n;i++)
24        printf("%d ",arr[i]);
25
26 }
```

	Input	Expected	Got	
✓	5 67 34 12 98 78	12 34 67 78 98	12 34 67 78 98	✓
✓	10 1 56 78 90 32 56 56 11 10 90 114	1 10 11 32 56 56 78 90 90 114	1 10 11 32 56 56 78 90 90 114	✓
✓	12 9 8 7 6 5 4 3 2 1 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 4-Two Elements sum to x

[1-DP-Playing with Numbers ►](#)

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [4-Two Elements sum to x](#)

<b>Started on</b>	Friday, 13 September 2024, 1:35 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 20 September 2024, 1:53 PM
<b>Time taken</b>	7 days
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

**Problem Statement:**

Given a sorted array of integers say arr[] and a number x. Write a recursive program using divide and conquer strategy to check if there exist two elements in the array whose sum = x. If there exist such two elements then return the numbers, otherwise print as "No".

Note: Write a Divide and Conquer Solution

**Input Format**

First Line Contains Integer n – Size of array

Next n lines Contains n numbers – Elements of an array

Last Line Contains Integer x – Sum Value

**Output Format**

First Line Contains Integer – Element1

Second Line Contains Integer – Element2 (Element 1 and Elements 2 together sums to value "x")

**Answer:** (penalty regime: 0 %)

```

1 #include <stdio.h>
2 void sum(int arr[], int low, int high, int x) {
3     if (low >= high) {
4         printf("No\n");
5         return;
6     }
7
8     int sums = arr[low] + arr[high];
9     if (sums == x) {
10        printf("%d\n", arr[low]);
11        printf("%d\n", arr[high]);
12    } else if (sums < x) {
13        sum(arr, low + 1, high, x);
14    } else {
15        sum(arr, low, high - 1, x);
16    }
17 }
18
19 int main() {
20     int n, x;
21
22
23     scanf("%d", &n);
24
25     int arr[n];
26     for (int i = 0; i < n; i++) {
27         scanf("%d", &arr[i]);
28     }
29     scanf("%d", &x);
30
31
32     sum(arr, 0, n - 1, x);
33
34     return 0;
35 }
36
37

```

	Input	Expected	Got
✓	4	4	4 ✓
	2	10	10
	4		
	8		
	10		
	14		

	Input	Expected	Got	
✓	5	No	No	✓
	2			
	4			
	6			
	8			
	10			
	100			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 3-Finding Floor Value

Jump to...

5-Implementation of Quick Sort ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [3-Finding Floor Value](#)

<b>Started on</b>	Friday, 13 September 2024, 1:33 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 13 September 2024, 1:35 PM
<b>Time taken</b>	1 min 5 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

**Problem Statement:**

Given a sorted array and a value x, the floor of x is the largest element in array smaller than or equal to x. Write divide and conquer algorithm to find floor of x.

**Input Format**

First Line Contains Integer n – Size of array

Next n lines Contains n numbers – Elements of an array

Last Line Contains Integer x – Value for x

**Output Format**

First Line Contains Integer – Floor value for x

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 void sort(int arr[],int temp[],int low,int high)
3 {
4     for(int i=low; i<=high;i++)
5     {
6         arr[i]=temp[i-low];
7     }
8 }
9
10 void merge(int arr[],int low,int mid,int high)
11 {
12     int temp[high+1];
13     int p=low,q=mid+1,s=0;
14     while(p<=mid && q<=high)
15     {
16         if(arr[p]<arr[q])
17         {
18             temp[s]=arr[p];
19             p++;
20         }
21         else
22         {
23             temp[s]=arr[q];
24             q++;
25         }
26         s++;
27     }
28     while(p<=mid)
29     {
30         temp[s]=arr[p];
31         s++;
32         p++;
33     }
34     while(q<=high)
35     {
36         temp[s]=arr[q];
37         s++;
38         q++;
39     }
40     sort(arr,temp,low,high);
41 }
42
43 void mergesort(int arr[],int low,int high)
44 {
45     if(low < high)
46     {
47         int mid=(low+high)/2;
48         mergesort(arr,low,mid);
49         mergesort(arr,mid+1,high);
50         merge(arr,low,mid,high);
51     }
52 }
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	6 1 2 8 10 12 19 5	2	2	✓
✓	5 10 22 85 108 129 100	85	85	✓
✓	7 3 5 7 9 11 13 15 10	9	9	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 2-Majority Element

Jump to...

4-Two Elements sum to x ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [2-Majority Element](#)

<b>Started on</b>	Friday, 13 September 2024, 1:33 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 13 September 2024, 1:33 PM
<b>Time taken</b>	30 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array `nums` of size `n`, return *the majority element*.

The majority element is the element that appears more than  $\lfloor n / 2 \rfloor$  times. You may assume that the majority element always exists in the array.

**Example 1:**

**Input:** `nums = [3,2,3]`  
**Output:** 3

**Example 2:**

**Input:** `nums = [2,2,1,1,1,2,2]`  
**Output:** 2

**Constraints:**

- `n == nums.length`
- $1 \leq n \leq 5 * 10^4$
- $-2^{31} \leq \text{nums}[i] \leq 2^{31} - 1$

**For example:**

Input	Result
3	3
3 2 3	
7	2
2 2 1 1 1 2 2	

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 void sort(int arr[],int temp[],int low,int high)
3 {
4     for(int i=low; i<=high;i++)
5     {
6         arr[i]=temp[i-low];
7     }
8 }
9
10 void merge(int arr[],int low,int mid,int high)
11 {
12     int temp[high+1];
13     int p=low,q=mid+1,s=0;
14     while(p<=mid && q<=high)
15     {
16         if(arr[p]<arr[q])
17         {
18             temp[s]=arr[p];
19             p++;
20         }
21         else
22         {
23             temp[s]=arr[q];
24             q++;
25         }
26         s++;
27     }
28     while(p<=mid)
29     {
30         temp[s]=arr[p];
31         s++;
32         p++;
33     }
34     while(q<=high)
35     {
36         temp[s]=arr[q];
37         s++;
38         q++;
39     }
40 }
```

```
56     temp[s]=arr[q];
57     s++;
58     q++;
59 }
60 sort(arr,temp,low,high);
61 }
62
63 void mergesort(int arr[],int low,int high)
64 {
65     if(low < high)
66     {
67         int mid=(low+high)/2;
68         mergesort(arr,low,mid);
69         mergesort(arr,mid+1,high);
70         merge(arr,low,mid,high);
71     }
72 }
```

	Input	Expected	Got	
✓	3 3 2 3	3	3	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 1-Number of Zeros in a Given Array

Jump to...

3-Finding Floor Value ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [1-Number of Zeros in a Given Array](#)

<b>Started on</b>	Friday, 30 August 2024, 2:03 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 13 September 2024, 1:40 PM
<b>Time taken</b>	13 days 23 hours
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

**Problem Statement**

Given an array of 1s and 0s this has all 1s first followed by all 0s. Aim is to find the number of 0s. Write a program using Divide and Conquer to Count the number of zeroes in the given array.

**Input Format**

First Line Contains Integer m – Size of array

Next m lines Contains m numbers – Elements of an array

**Output Format**

First Line Contains Integer – Number of zeroes present in the given array.

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int zerocheck(int arr[],int beg,int end)
3 {
4     int mid=(beg+end)/2 ;
5     if(arr[0]==0)
6         return (end-beg+1);
7     if(arr[end]==1)
8         return 0;
9
10    if(beg<end)
11    {
12        if(arr[mid]==0 && arr[mid-1]==1)
13            return end-mid+1;
14        else if(arr[mid]==1 && arr[mid+1]==0)
15            return zerocheck(arr,mid+1,end);
16        else
17            return zerocheck(arr,mid-1,end);
18    }
19    return 0;
20
21 }
22 int main()
23 {
24     int n;
25     scanf("%d",&n);
26     int arr[n];
27     for(int i=0;i<n;i++)
28         scanf("%d",&arr[i]);
29     int res = zerocheck(arr,0,n-1);
30     printf("%d",res);
31 }
```

	Input	Expected	Got	
✓	5 1 1 1 0 0	2	2	✓

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	10 1 1 1 1 1 1 1 1 1	0	0	✓
✓	8 0 0 0 0 0 0 0 0 0	8	8	✓
✓	17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0	2	2	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

[◀ 5-G-Product of Array elements-Minimum](#)

Jump to...

[2-Majority Element ►](#)

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [5-G-Product of Array elements-Minimum](#)

<b>Started on</b>	Friday, 30 August 2024, 1:33 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 30 August 2024, 1:47 PM
<b>Time taken</b>	14 mins 28 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Given two arrays array\_One[] and array\_Two[] of same size N. We need to first rearrange the arrays such that the sum of the product of pairs( 1 element from each) is minimum. That is SUM (A[i] \* B[i]) for all i is minimum.

**For example:**

Input	Result
3	28
1	
2	
3	
4	
5	
6	

**Answer:** (penalty regime: 0 %)

```

1 #include<math.h>
2 #include <stdio.h>
3 #include <stdlib.h>
4 int main()
5 {
6     int n;
7     scanf("%d",&n);
8     int a[n],b[n],temp,m=0;
9     for(int i=0;i<n;i++)
10    scanf("%d",&a[i]);
11    for(int i=0;i<n;i++)
12    scanf("%d",&b[i]);
13    for(int i=0;i<n-1;i++)
14    {
15        for(int j=i+1;j<n;j++)
16        {
17            if(a[j]<a[i])
18            {
19                temp=a[i];
20                a[i]=a[j];
21                a[j]=temp;
22            }
23            if(b[j]>b[i])
24            {
25                temp=b[i];
26                b[i]=b[j];
27                b[j]=temp;
28            }
29        }
30    }
31    for(int i=0;i<n;i++)
32    {
33        m+=(a[i]*b[i]);
34    }
35    printf("%d",m);
36 }
```

	Input	Expected	Got	
✓	3 1 2 3 4 5 6	28	28	✓

	Input	Expected	Got	
✓	4 7 5 1 2 1 3 4 1	22	22	✓
✓	5 20 10 30 10 40 8 9 4 3 10	590	590	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 4-G-Array Sum max problem

Jump to...

1-Number of Zeros in a Given Array ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [4-G-Array Sum max problem](#)

---

**Started on** Friday, 30 August 2024, 1:32 PM

**State** Finished

---

**Completed on** Friday, 30 August 2024, 1:32 PM

**Time taken** 44 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

**Question 1**

Correct

Mark 1.00 out of 1.00

Given an array of N integer, we have to maximize the sum of  $\text{arr}[i] * i$ , where  $i$  is the index of the element ( $i = 0, 1, 2, \dots, N$ ). Write an algorithm based on Greedy technique with a Complexity  $O(n\log n)$ .

Input Format:

First line specifies the number of elements-n

The next n lines contain the array elements.

Output Format:

Maximum Array Sum to be printed.

Sample Input:

```
5
2 5 3 4 0
```

Sample output:

```
40
```

**Answer:** (penalty regime: 0 %)

```

1 #include<math.h>
2 #include <stdio.h>
3 #include <stdlib.h>
4 void swap(int* a, int* b) {
5     int t = *a;
6     *a = *b;
7     *b = t;
8 }
9
10 int partition(int arr[], int low, int high) {
11     int pivot = arr[high];
12     int i = low - 1;
13
14     for (int j = low; j <= high - 1; j++) {
15         if (arr[j] < pivot) {
16             i++;
17             swap(&arr[i], &arr[j]);
18         }
19     }
20     swap(&arr[i + 1], &arr[high]);
21     return i + 1;
22 }
23
24 void quicksort(int arr[], int low, int high) {
25
26     if (low < high) {
27         int pi = partition(arr, low, high);
28         quicksort(arr, low, pi - 1);
29         quicksort(arr, pi + 1, high);
30     }
31 }
32 int main()
33 {
34     int n;
35     scanf("%d", &n);
36     int arr[n];
37     for(int i=0;i<n;i++)
38         scanf("%d", &arr[i]);
39     quicksort(arr, 0, n-1);
40     int ans=0;
41     for(int i=0;i<n;i++)
42     {
43         ans += arr[i]*i;
44     }
45     printf("%d", ans);
46 }
```

	Input	Expected	Got	
✓	5 2 5 3 4 0	40	40	✓
✓	10 2 2 2 4 4 3 3 5 5 5	191	191	✓
✓	2 45 3	45	45	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 3-G-Burger Problem

Jump to...

5-G-Product of Array elements-Minimum ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [3-G-Burger Problem](#)

---

**Started on** Friday, 23 August 2024, 2:30 PM

**State** Finished

---

**Completed on** Friday, 23 August 2024, 2:54 PM

**Time taken** 24 mins 34 secs

---

**Marks** 1.00/1.00

---

**Grade** **10.00** out of 10.00 (**100%**)

**Question 1**

Correct

Mark 1.00 out of 1.00

A person needs to eat burgers. Each burger contains a count of calorie. After eating the burger, the person needs to run a distance to burn out his calories.

If he has eaten  $i$  burgers with  $c$  calories each, then he has to run at least  $3^i * c$  kilometers to burn out the calories. For example, if he ate 3

burgers with the count of calorie in the order: [1, 3, 2], the kilometers he needs to run are  $(3^0 * 1) + (3^1 * 3) + (3^2 * 2) = 1 + 9 + 18 = 28$ .

But this is not the minimum, so need to try out other orders of consumption and choose the minimum value. Determine the minimum distance

he needs to run. Note: He can eat burger in any order and use an efficient sorting algorithm. Apply greedy approach to solve the problem.

**Input Format**

First Line contains the number of burgers

Second line contains calories of each burger which is  $n$  space-separate integers

**Output Format**

Print: Minimum number of kilometers needed to run to burn out the calories

**Sample Input**

```
3
5 10 7
```

**Sample Output**

```
76
```

**For example:**

Test	Input	Result
Test Case 1	3 1 3 2	18

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 #include<math.h>
3 int main()
4 {
5     int b,sum=0,temp;
6     scanf("%d",&b);
7     int n[b];
8     for(int i=0;i<b;i++)
9         scanf("%d ",&n[i]);
10    for(int i=0;i<b;i++)
11    {
12        for(int j=i+1;j<b;j++)
13        {
14            if(n[j]>=n[i])
15            {
16                temp=n[j];
17                n[j]=n[i];
18                n[i]=temp;
19            }
20        }
21    }
22    for(int i=0;i<b;i++)
23    {
24        sum+=(pow(b,i)*n[i]);
25    }
26    printf("%d",sum);
27 }
28

```

	Test	Input	Expected	Got	
✓	Test Case 1	3 1 3 2	18	18	✓
✓	Test Case 2	4 7 4 9 6	389	389	✓
✓	Test Case 3	3 5 10 7	76	76	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 2-G-Cookies Problem

Jump to...

4-G-Array Sum max problem ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [2-G-Cookies Problem](#)

---

**Started on** Friday, 23 August 2024, 1:54 PM

**State** Finished

---

**Completed on** Friday, 23 August 2024, 2:24 PM

**Time taken** 29 mins 30 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

**Question 1**

Correct

Mark 1.00 out of 1.00

Assume you are an awesome parent and want to give your children some cookies. But, you should give each child at most one cookie.

Each child  $i$  has a greed factor  $g[i]$ , which is the minimum size of a cookie that the child will be content with; and each cookie  $j$  has a size  $s[j]$ . If  $s[j] \geq g[i]$ , we can assign the cookie  $j$  to the child  $i$ , and the child  $i$  will be content. Your goal is to maximize the number of your content children and output the maximum number.

**Example 1:****Input:**

```
3
1 2 3
2
1 1
```

**Output:**

```
1
```

Explanation: You have 3 children and 2 cookies. The greed factors of 3 children are 1, 2, 3.

And even though you have 2 cookies, since their size is both 1, you could only make the child whose greed factor is 1 content.

You need to output 1.

**Constraints:**

$1 \leq g.length \leq 3 * 10^4$

$0 \leq s.length \leq 3 * 10^4$

$1 \leq g[i], s[j] \leq 2^{31} - 1$

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int main()
3 {
4     int n,m,arr1[100],arr2[100],count=0;
5     scanf("%d",&n);
6     for (int i=0;i<n;i++)
7     {
8         scanf("%d",&arr1[i]);
9     }
10    scanf("%d",&m);
11    for (int i=0;i<m;i++)
12    {
13        scanf("%d",&arr2[i]);
14    }
15    for (int i=0;i<n;i++)
16    {
17        for (int j=0;j<m;j++)
18        {
19            if(arr1[i]>=arr2[j])
20            {
21                count++;
22                break;
23            }
24        }
25    }
26    printf("%d",count);
27 }
28 }
```

	Input	Expected	Got	
✓	2	2	2	✓
	1 2			
	3			
	1 2 3			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 1-G-Coin Problem

Jump to...

3-G-Burger Problem ►

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Greedy Algorithms](#) / [1-G-Coin Problem](#)

---

**Started on** Friday, 23 August 2024, 1:32 PM

**State** Finished

---

**Completed on** Friday, 23 August 2024, 1:54 PM

**Time taken** 21 mins 25 secs

**Marks** 1.00/1.00

**Grade** **10.00** out of 10.00 (**100%**)

---

**Question 1**

Correct

Mark 1.00 out of 1.00

Write a program to take value V and we want to make change for V Rs, and we have infinite supply of each of the denominations in Indian currency, i.e., we have infinite supply of { 1, 2, 5, 10, 20, 50, 100, 500, 1000} valued coins/notes, what is the minimum number of coins and/or notes needed to make the change.

Input Format:

Take an integer from stdin.

Output Format:

print the integer which is change of the number.

Example Input :

64

Output:

4

Explanation:

We need a 50 Rs note and a 10 Rs note and two 2 rupee coins.

**Answer:** (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d",&n);
6     int arr[]={1,2,5,10,20,50,100,500,1000};
7     for(int i=0;i<9;i++)
8     {
9         for(int j=i+1;j<9;j++)
10        {
11            if(arr[i]<arr[j])
12            {
13                int temp=arr[i];
14                arr[i]=arr[j];
15                arr[j]=temp;
16            }
17        }
18    }
19    int count=0;
20    for(int i=0;i<9;i++)
21    {
22        if(n-arr[i]>0)
23            count++;
24    }
25    printf("%d",count);
26 }
```

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	49	5	5	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

[◀ Problem 5: Finding Complexity using counter method](#)

[Jump to...](#)[2-G-Cookies Problem ►](#)

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<b>Started on</b>	Friday, 9 August 2024, 2:47 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:55 PM
<b>Time taken</b>	7 mins 22 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using counter method.

```
void reverse(int n)
{
    int rev = 0, remainder;
    while (n != 0)
    {
        remainder = n % 10;
        rev = rev * 10 + remainder;
        n/= 10;

    }
print(rev);
}
```

**Note:** No need of counter increment for declarations and scanf() and count variable printf() statements.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**Answer:**

```
1 #include<stdio.h>
2 int main()
3 {
4     int count=0;
5     int n;
6     scanf("%d",&n);
7
8     int rev = 0, remainder;
9     count++;
10    while (n != 0)
11    {
12        count++;
13        remainder = n % 10;
14        count++;
15        rev = rev * 10 + remainder;
16        count++;
17        n/= 10;
18        count++;
19
20    }
21    count++;
22    count++;
23    printf("%d",count);
24 }
```

	Input	Expected	Got	
✓	12	11	11	✓
✓	1234	19	19	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

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<b>Started on</b>	Friday, 9 August 2024, 2:25 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:30 PM
<b>Time taken</b>	5 mins 14 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

## Question 1

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using counter method.

```
Factor(num) {
{
    for (i = 1; i <= num; ++i)
    {
        if (num % i == 0)
        {
            printf("%d ", i);
        }
    }
}
```

**Note:** No need of counter increment for declarations and scanf() and counter variable printf() statement.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**Answer:**

```
1 #include<stdio.h>
2 int main()
3 {
4     int num;
5     int count=0;
6     scanf("%d",&num);
7
8     for (int i = 1; i <= num; ++i)
9     { count++;
10     if (num % i == 0)
11     {
12         count++;
13     }
14     count++;
15     }
16     count++;
17     printf("%d",count);
18 }
```

	Input	Expected	Got	
✓	12	31	31	✓
✓	25	54	54	✓
✓	4	12	12	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ Problem 2: Finding Complexity using Counter method

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<b>Started on</b>	Friday, 9 August 2024, 2:20 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:21 PM
<b>Time taken</b>	1 min 2 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

## Question 1

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using the counter method.

```
void func(int n)
{
    if(n==1)
    {
        printf("*");
    }
    else
    {
        for(int i=1; i<=n; i++)
        {
            for(int j=1; j<=n; j++)
            {
                printf("*");
                printf("*");
                break;
            }
        }
    }
}
```

**Note:** No need of counter increment for declarations and scanf() and count variable printf() statements.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 void function(int n)
3 {
4     int c=0;
5     c++;
6     if(n==1)
7
8     {
9         c++;
10        c++;
11    }
12    else
13    {
14        for(int i=1; i<=n; i++)
15        {
16            c++;
17            for(int j=1; j<=n; j++)
18            {
19                c++;
20                c++;
21                c++;
22                break;
23
24            }
25            c++;
26
27        }
28        c++;
29
30    }
31
32    printf("%d",c);
33
34 }
35 int main(){
36     int n;
37     scanf("%d",&n);
38     function(n);
39 }
```

↻ | ↻

	<b>Input</b>	<b>Expected</b>	<b>Got</b>	
✓	2	12	12	✓
✓	1000	5002	5002	✓
✓	143	717	717	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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<b>Started on</b>	Friday, 9 August 2024, 2:13 PM
<b>State</b>	Finished
<b>Completed on</b>	Friday, 9 August 2024, 2:19 PM
<b>Time taken</b>	6 mins 30 secs
<b>Marks</b>	1.00/1.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 1.00 out of 1.00

Convert the following algorithm into a program and find its time complexity using the counter method.

```
void function (int n)
{
```

```
    int i= 1;
```

```
    int s =1;
```

```
    while(s <= n)
    {
        i++;
        s += i;
    }
}
```

**Note:** No need of counter increment for declarations and scanf() and count variable printf() statements.

**Input:**

A positive Integer n

**Output:**

Print the value of the counter variable

**For example:**

Input	Result
9	12

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 void function (int n)
3 {
4     int c=0;
5     int i= 1;
6     c++;
7     int s =1;
8     c++;
9     while(s <= n)
10    {
11        c++;
12        i++;
13        c++;
14        s += i;
15        c++;
16    }
17    c++;
18    printf("%d",c);
19 }
20 int main(){
21     int n;
22     scanf("%d",&n);
23     function(n);
24 }
```

	Input	Expected	Got	
✓	9	12	12	✓
✓	4	9	9	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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[Problem 2: Finding Complexity using Counter method ►](#)