

## 1. Compound Interest

Write a program to calculate the compound interest.

$$\text{Compound interest} = P (1 + R/n)^{nt} - P$$

Input Format:

First line contains positive integer P

Second line contains positive integer R

Third line contains positive integer t

Fourth line contains positive integer n

P is principal amount.

R is the annual interest rate.

t is the time the money is invested or borrowed for.

n is the number of times that interest is compounded per unit t

Output Format:

Prints the required result on single line

The result contains two decimal values only

Sample Input:

10

20

2

1

Sample Output:

4400.00

## 2. Count Elements

Write a program to print the number of elements in an array.

Input Format:

First line contains single integer N

Next line contains N space separated integer values

Output Format:

Print single integer containing number of elements present in an array

Sample Input:

5

23 22 15 9 2

Sample Output:

5

## 3. Non-zero Elements

Write a program to print the number of non-zero elements.

Input Format:

First line contains single integer N

Next line contains N space separated integer values

Output Format:

Print single integer containing number of non-zero elements present in an array

Sample Input:

5

23 22 0 9 2

Sample Output:

4

#### 4. Even Elements and Odd Elements

Write a program to print the number of even elements and odd elements.

Input Format:

First line contains single integer N

Next line contains N space separated integer values

Output Format:

First line contains number of even elements present in an array

Next line contains number of odd elements present in an array

Sample Input:

8

2 9 32 1 78 3 7 2

Sample Output:

4

4

### 5. Largest Number

Write a program to find the largest number in an array.

Input Format:

First line contains single integer N

Next line contains N space separated integer values

Output Format:

Print single integer containing largest number in an array

Sample Input:

5

23 22 15 9 2

Sample Output:

23

### 6. Sum Of Elements

6. Write a program to find the sum of all elements in an array.

**Input Format:**

First line contains single integer N

Next line contains N space separated integer values

**Output Format:**

Print single integer containing sum of all elements present in an array

Sample Input:

8

23 22 15 9 2 1 3 20

Sample Output:

95

7. Product Of Elements

Write a program to find the product of all numbers in the array.

**Input Format:**

First line contains single integer N

Next line contains N space separated integer values

**Output Format:**

Print single integer containing product of all elements present in an array

**Sample Input:**

4

23 2 15 5

**Sample Output:**

3450

**8. Sum Of Even Numbers**

Find the sum of all even numbers in an array.

**Input Format:**

First line contains single integer N

Next line contains N space separated integer values

**Output Format:**

Print single integer containing sum of all even numbers present in an array

**Sample Input:**

8

2 9 32 1 78 3 7 2

**Sample Output:**

114

**9. Sum Of Odd Numbers**

Find the sum of all odd numbers in an array.

**Input Format:**

First line contains single integer N

Next line contains N space separated integer values

**Output Format:**

Print single integer containing sum of all odd numbers present in an array

**Sample Input:**

8

2 9 32 1 78 3 7 2

**Sample Output:**

20

**10. Difference Between The Sum Of Even Numbers And Odd Numbers****11. Second Largest Number**

Find the Second largest number in an array without sorting

**Input Format:**

First line contains single integer N

Next line contains N space separated integer values

**Output Format:**

Print single integer containing the second largest number in an array

Sample Input:

8

2 9 32 1 78 3 7 2

Sample Output:

32

## 12.Index Of Specific Number In Unsorted Array

Write a program to find the index of a specific number  $k$  in an unsorted array. If the number is repeated more than once print the index of first occurrence of an element

### **Input Format:**

First line contains single integer  $N$

Second line contains  $N$  space separated integer values

Third Line Take Input Value Of  $K$

### **Output Format:**

Position Of  $K$  In The Given Array.

Print -1 if element is not found.

### **Sample Input:**

5

23 22 15 9 2



9

**Sample Output:**

3

### 13. Index Of Specific Number In Sorted Array

Write a Program to find the index of a specific number  $k$  in a sorted array. If the number is repeated more than once print the index of first occurrence of an element

Input Format:

First line contains single integer  $N$

Second line contains  $N$  space separated integer values

Third Line Take Input Value Of  $K$

Output Format:

Position Of  $K$  In The Given Array.

Print -1 if element is not found.

Sample Input:

5

23 22 15 9 2

9

Sample Output:

1

#### 14.Smallest Number

Write a program to find the smallest number in an array.

Input Format:

First line contains single integer N

Next line contains N space separated integer values

Output Format:

Print single integer containing smallest number in an array

Sample Input:

5

23 22 15 9 2

Sample Output:

2

#### 15.Ascending Array

Write a Program to sort the given array in ascending order.

Input Format

First line contains single integer N

Next line contains N space separated integer values

Output Format:

print space separated N integer values in ascending order

Sample Input:

5

23 22 15 9 2

Sample Output:

2 9 15 22 23

#### 16.Descending Array

Write a Program to sort the given array in Descending order.

Input Format

First line contains single integer N

Next line contains N space separated integer values

Output Format:

print space separated N integer values in ascending order

Sample Input:

5

23 22 15 9 2

Sample Output:

23 22 15 9 2

17. Write a program to merge two sorted arrays(Descending order) into one sorted array(Descending order).

Input Format:

First-line contains two space-separated integers K, L, denoting the size of two arrays

Second-line contains K space-separated sorted integer values

The third line contains L space-separated sorted integer values

Output Format:

Print (K+L) space-separated sorted integer representing the merged array

Sample Input:

4 4

78 43 8 2

321 122 99 81

Sample Output:

321 122 99 81 78 43 8 2

18. Write a Program to copy all the elements of one array *arr* to another array *arr1*.

Input Format:

First-line contains a single integer N

The next line contains N space-separated integer values

Output Format:

print N space-separated integer values of *arr1*

Sample Input:

7

3 2 1 9 32 99 6

Sample Output:

3 2 1 9 32 99 6

19. Write a Program to store the square of all the numbers in the resultant array *arr1*.

Input Format:

First-line contains a single integer N

The next line contains N space-separated integer values

Output Format:

print N space-separated integer values of arr1

Sample Input:

4

1 2 3 4

Sample Output:

1 4 9 16

20. Find the index of the largest number in an array. If the largest number is repeated more than once print the index of the first occurrence of an element

Input Format:

First-line contains a single integer N

The next line contains N space-separated integer values

Output Format:

Print single integer containing the index of largest number in an array

Sample Input:

5

23 45 9 123 2

Sample Output:

3

21. Find the index of the smallest number in an array. If the smallest number is repeated more than once print the index of the first occurrence of an element

Input Format:

First-line contains a single integer N

The next line contains N space-separated integer values

Output Format:

Print single integer containing the index of smallest number in an array

Sample Input:

5

23 45 9 123 2

Sample Output:

4

## **22. Write a program to reverse an array**

### **Input Format:**

First-line contains a single integer N

The next line contains N space-separated integer values

### **Output Format:**

Print N space-separated elements of an array in reverse order

### **Sample Input:**

5

2 1 5 4 3

### **Sample Output:**

3 4 5 1 2

## **23. Write a Program to find the sum of diagonal elements of the N\*N matrix(Square Matrix)**

Input Format:

First-line contains a single integer  $N$  representing the number of rows and columns in a matrix

Then follows  $N$  lines where each line contains  $N$  integers, where each line denotes the row and each number in each line denotes the column.

Output Format:

Print single integer representing the sum of diagonal elements of the matrix

Sample Input:

```
4
1  4  2  6
8  3  5 12
55 8  5  8
6  1  5  4
```

Sample Output:

```
13
```

24. Write a Program to find the largest number in the matrix.

**Input Format:**

First-line contains space-separated integers  $N$ ,  $M$  representing the number of rows and columns in a matrix



Then follows  $N$  lines where each line contains  $M$  integers, where each line denotes the row and each number in each line denotes the column.

**Output Format:**

Print single integer representing the largest number in the matrix

**Sample Input:**

```
4
1  4  2  6
8  3  5 12
55 8  5  8
6  1  5  4
```

**Sample Output:**

```
55
```

25. Find the transpose of a matrix

**Input Format**

The first line contains an integer  $N$  representing the dimension of matrix.

The next  $N$  line contains space-separated integers that describe matrix elements

**Output Format:**

Prints the transpose of matrix.

**Sample Input:**

```
4
```

```
1 2 3 4
5 6 1 2
5 3 4 2
8 6 9 2
```

Sample Output:

```
1 5 5 8
2 6 3 6
3 1 4 9
4 2 2 2
```

26. Find the sum of two matrix

Input Format

The first line contains an integer  $N$  representing the dimension of matrix A and matrix B.

The next  $N$  line contains space-separated integers that describe matrix A and matrix B elements

Output Format:

Prints the sum of two matrix.

Sample Input:

```
3
1 5 8
6 52 7
-1 4 0
```

1 -2 3

7 5 3

4 5 3

Sample Output:

2 3 11

13 57 10

3 9 3