TASK:8 Arrays introduction, memory allocation (with row/column major) operation sorted and unsorted array, suffix array.

Raman loves mathematics a lot. One day his maths teacher gave him an interesting problem. He was given an array 'A' consisting of 'n' integers, he was needed to find the maximum value input:

. First line of input contains an integer T denoting number of test cases.

. Each test case contains two values, first line contains a integer n where n is the no. of elements in array.

. Second line contains n space seperated integer A

Output:

print the maximum value of the above equation for each test case seperated in a new line.

Sample Input:

2
3
1 2 5
4
1 2 3 4

Sample output:
5
4

Algorithm:

1. Read the no. of elements n in the array A
2. Read the array A
3. Initialize max_val to -1
4. Repeat the following steps for all possible pairs (i,j) where
   1<=i<j<=n
5. print the value of max_val for the current test case.
6. end

program:

```
# include<stdio.h>
void rotate(int arr[],int n, int k)
  {k = k%n;
   int temp[k];
 for(int i=0; i<k; i++)
   {temp[i]=arr[n-k+i];
 }
 for(int i=n-1; i>=k; i--){
    arr[i] = arr[i-k];
}
 for(int i=0; i<k; i++)
   {arr[i] = temp[i];
  }
}
int main()
  {int n,k;
  printf("enter the size of the array:");
  scanf("%d",&n);
  int arr[n];
  printf("enter the array elements:");
  for(int i=0; i<n; i++){
     printf("%d",arr[i]);
  }
   return 0
 }
```

Output:

```
enter the size of the array : 10
enter the array elements: 1 2 3 4 5 6 7 8
9 0 enter the no. of positions to rotate: 5 the
rotated array is: 6 7 8 9 0 1 2 3 4 5
```

Problem:

Student have become secret admirer of grade. They find the course ~~ent~~ exciting and the course amusing. after a superb mid semester examination its now time for results. Since you are a curious kid, you want to find all the marks that are not smaller than those on array.

constraints:

1<=n<=1000000

0<=arr[i]<=10000

Sample input:

4

5 7 3 6

Sample output:

7

algorithm:

1. Read the input value of n and the array arr[].
2. Initialize a variable max as the first element of the array arr[0]
3. Traverse are the array arr[i] from right to left and for each element arr[i]
4. end.

Program:

```
#include <stdio.h>
int maxSubArray(int arr[], int n)
{ int max_so_far=arr[0];
  int max_ending_here=arr[0];
 for(int i=1; i<n; i++){
   max_ending_here =arr[i]>max_ending_here+arr[i]
? arr[i]:max_ending_here+arr[i];
max_so_far=(max_so_far>max_ending_here)?max_so_far
: max_ending_here;
}
return max_so_far;
}
int main()
{ int n;
printf("enter the size of array:");
 scanf("%d", &arr[i]);
int arr [n].
printf("enter the elements of array:");
for(int i=0; i<n; i++){
 scanf("%d", & arr[i]).
 }
 int max_sum = maxSubArray (arr, n);
 printf("The maximum subarray sum is: %d\n", max_sum);
 return 0
 };
```

Output:

```
enter the size of array: 5
enter the elements of array: 1 2 3 4 5
The maximum subarray sum is: 15
```

VEL TECH - CSE	
EX NO.	8
PERFORMANCE (5)	5
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RECORD (4)	[illegible]
[illegible]	[illegible]

Result: Thus the program is executed and verified successfully.