

3.2 MAXIMUM AND MINIMUM VALUES IN A SORTED ARRAY

Question:

Consider an array of integers sorted in ascending order: 2,4,6,8,10,12,14,18. Write a Program to find both the maximum and minimum values in the array. Implement using any programming language of your choice. Execute your code and provide the maximum and minimum values found.

AIM

To write a program that identifies the maximum and minimum values in a given array of integers.

ALGORITHM

1. Define the array with the given integers.
2. Initialize max_val and min_val with the first element of the array.
3. Traverse the array:
 - If an element is greater than max_val, update max_val.
 - If an element is less than min_val, update min_val.
4. Display the maximum and minimum values.

PROGRAM

```
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def min_max_array():
    N = int(input("Enter number of elements: "))
    arr = list(map(int, input("Enter the array elements: ").split()))
    print("Min =", min(arr), "Max =", max(arr))
min_max_array()
|
```

Input:

[54, 28, 03, 15, 12, 7, 3]

Output:

```
>>> Enter number of elements: 7
      Enter array elements: 54 28 03 15 12 7 3
      Sorted array: [3, 3, 7, 12, 15, 28, 54]
```

RESULT:

Thus the program is successfully executed and the output is verified.

PERFORMANCE ANALYSIS:

- Time Complexity:
 - $O(n)$
- Space complexity:
 - $O(1)$