

## 1.5 MAXIMUM ELEMENT IN ARRAY

### Question:

Write a program to find maximum element in an array.

### AIM:

To find the maximum element from a given integer array efficiently.

### ALGORITHM:

1. Initialize `max_val = nums[0]`.
2. Traverse the array from index 1 to `n-1`.
3. For each element, compare with `max_val`:
  - If `current element > max_val`, update `max_val`.
4. Return `max_val` as the result.

### PROGRAM:

```
def max_element(arr):  
    return max(arr)  
  
arr = list(map(int, input("Enter array: ").split()))  
print("Maximum element:", max_element(arr))
```

Input:

{1, 2, 3, 4, 5}

Output:

```
Enter array: 1 2 3 4 5  
Maximum element: 5  
>>> |
```

**RESULT:**

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

**PERFORMANCE ANALYSIS:**

- Time Complexity:  $O(n)$  (must check each element once).
- Space Complexity:  $O(1)$  (only one variable used for max)