

**LAB 2-Big O Notation (Loops and Arrays)**

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Task: Implement a function that finds the maximum value in an array of size n. Determine its time complexity and explain why it is O(n). **ANSWER**

**CODE**

#include <iostream>

using namespace std;

int maximum(int n, int \*arr){

    int max=arr[0];

    for(int i=1;i<n;i++){

        if (arr[i]>max){

            max=arr[i];

        }

    }

    return max;

}

int main(){

    int arr[4]={1,90,3,4};

    cout<<maximum(4,arr);

}

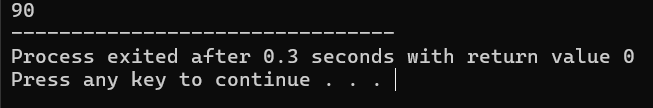
**How it works:**

1. The function maximum(int n, int \*arr) takes an array and its size.
2. It initializes max with the first element (arr[0]).
3. A loop iterates through the array, checking if any element is greater than max.
4. If a larger value is found, max is updated.
5. The function returns the largest value.

**Why it works:**

* We check each element **once**, making the time complexity **O(n)** (linear time).

**OUTPUT**

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