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```cpp
#include <iostream>
#include <chrono>
#include <vector>
#include <algorithm>

using namespace std;
using namespace std::chrono;

// Linear Search Algorithm
int linearSearch(const vector<int>& arr, int target) {
    for (int i = 0; i < arr.size(); ++i) {
        if (arr[i] == target) {
            return i; // Return index if found
        }
    }
    return -1; // Return -1 if not found
}

// Binary Search Algorithm
int binarySearch(const vector<int>& arr, int target) {
    int left = 0, right = arr.size() - 1;
    while (left <= right) {
        int mid = left + (right - left) / 2;
        if (arr[mid] == target) {
            return mid; // Return index if found
        }
        else if (arr[mid] < target) {
            left = mid + 1;
        }
        else {
            right = mid - 1;
        }
    }
    return -1; // Return -1 if not found
}

int main() {
    int size;
    cout << "Enter the size of the array: ";
    cin >> size;

    vector<int> arr(size);
    cout << "Enter " << size << " integers in sorted order: ";
    for (int i = 0; i < size; ++i) {
        cin >> arr[i];
    }
```

```
    int target;
    cout << "Enter the integer to search for: ";
    cin >> target;

    // Measure time taken by Linear Search
    auto startLinear = high_resolution_clock::now();
    int linearIndex = linearSearch(arr, target);
    auto stopLinear = high_resolution_clock::now();
    auto durationLinear = duration_cast<microseconds>(stopLinear -
startLinear);

    // Measure time taken by Binary Search
    auto startBinary = high_resolution_clock::now();
    int binaryIndex = binarySearch(arr, target);
    auto stopBinary = high_resolution_clock::now();
    auto durationBinary = duration_cast<microseconds>(stopBinary -
startBinary);

    // Print results
    cout << "Linear Search Index: " << linearIndex << endl;
    cout << "Linear Search Time: " << durationLinear.count() << "
microseconds" << endl;
    cout << "Binary Search Index: " << binaryIndex << endl;
    cout << "Binary Search Time: " << durationBinary.count() << "
microseconds" << endl;

    return 0;
}
```

OUTPUT:-

PS C:\Users\HP\Desktop\DAA EXperiment> cd "c:\Users\HP\Desktop\DAA EXperiment\" ; if ($?) { g++ first.cpp -o first } ; if ($?) { .\first }

Enter the size of the array: 5

Enter 5 integers in sorted order: 12 15 16 19 25

Enter the integer to search for: 19

Linear Search Index: 3

Linear Search Time: 0 microseconds

Binary Search Index: 3

Binary Search Time: 0 microseconds