Iterative Binary search in C++

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#include <iostream>
#include <vector>

using namespace std;

int binsearch(const vector<int>& arr, int x) {
    int low = 0, high = arr.size() - 1;

    while (low <= high) {
        int mid = (low + high) / 2;
        if (arr[mid] == x) {
            return mid;
        } else if (arr[mid] > x) {
            high = mid - 1;
        } else {
            low = mid + 1;
        }
    }
    return -1;
}

int main() {
    vector<int> arr = {3, 5, 7, 8, 9};
    cout << binsearch(arr, 8) << endl;
    return 0;
}
```

Input Details

- arr = {3, 5, 7, 8, 9}
- x = 8

Binary Search Table

Step	low	high	mid	arr[mid]	Comparison	Action
1	0	4	(0+4)/2 = 2	7	7 < 8 → false	low = mid + 1 → 3
2	3	4	(3+4)/2 = 3	8	8 == 8 → true	**Return 3**

Output

3

3