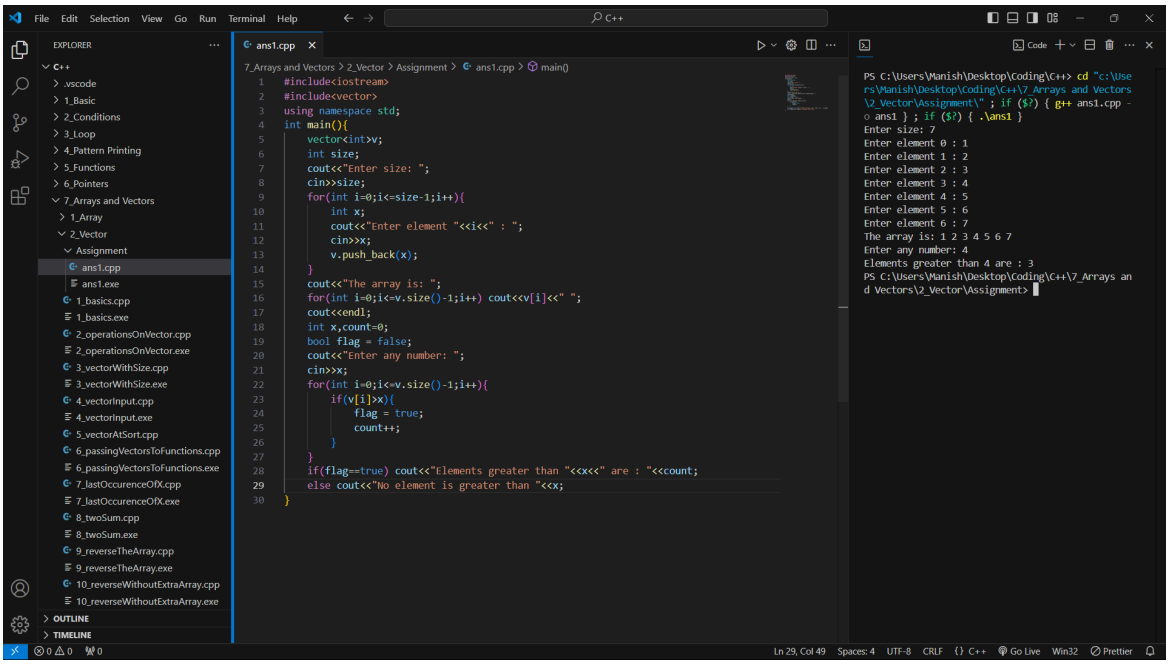
Assignment
(Arrays-2)

Q1. Count the number of elements strictly greater than x.

Answer:

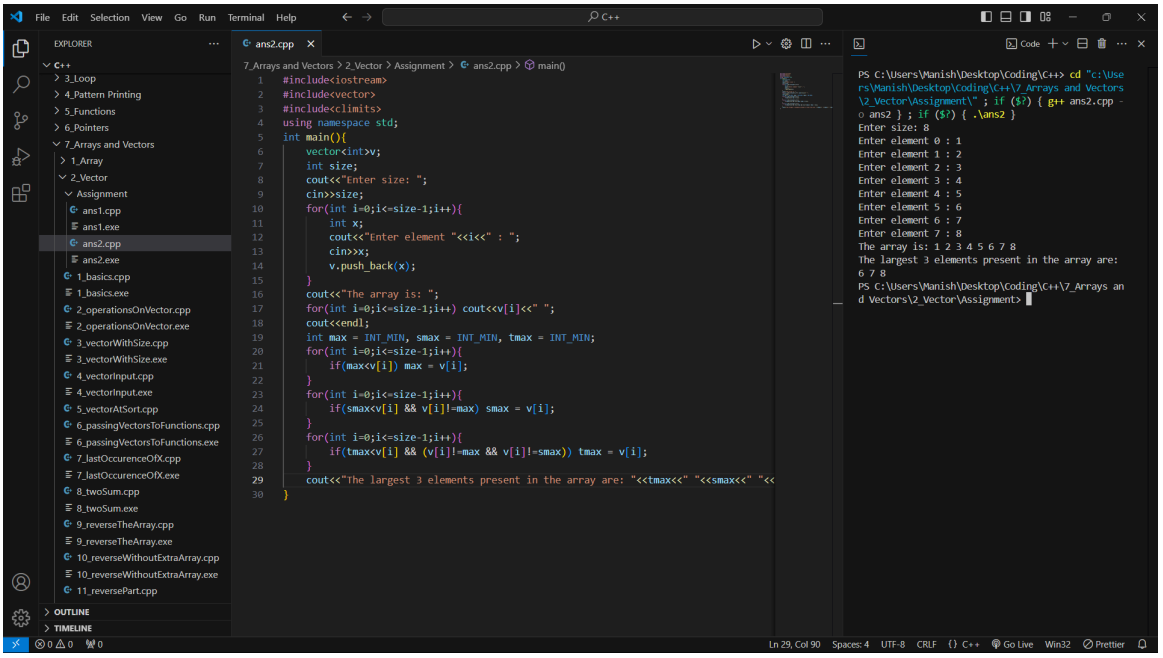


```cpp
#include<iostream>
#include<vector>
using namespace std;
int main(){
    vector<int>v;
    int size;
    cout<<"Enter size: ";
    cin>>size;
    for(int i=0;i<size-1;i++){
        int x;
        cout<<"Enter element "<<i<<" : ";
        cin>>x;
        v.push_back(x);
    }
    cout<<"The array is: ";
    for(int i=0;i<v.size()-1;i++) cout<<v[i]<<" ";
    cout<<endl;
    int x,count=0;
    bool flag = false;
    cout<<"Enter any number: ";
    cin>>x;
    for(int i=0;i<v.size()-1;i++){
        if(v[i]>x){
            flag = true;
            count++;
        }
    }
    if(flag==true) cout<<"Elements greater than "<<x<<" are : "<<count;
    else cout<<"No element is greater than "<<x;
}
```

```
PS C:\Users\Manish\Desktop\Coding\C++> cd "c:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment\" ; if ($?) { g++ ans1.cpp -o ans1 } ; if ($?) { .\ans1 }
Enter size: 7
Enter element 0 : 1
Enter element 1 : 2
Enter element 2 : 3
Enter element 3 : 4
Enter element 4 : 5
Enter element 5 : 6
Enter element 6 : 7
The array is: 1 2 3 4 5 6 7
Enter any number: 4
Elements greater than 4 are : 3
PS C:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment>
```

Q2. WAP to find the largest three elements in the array.

Answer:

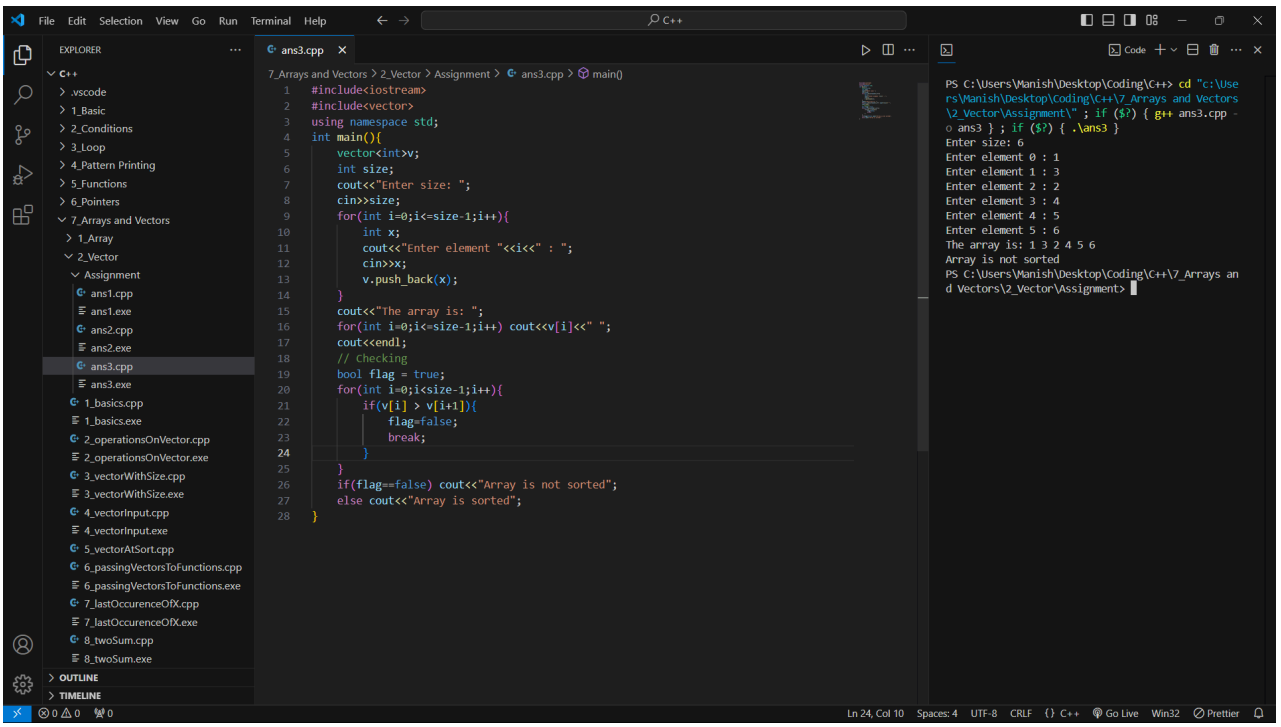


```cpp
#include<iostream>
#include<vector>
#include<climits>
using namespace std;
int main(){
    vector<int>v;
    int size;
    cout<<"Enter size: ";
    cin>>size;
    for(int i=0;i<size-1;i++){
        int x;
        cout<<"Enter element "<<i<<" : ";
        cin>>x;
        v.push_back(x);
    }
    cout<<"The array is: ";
    for(int i=0;i<size-1;i++) cout<<v[i]<<" ";
    cout<<endl;
    int max = INT_MIN, smax = INT_MIN, tmax = INT_MIN;
    for(int i=0;i<size-1;i++){
        if(max<v[i]) max = v[i];
    }
    for(int i=0;i<size-1;i++){
        if(smax<v[i] && v[i]!=max) smax = v[i];
    }
    for(int i=0;i<size-1;i++){
        if(tmax<v[i] && (v[i]!=max && v[i]!=smax)) tmax = v[i];
    }
    cout<<"The largest 3 elements present in the array are: "<<tmax<<" "<<smax<<" "<<
}
```

```
PS C:\Users\Manish\Desktop\Coding\C++> cd "c:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment\" ; if ($?) { g++ ans2.cpp -o ans2 } ; if ($?) { .\ans2 }
Enter size: 8
Enter element 0 : 1
Enter element 1 : 2
Enter element 2 : 3
Enter element 3 : 4
Enter element 4 : 5
Enter element 5 : 6
Enter element 6 : 7
Enter element 7 : 8
The array is: 1 2 3 4 5 6 7 8
The largest 3 elements present in the array are: 6 7 8
PS C:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment>
```

Q3. Check if the given array is sorted or not.

Answer:

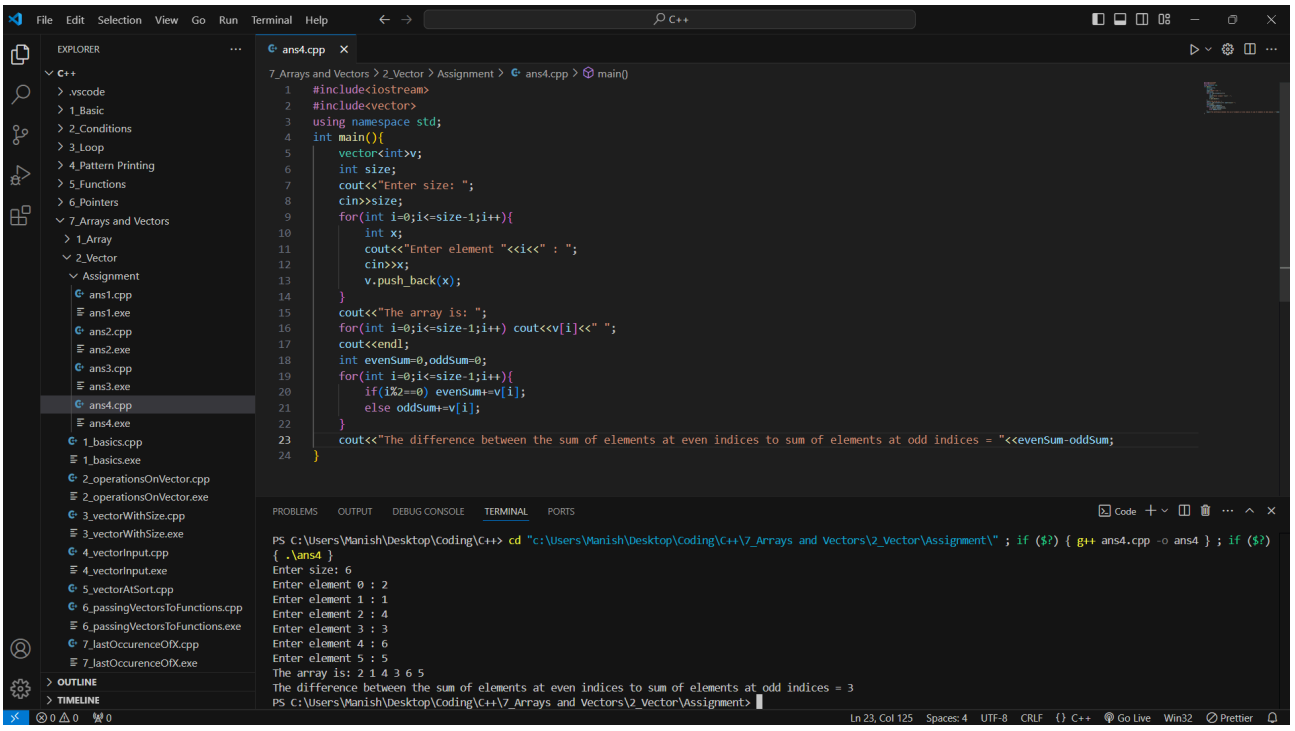


```cpp
#include<iostream>
#include<vector>
using namespace std;
int main(){
    vector<int>v;
    int size;
    cout<<"Enter size: ";
    cin>>size;
    for(int i=0;i<=size-1;i++){
        int x;
        cout<<"Enter element "<<i<<" : ";
        cin>>x;
        v.push_back(x);
    }
    cout<<"The array is: ";
    for(int i=0;i<=size-1;i++) cout<<v[i]<<" ";
    cout<<endl;
    // Checking
    bool flag = true;
    for(int i=0;i<size-1;i++){
        if(v[i] > v[i+1]){
            flag=false;
            break;
        }
    }
    if(flag==false) cout<<"Array is not sorted";
    else cout<<"Array is sorted";
}
```

```
PS C:\Users\Manish\Desktop\Coding\C++> cd "c:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment\" ; if ($?) { g++ ans3.cpp -o ans3 } ; if ($?) { .\ans3 }
Enter size: 6
Enter element 0 : 1
Enter element 1 : 3
Enter element 2 : 2
Enter element 3 : 4
Enter element 4 : 5
Enter element 5 : 6
The array is: 1 3 2 4 5 6
Array is not sorted
PS C:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment>
```

Q4. Find the difference between the sum of elements at even indices to the sum of elements at odd indices.

Answer:

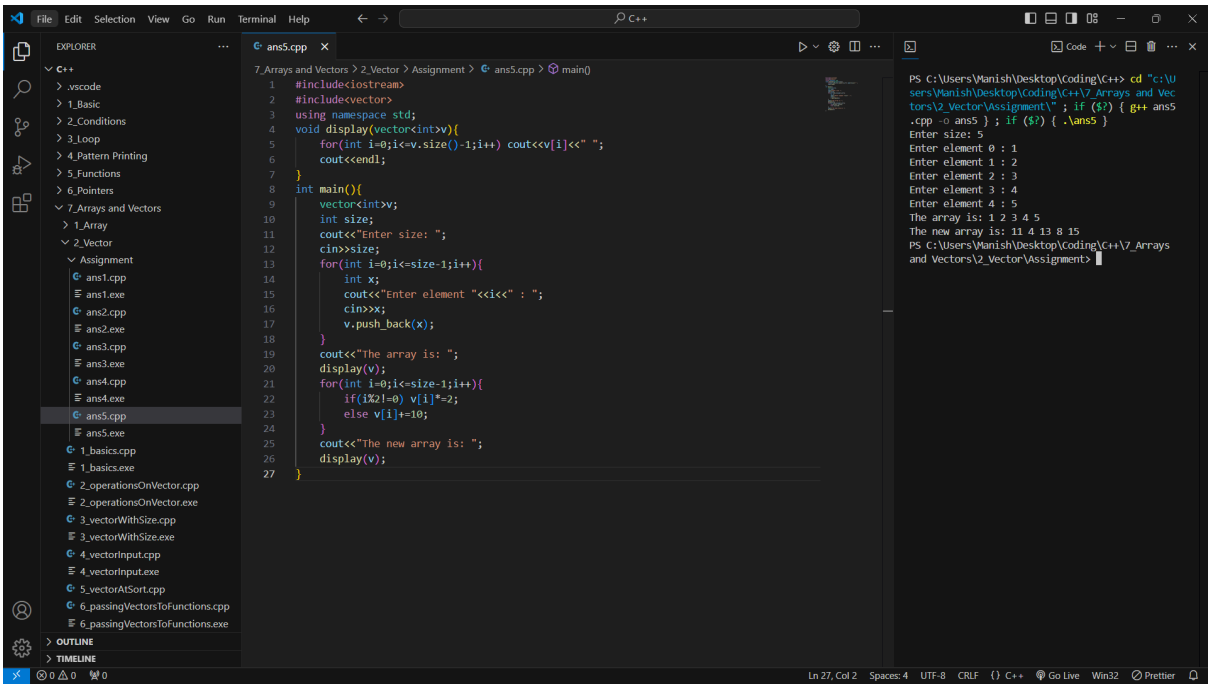


```cpp
#include<iostream>
#include<vector>
using namespace std;
int main(){
    vector<int>v;
    int size;
    cout<<"Enter size: ";
    cin>>size;
    for(int i=0;i<=size-1;i++){
        int x;
        cout<<"Enter element "<<i<<" : ";
        cin>>x;
        v.push_back(x);
    }
    cout<<"The array is: ";
    for(int i=0;i<=size-1;i++) cout<<v[i]<<" ";
    cout<<endl;
    int evenSum=0,oddSum=0;
    for(int i=0;i<=size-1;i++){
        if(i%2==0) evenSum+=v[i];
        else oddSum+=v[i];
    }
    cout<<"The difference between the sum of elements at even indices to sum of elements at odd indices = "<<evenSum-oddSum;
}
```

```
PS C:\Users\Manish\Desktop\Coding\C++> cd "c:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment\" ; if ($?) { g++ ans4.cpp -o ans4 } ; if ($?) { .\ans4 }
Enter size: 6
Enter element 0 : 2
Enter element 1 : 1
Enter element 2 : 4
Enter element 3 : 3
Enter element 4 : 6
Enter element 5 : 5
The array is: 2 1 4 3 6 5
The difference between the sum of elements at even indices to sum of elements at odd indices = 3
PS C:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment>
```

Q5. Given an array of integers, change the value of all odd indexed elements to its second multiple and increment all even indexed values by 10.

Answer:

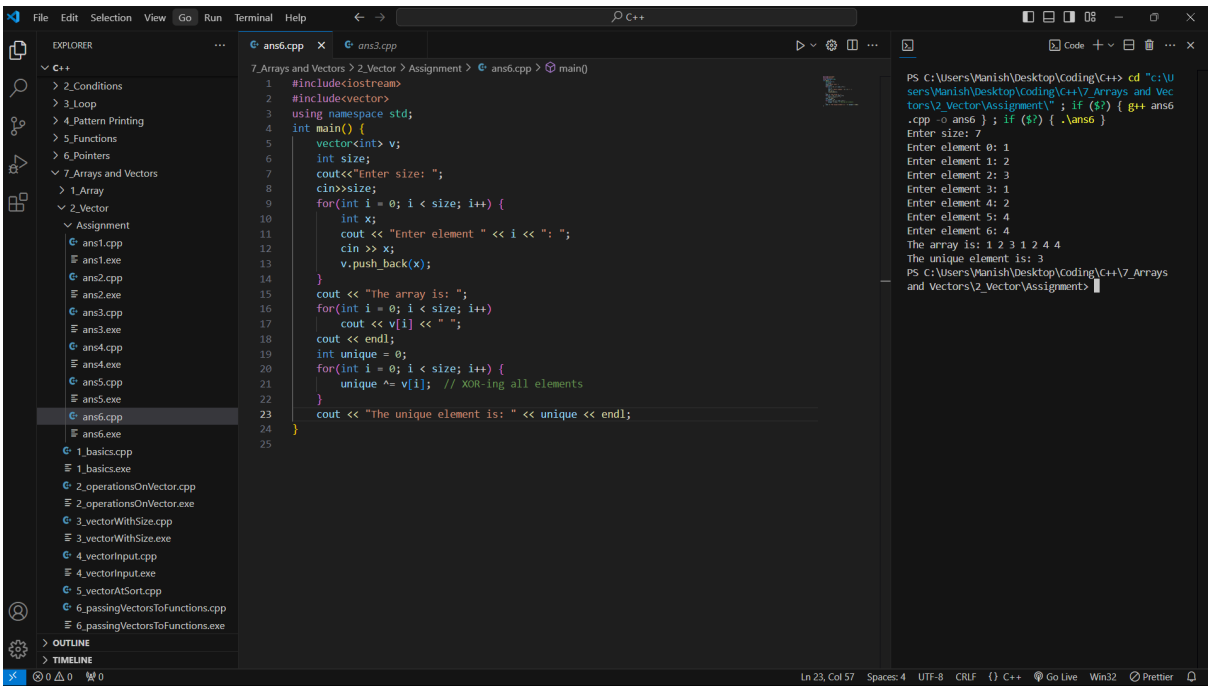


```cpp
#include<iostream>
#include<vector>
using namespace std;
void display(vector<int>v){
    for(int i=0;i<=v.size()-1;i++) cout<<v[i]<<" ";
    cout<<endl;
}
int main(){
    vector<int>v;
    int size;
    cout<<"Enter size: ";
    cin>>size;
    for(int i=0;i<=size-1;i++){
        int x;
        cout<<"Enter element "<<i<<" : ";
        cin>>x;
        v.push_back(x);
    }
    cout<<"The array is: ";
    display(v);
    for(int i=0;i<=size-1;i++){
        if(i%2!=0) v[i]*=2;
        else v[i]+=10;
    }
    cout<<"The new array is: ";
    display(v);
}
```

```
PS C:\Users\Manish\Desktop\Coding\C++> cd "c:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment\" ; if ($?) { g++ ans5.cpp -o ans5 } ; if ($?) { .\ans5 }
Enter size: 5
Enter element 0 : 1
Enter element 1 : 2
Enter element 2 : 3
Enter element 3 : 4
Enter element 4 : 5
The array is: 1 2 3 4 5
The new array is: 11 4 13 8 15
PS C:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment>
```

Q6: Find the unique number in a given Array where all the elements are being repeated twice with one value being unique.

Answer:

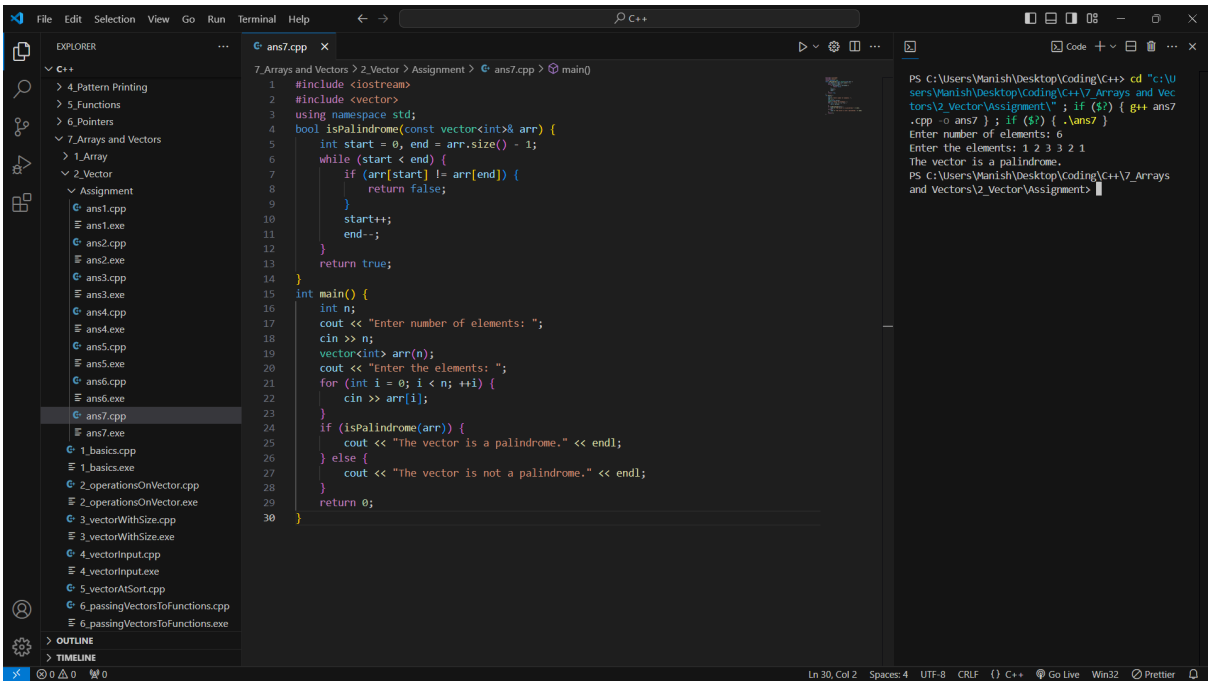


```cpp
#include<iostream>
#include<vector>
using namespace std;
int main() {
    vector<int> v;
    int size;
    cout<<"Enter size: ";
    cin>>size;
    for(int i = 0; i < size; i++) {
        int x;
        cout << "Enter element " << i << ": ";
        cin >> x;
        v.push_back(x);
    }
    cout << "The array is: ";
    for(int i = 0; i < size; i++)
        cout << v[i] << " ";
    cout << endl;
    int unique = 0;
    for(int i = 0; i < size; i++) {
        unique ^= v[i];  // XOR-ing all elements
    }
    cout << "The unique element is: " << unique << endl;
}
```

```
PS C:\Users\Manish\Desktop\Coding\C++> cd "c:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment\" ; if ($?) { g++ ans6.cpp -o ans6 } ; if ($?) { .\ans6 }
Enter size: 7
Enter element 0: 1
Enter element 1: 2
Enter element 2: 3
Enter element 3: 1
Enter element 4: 2
Enter element 5: 4
Enter element 6: 4
The array is: 1 2 3 1 2 4 4
The unique element is: 3
PS C:\Users\Manish\Desktop\Coding\C++\7_Arrays and Vectors\2_Vector\Assignment>
```

Q7: If an array arr contains n elements, then check if the given array is a palindrome or not .

Answer:



Q8: Find the error.

```
double getAverage(int arr[], int size);
int main () {
int balance[5] = {1000, 2, 3, 17, 50};
double avg;
avg = getAverage( balance[0], 5 ) ;
cout << "Average value is: " << avg << endl;
return 0;
}
```

Answer: in parameters of function call of “getAverage” “balance[0]” is given which is wrong because it is trying to convert ‘int’ to ‘int*’. Only “balance” should be passed. Also inside the function definition there is no code present to find the average of array values.