

Assignment No. 11

- **TITLE :** Implement a generic program using any collection class to count the number of elements in a collection that have a specific property such as even numbers, odd number, prime number and palindromes.

➤ **CODE:**

```
#include <iostream>
#include <vector>
using namespace std;

bool isPrime(int n) {
    if (n <= 1) return false;
    for (int i = 2; i * i <= n; i++) {
        if (n % i == 0) return false;
    }
    return true;
}

bool isPalindrome(int n) {
    int original = n, rev = 0;
    while (n > 0) {
        rev = rev * 10 + n % 10;
        n /= 10;
    }
    return original == rev;
}

int main() {
    vector<int> v;
    int n, val;

    cout << "Enter number of elements: ";
    cin >> n;

    cout << "Enter " << n << " elements: ";
    for (int i = 0; i < n; i++) {
        cin >> val;
        v.push_back(val);
    }

    int even = 0, odd = 0, prime = 0, palindrome = 0;

    for (int x : v) {
        if (x % 2 == 0) even++;
        else odd++;

        if (isPrime(x)) prime++;
        if (isPalindrome(x)) palindrome++;
    }
}
```

```
}  
  
cout << "\nEven Count      : " << even;  
cout << "\nOdd Count       : " << odd;  
cout << "\nPrime Count      : " << prime;  
cout << "\nPalindrome Count : " << palindrome << endl;  
  
return 0;  
}
```

Output –

```
Enter number of elements: 6  
Enter 6 elements: 11 27 12321 99 3 42  
  
Even Count      : 1  
Odd Count       : 5  
Prime Count      : 2  
Palindrome Count : 4
```

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- **Conclusion** – In this assignment, we've implemented program on implementation Of generic collection class vector and performed the logic to count even and odd numbers, prime numbers and palindrome numbers.