Assignment No.07

Aim: Generic Program

Problem Statement: 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.

*** A7 Class***

```
import java.util.*;
import java.lang.*;
import java.io.*;
public class A7
{
static int count =0;
static void check_palindrome(String x)
{
 StringBuilder s1 = new StringBuilder(x);
if (x.equals(s1.reverse().toString()))
{
System.out.println(x + " is a palindrome");
 count += 1;
}
else
{
System.out.println(x + " is not a palindrome");
}
}
static void even_odd(int x)
{
if(x % 2 == 0)
{
System.out.println(x + " is Even");
count +=1;
}
else
{
System.out.println(x + " is odd");
```

```
}
}
static void prime(int x)
{
boolean flag = false;
for(int i=2; i<=x/2; ++i)
{
if(x%i == 0)
{
flag = true;
break;
}
}
if (!flag)
{
System.out.println(x + " is prime number");
count += 1;
}
else
{
System.out.println(x + " is not prime number");
}
}
static void check(int ch,int x)
{
switch(ch)
{
case 1:
 even_odd(x);
break;
case 2:
prime(x);
break;
default:
System.out.println("enter correct option ");
}
}
static void number_op()
{
int element,n,choice;
Scanner sc = new Scanner(System.in);
ArrayList<Integer> nums = new ArrayList<Integer>();
System.out.println("Enter the number of element: ");
n=sc.nextInt();
System.out.println("Enter the elements ");
for(int i=0; i<n; i++)
{
```

```
element =sc.nextInt();
nums.add(element);
}
System.out.println("Enter the operation to be performed");
System.out.println("1.ODD or EVEN");
System.out.println("2. PRIME or NOT");
choice = sc.nextInt();
Iterator itr = nums.iterator();
count = 0;
while(itr.hasNext())
{
check(choice,(int)itr.next());
}
if(choice == 1)
{
System.out.println("The numbers of even numbers is: "+ count);
System.out.println("The numbers of odd numbers is: "+ (nums.size()-count));
}
else
{
System.out.println("The number of prime number is: "+ count);
System.out.println("The Number of Non prime number is: "+(nums.size()-count));
}
}
static void String_op()
{
int n;
String word;
ArrayList<String> words = new ArrayList<String>();
Scanner sc = new Scanner(System.in);
System.out.println("Enter the no.of elements: ");
n = sc.nextInt();
System.out.println("Enter the elements ");
for(int i=0; i<n; i++)
{
word = sc.next();
words.add(word);
}
count = 0;
for(String w:words)
{
check_palindrome(w);
}
System.out.println("the no.of palindrome is: "+ count);
}
public static void main(String[] args)
{
```

```
Scanner sc = new Scanner(System.in);
System.out.println("choose type");
System.out.println("1. String");
System.out.println("2. Integer");
int ch = sc.nextInt();
if(ch == 2)
number_op();
else
String_op();
}
}
```

Output:

```
C:\Users\shetf>java A7
choose type
1. String
2. Integer
1
Enter the no.of elements:
3
Enter the elements
acd
aca
xyz
acd is not a palindrome
aca is a palindrome
xyz is not a palindrome
the no.of palindrome is: 1
C:\Users\shetf>java A7
choose type
1. String
2. Integer
2
Enter the number of element:
3
Enter the elements
20
23
56
Enter the operation to be performed
1.ODD or EVEN
2. PRIME or NOT
1
20 is Even
23 is odd
56 is Even
```

The numbers of even numbers is: 2
The numbers of odd numbers is: 1

C:\Users\shetf>java A7
choose type
1. String
2. Integer
2
Enter the number of element:
2
Enter the elements
2
67
Enter the operation to be performed
1.ODD or EVEN
2. PRIME or NOT
2
2 is prime number
67 is prime number
The number of prime number is: 2
The Number of Non prime number is: 0

C:\Users\shetf>