**Lab Assignment 7**

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**Template**

**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.**

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import java.util.\*;

import java.lang.\*;

import java.io.\*;

class Assignment\_7

{

static int count=0;

static void even\_odd(int num)

{

if (num%2==0)

{

System.out.println(num+" is even number");

count+=1;

} else

{

System.out.println(num+" is odd number");

}

}

static void prime\_no(int num)

{

boolean flag = false;

for(int i = 2; i <= num/2; ++i)

{

if(num % i == 0)

{

flag = true;

break;

}

}

if (!flag) {

System.out.println(num + " is a prime number.");

count += 1;

}

else

System.out.println(num + " is not a prime number.");

}

static void Palindrome(String str1)

{

StringBuilder s1=new StringBuilder(str1);

if(str1.equals(s1.reverse().toString()))

{

System.out.println(str1+" is palindrome");

count+=1;

}

else

{

System.out.println(str1+" is not palindrome");

}

}

static void check(int ch,int num)

{

switch(ch)

{

case 1:

even\_odd(num);

break;

case 2:

prime\_no(num);

break;

default:

System.out.println("Invalid choice");

}

}

static void integer\_op()

{

int element,n,ch;

Scanner in=new Scanner(System.in);

ArrayList<Integer>nums=new ArrayList<Integer>();

System.out.println("Enter the number of elements:");

n=in.nextInt();

for(int i=0;i<n;i++)

{

System.out.println("Enter number:");

element=in.nextInt();

nums.add(element);

}

System.out.println("1.Even or Odd");

System.out.println("2.Prime or not");

System.out.println("Choose:");

ch=in.nextInt();

Iterator itr = nums.iterator();

count=0;

while(itr.hasNext())

{

check(ch, (int)itr.next());

}

switch (ch) {

case 1 : {

System.out.println("The total number of even and odd numbers occured are:");

System.out.println("The number of even number are:" + count);

System.out.println("The number of odd number are:" + (nums.size() - count));

break;

}

case 2 : {

System.out.println("The total number of Prime and Non-Prime numbers occured are:");

System.out.println("The number of PRIME number are:" + count);

System.out.println("The numbers which are NOT Prime number are:" + (nums.size() - count));

break;

}

}

}

static void string\_op()

{

int m;

String str1;

ArrayList<String>words=new ArrayList<String>();

Scanner in=new Scanner(System.in);

System.out.println("Enter the number of Strings:");

m=in.nextInt();

for(int i=0;i<m;i++)

{

System.out.println("Enter string:");

str1=in.next();

words.add(str1);

}

count=0;

for(String w:words)

{

Palindrome(w);

}

System.out.println("The number of Palindrome string are:"+count);

System.out.println("The number of non-palindrome string is:"+(words.size()-count));

}

public static void main(String []args)

{

Scanner in=new Scanner(System.in);

System.out.println("Choose type");

System.out.println("1. String");

System.out.println("2. Integer");

int ch=in.nextInt();

switch (ch)

{

case 1 : string\_op();

break;

case 2 : integer\_op();

break;

}

}

}

**OUTPUT:**

Choose type

1. String

2. Integer

1

Enter the number of Strings:

1

Enter string:

RADAR

RADAR is palindrome

The number of Palindrome string are:1

The number of non-palindrome string is:0

Choose type

1. String

2. Integer

2

Enter the number of elements:

1

Enter number:

101010101

1.Even or Odd

2.Prime or not

Choose:

1

101010101 is odd number

The total number of even and odd numbers occured are:

The number of even number are:0

The number of odd number are:1

Choose type

1. String

2. Integer

2

Enter the number of elements:

1

Enter number:

123

1.Even or Odd

2.Prime or not

Choose:

2

123 is not a prime number.

The total number of Prime and Non-Prime numbers occured are:

The number of PRIME number are:0

The numbers which are NOT Prime number are:1