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**//Roll no. :- 44**

**//Experiment no. :- 7**

**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

2

Enter the number of elements:

3

Enter number:

5

Enter number:

7

Enter number:

11

1.Even or Odd

2.Prime or not

Choose:

1

5 is odd number

7 is odd number

11 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:3

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Choose type

1. String

2. Integer

1

Enter the number of Strings:

2

Enter string:

level

Enter string:

earth

level is palindrome

earth is not palindrome

The number of Palindrome string are:1

The number of non-palindrome string is:1