Assignment No. 07

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Branch-: SE IT(B2)

Subject-: Object Oriented Programming

TITLE

Write a program to Implement a generic programming using any collection class to count the number of element in a collection that have a specific property such as even number, odd number, prime number, palindromes.

INPUT

```
import java.util.*;

class Generic {
   int fact, r, temp;
   int sum;
   int evenoddnum;
   int primenumber;
   int palnum;

   public void evenodd(int evenoddnum) {
      ArrayList<Integer> list = new ArrayList<>();
      list.add(evenoddnum);
```

```
    if (list.get(0) % 2 == 0) {
        System.out.println(evenoddnum + " is even");
    } else {
        System.out.println(evenoddnum + " is odd");
    }
}

public void prime(int primenumber) {
    ArrayList<Integer> list1 = new ArrayList<>();
    list1.add(primenumber);
    int fact = 0;

    if (list1.get(0) <= 1) {
        fact = 1; // Not prime if <= 1
    } else {
        for (int i = 2; i <= list1.get(0); i++) {
            if (list1.get(0) % i == 0) {
                fact = 1;
                break;
            }
        }
    }

    if (fact == 1) {
        System.out.println(primenumber + " is not a prime number");
    } else {
        System.out.println(primenumber + " is a prime number");
    }
}

public void pal(int palnum) {
    ArrayList<Integer> list2 = new ArrayList<>();
    list2.add(palnum);
    int r, sum = 0;
    int n = list2.get(0);
```

```
        temp = n;

        while (n > 0) {
            r = n % 10;
            sum = (sum * 10) + r;
            n = n / 10;
        }

        if (temp == sum) {
            System.out.println(palnum + " is a palindrome number");
        } else {
            System.out.println(palnum + " is not a palindrome number");
        }
    }
}

public class Assign7 {
    public static void main(String args[]) {
        Generic g = new Generic();
        Scanner sc = new Scanner(System.in);
        int choice;

        do {
            System.out.println("1 FOR EVEN/ODD NUMBER");
            System.out.println("2 FOR CHECKING OF PRIME NUMBER.");
            System.out.println("3 FOR CHECKING OF PALINDROME");
            System.out.println("4 FOR END.");
            System.out.print("Enter your choice: ");
            choice = sc.nextInt();

            switch (choice) {
                case 1: {
                    System.out.print("Enter the number: ");
                    int evenoddnum = sc.nextInt();
                    g.evenodd(evenoddnum);
```

```
            System.out.println();
            break;
          }
          case 2: {
            System.out.print("Enter the number: ");
            int pn = sc.nextInt();
            g.prime(pn);
            System.out.println();
            break;
          }
          case 3: {
            System.out.print("Enter the number: ");
            int paln = sc.nextInt();
            g.pal(paln);
            System.out.println();
            break;
          }
          case 4: {
            System.out.println("END");
            break;
          }
          default: {
            System.out.println("Please enter a valid choice");
            break;
          }
        }
      } while (choice != 4);
      sc.close();
    }
}
```

OUTPUT

```
PS C:\Users\Acer\OneDrive\Desktop\Java> javac Assign7.java
```

```
PS C:\Users\Acer\OneDrive\Desktop\Java> java Assign7
1 FOR EVEN/ODD NUMBER
2 FOR CHECKING OF PRIME NUMBER.
3 FOR CHECKING OF PALINDROME
4 FOR END.
Enter your choice: 1
Enter the number: 24
24 is even

1 FOR EVEN/ODD NUMBER
2 FOR CHECKING OF PRIME NUMBER.
3 FOR CHECKING OF PALINDROME
4 FOR END.
Enter your choice: 2
Enter the number: 11
11 is a prime number

1 FOR EVEN/ODD NUMBER
2 FOR CHECKING OF PRIME NUMBER.
3 FOR CHECKING OF PALINDROME
4 FOR END.
Enter your choice: 3
Enter the number: 121
121 is a palindrome number

1 FOR EVEN/ODD NUMBER
2 FOR CHECKING OF PRIME NUMBER.
3 FOR CHECKING OF PALINDROME
4 FOR END.
Enter your choice: 4
END
PS C:\Users\Acer\OneDrive\Desktop\Java>
```

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