OBJECT ORIENTED PROGRAMMING LAB

ASSIGNMENT: 4 DATE: 14-03-2023

SLOT: L3+L4 MAX MARKS: 10

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1. Write a Java Program to check whether the given number is prime or not.

INPUT:

```java
//Program to check whether a given number is prime or not
import java.util.Scanner;
class check_prime
{
    public static void main(String[] args)
    {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter the number which should be checked for prime : ");
        int n=input.nextInt();
        int res=0;
        if (n==1)
        {System.out.println("1 is neither a prime nor a composite number");}
        if (n==2)
        {System.out.println("2 is a prime number");}
        if (n>2)
        {
            for (int i=2;i<n;i++)
           {
            if (n%i==0)
            {   System.out.println(n+" is not a prime number.");
                break;
            }
            else
            {
               res+=n;
            }
           }
           if (res!=0)
               System.out.println(n+" is a prime number.");
        }
    }
}
```

OUTPUT:

```
C:\22BCE9513>javac check_prime.java

C:\22BCE9513>java check_prime
Enter the number which should be checked for prime : 2446
2446 is not a prime number.

C:\22BCE9513>java check_prime
Enter the number which should be checked for prime : 2
2 is a prime number

C:\22BCE9513>java check_prime
Enter the number which should be checked for prime : 1
1 is neither a prime nor a composite number

C:\22BCE9513>
```

2. Write a Java Program to print Fibonacci sequence up to N numbers.

INPUT:

```java
//Fibonacci Series 0,1,1,2,3,5,8,13,21,34,...,
import java.util.Scanner;
class Fibonacci_Series
{
    public static void main(String[] args)
    {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter the number of terms in the series : ");
        int n=input.nextInt();
        if (n==1)
        { System.out.print(0);}
        else if (n==2)
        { System.out.print("0,"+"1");}
        else
        {
            int a=0;int b=1;int n3;
            System.out.print(a+" "+b+" ");
            for (int i =2;i<n;i++)
            {
                n3=a+b;
                System.out.print(n3+" ");
                a=b;b=n3;
            }
        }
    }
}
```

OUTPUT:

```
C:\22BCE9513>javac Fibonacci_Series.java

C:\22BCE9513>java Fibonacci_Series
Enter the number of terms in the series : 5
0 1 1 2 3
C:\22BCE9513>java Fibonacci_Series
Enter the number of terms in the series : 10
0 1 1 2 3 5 8 13 21 34
C:\22BCE9513>
```

3. Write a Java program to practice using String class and its methods.

INPUT:

```java
class String_Methods
{
    public static void main(String[] args)
    {
        //concat() method is used to concatenate two strings
        String s1="Hello ";
        String s2="World!";
        String s=s1.concat(s2);
        System.out.println("Your string is : "+s);
        //charAt() method is used to get the character at that index
        System.out.println("The character at index 0 is : "+s.charAt(0));
        //contains() method is used to know whether a sequence of characters is present
        System.out.println(s.contains("Hello"));
        //length() is used to get the length of the string
        System.out.println("Length of the string : "+s.length());
        //replace(old char,new char) is used to replace  a character
        System.out.println("NEW STRING : "+s.replace('l', 'p'));
        //substring() is used to get a sub string from a string of a given index range
        System.out.println("SUBSTRING : "+s.substring(0,5));

    }
}
```

OUTPUT:

```
C:\22BCE9513>javac String_Methods.java

C:\22BCE9513>java String_Methods
Your string is : Hello World!
The character at index 0 is : H
true
Length of the string : 12
NEW STRING : Heppo Worpd!
SUBSTRING : Hello

C:\22BCE9513>
```

4. Write a Java Program to take a sentence as input from the user and extract a substring from the sentence and check whether the extracted substring is palindrome or not.

INPUT:

```java
//program to check whether the sub string of a given string is palindrome or not
import java.util.Scanner;
class Sub_String1
{
    public static void main(String[] args)
    {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter the String : ");
        String n=input.nextLine();
        System.out.println();
        String a;
        a=n.substring(0,5);
        int i=0,j=a.length()-1;
        while(i<j)
        {
            int count=0;
            int k=(a.length()/2);
            if(a.charAt(i)!=a.charAt(j))
            {
               System.out.println("The substring "+a+" is not a palindrome");
               break;
            }
            else
            {
                count++;i++;j--;
            }
            if (k==count)
            {
                System.out.println("The substring "+a+" is a palindrome ");
            }
        }
    }
}
```

OUTPUT:

```
C:\22BCE9513>javac Sub_String1.java

C:\22BCE9513>java Sub_String1
Enter the String : Java is worst

The substring Java  is not a palindrome
```