**Assignment 1  
 1.Print a series of numbers with recursive Java methods**

**Program code:**

**package assignment1;**

**import java.util.Scanner;**

**public class PrintSeries {**

**public static void printNumbers(int n) {**

**if (n < 1) {**

**return;**

**}**

***printNumbers*(n - 1);**

**System.*out*.print(n + " ");**

**}**

**public static void main(String[] args) {**

**Scanner sc = new Scanner(System.*in*);**

**System.*out*.print("Enter a positive integer N: ");**

**int N = sc.nextInt();**

**System.*out*.print("The series of numbers from 1 to " + N + " is: ");**

***printNumbers*(N);**

**System.*out*.println();**

**sc.close();**

**}**

**}**

**Output:**

**Enter a positive integer N: 5**

**The series of numbers from 1 to 5 is: 1 2 3 4 5**

**2.Sum a series of numbers with Java recursion**

**Program code:**

**package assignment1;**

**import java.util.Scanner;**

**public class SumSeries {**

**public static int sumNumbers(int n) {**

**if (n == 0) {**

**return 0;**

**}**

**return n + *sumNumbers*(n - 1);**

**}**

**public static void main(String[] args) {**

**Scanner sc = new Scanner(System.*in*);**

**System.*out*.print("Enter a positive integer N: ");**

**int N = sc.nextInt();**

**int sum = *sumNumbers*(N);**

**System.*out*.println("The sum of numbers from 1 to " + N + " is: " + sum);**

**sc.close();**

**}**

**}**

**Output:**

**Enter a positive integer N: 5**

**The sum of numbers from 1 to 5 is: 15**

**3.Calculate a factorial in Java with recursion**

**Program code:**

**package assignment1;**

**import java.util.Scanner;**

**public class Factorial {**

**public static long factorial(int n) {**

**if (n == 0 || n == 1) {**

**return 1;**

**}**

**return n \* *factorial*(n - 1);**

**}**

**public static void main(String[] args) {**

**Scanner sc = new Scanner(System.*in*);**

**System.*out*.print("Enter a positive integer: ");**

**int N = sc.nextInt();**

**long result = *factorial*(N);**

**System.*out*.println("The factorial of " + N + " is: " + result);**

**sc.close();**

**}**

**}**

**Output:**

**Enter a positive integer: 5**

**The factorial of 5 is: 120**

**4.Print the Fibonacci series with Java and recursion**

**Program code**

**package assignment1;**

**import java.util.Scanner;**

**public class FibonacciSeries {**

**public static int fibonacci(int n) {**

**if (n == 0) {**

**return 0;**

**}**

**if (n == 1) {**

**return 1;**

**}**

**return *fibonacci*(n - 1) + *fibonacci*(n - 2);**

**}**

**public static void main(String[] args) {**

**Scanner sc = new Scanner(System.*in*);**

**System.*out*.print("Enter the number of terms in the Fibonacci series: ");**

**int terms = sc.nextInt();**

**System.*out*.print("Fibonacci Series: ");**

**for (int i = 0; i < terms; i++) {**

**System.*out*.print(*fibonacci*(i) + " ");**

**}**

**System.*out*.println();**

**sc.close();**

**}**

**}**

**Output:**

**Enter the number of terms in the Fibonacci series: 8**

**Fibonacci Series: 0 1 1 2 3 5 8 13**

**5.A recursive Java palindrome checke**

**Program code:**

**package assignment1;**

**import java.util.Scanner;**

**public class PalindromeChecker {**

**public static boolean isPalindrome(String str, int start, int end) {**

**if (start >= end) {**

**return true;**

**}**

**if (str.charAt(start) != str.charAt(end)) {**

**return false;**

**}**

**return *isPalindrome*(str, start + 1, end - 1);**

**}**

**public static void main(String[] args) {**

**Scanner sc = new Scanner(System.*in*);**

**System.*out*.print("Enter a string: ");**

**String input = sc.nextLine();**

**boolean result = *isPalindrome*(input, 0, input.length() - 1);**

**if (result) {**

**System.*out*.println("The string \"" + input + "\" is a palindrome.");**

**} else {**

**System.*out*.println("The string \"" + input + "\" is not a palindrome.");**

**}**

**sc.close();**

**}**

**}**

**Output:**

**Enter a string: radar**

**The string "radar" is a palindrome.**