Assignment-1

1.print a series of numbers with recursive java methods.

```
public class Series {
   public static void Sequence(int n) {
      if (n > 0) {
         Sequence(n - 1);
         System.out.print(n + " ");
      }
   }

   public static void main(String[] args) {
      int n = 15;
      Sequence(n);
   }
}
```

```
C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>javac Sum.java

C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>java Sum
Sum of series: 120
```

2.Sum a series of numbers with java recursion.

```
public class Sum {
   public static int sumOfSeries(int n) {
      if (n == 0) {
         return 0;
      }
      return n + sumOfSeries(n - 1);
   }

   public static void main(String[] args) {
      int n = 15;
      System.out.println("Sum of series: " + sumOfSeries(n));
   }
}
```

C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>javac Series.java

C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>java Series
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

3.Calculate a factorial in java with recursion.

```
public class Factorial {
   public static int fact(int n) {
      if (n == 0 || n == 1) {
         return 1;
      }
      return n * fact(n - 1);
   }

   public static void main(String[] args) {
      int n = 8;
      System.out.println("Factorial of " + n + " is: " + fact(n));
   }
}
```

C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>javac Factorial.java

C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>java Factorial
Factorial of 8 is: 40320

4.print the fibonacci series with java and recursion.

```
public class Fibonacci {
   public static int fib(int n) {
      if (n <= 1) {
         return n;
      }
      return fib(n - 1) + fib(n - 2);
   }

   public static void main(String[] args) {
      int n = 8;
      System.out.print("Fibonacci series: ");
      for (int i = 0; i < n; i++) {
         System.out.print(fib(i) + " ");
```

```
        }
    }
}
```
C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>javac Fibonacci.java

C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>java Fibonacci
Fibonacci series: 0 1 1 2 3 5 8 13

5.A recursive java palindrome checker.

```
public class Palindrome {
    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) {
        String str = "abba";
        if (isPalindrome(str, 0, str.length() - 1)) {
            System.out.println(str + " is a palindrome.");
        } else {
            System.out.println(str + " is not a palindrome.");
        }
    }
}
```
C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>javac Palindrome.java

C:\Users\saira\OneDrive\Documents\CDAC\ADS Module\Assignment>java Palindrome
abba is a palindrome.