Kartik Verma

CSE-3

Java Lab File

Lab 2:-

Program 2: Fibonacci series in java.

Code:-

```
public class Fibonacci {
    public static void main(String[] args) {
        int limit = 10;
        generateFibonacci(limit);
    }

    public static void generateFibonacci(int limit) {
        int prev = 0;
        int current = 1;

        System.out.println("Fibonacci sequence up to " + limit + " terms:");
        System.out.print(prev + " ");

        for (int i = 2; i <= limit; i++) {
            System.out.print(current + " ");
            int next = prev + current;
            prev = current;
            current = next;
        }
    }
}
```

Output

```
C:\Users\Kartik Verma>cd\
C:\Users\Kartik Verma\Fibonacci sequence up to 10 terms:
0 1 1 2 3 5 8 13 21 34
```

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Java Lab File

Lab 2:-

Program 3: Prime number program in java.

Code:-

```
public class PrimeNumbers {
    public static void main(String[] args) {
        int limit = 50; // Change this limit as needed

        System.out.println("Prime numbers up to " + limit + ":");

        // Loop through numbers from 2 to the limit
        for (int num = 2; num <= limit; num++) {
            boolean isPrime = true;

            // Check if num is divisible by any number from 2 to its square root
            for (int i = 2; i <= Math.sqrt(num); i++) {
                if (num % i == 0) {
                    isPrime = false;
                    break;
                }
            }

            // If num is prime, print it
            if (isPrime) {
                System.out.print(num + " ");
            }
        }
    }
}
```

Output

```
Microsoft Windows [Version 10.0.22631.3447]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kartik Verma>cd\

C:\>cd "cmd codes"

C:\cmd codes>javac PalindromeNumbers.java

C:\cmd codes>java PalindromeNumbers
Palindrome numbers up to 20:
1 2 3 4 5 6 7 8 9 11
C:\cmd codes>
```

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Java Lab File

Lab 2:-

Program 4: Palindrome program in java.

Code:-

```
public class PalindromeNumbers {
    public static void main(String[] args) {
        int limit = 20; // Change this limit as needed

        System.out.println("Palindrome numbers up to " + limit + ":");

        // Loop through numbers from 1 to the limit
        for (int num = 1; num <= limit; num++) {
            if (isPalindrome(num)) {
                System.out.print(num + " ");
            }
        }
    }
    // Function to check if a number is palindrome
    public static boolean isPalindrome(int num) {
        int originalNum = num;
        int reverseNum = 0;

        // Reverse the number
        while (num > 0) {
            int digit = num % 10;
            reverseNum = reverseNum * 10 + digit;
            num /= 10;
        }
        // Check if the original number is equal to its reverse
        return originalNum == reverseNum;
    }
}
```

Output

```
Microsoft Windows [Version 10.0.22631.3447]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kartik Verma>cd\

C:\>cd "cmd codes"

C:\cmd codes>javac PalindromeNumbers.java

C:\cmd codes>java PalindromeNumbers
Palindrome numbers up to 20:
1 2 3 4 5 6 7 8 9 11
C:\cmd codes>
```

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Java Lab File

Lab 2:-

Program 5: Factorial program in java.

Code:-

```
public class Factorial {
    public static void main(String[] args) {
        int number = 5; // Change this number to calculate factorial

        long factorial = calculateFactorial(number);

        System.out.println("Factorial of " + number + " is: " + factorial);
    }

    // Function to calculate factorial recursively
    public static long calculateFactorial(int n) {
        if (n == 0 || n == 1) {
            return 1;
        } else {
            return n * calculateFactorial(n - 1);
        }
    }
}
```

Output

```
Microsoft Windows [Version 10.0.22631.3447]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kartik Verma>cd\

C:\>cd "cmd codes"

C:\cmd codes>javac Factorial.java

C:\cmd codes>java Factorial
Factorial of 5 is: 120

C:\cmd codes>
```

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Java Lab File

Lab 2:-

Program 6: Factorial program in java.

Code:-

```
public class LargestOfThree {
    public static void main(String[] args) {
        int num1 = 10;
        int num2 = 25;
        int num3 = 15;

        int largest = findLargest(num1, num2, num3);
        System.out.println("The largest of " + num1 + ", " + num2 + ", and " + num3 + " is: " + largest);
    }

    public static int findLargest(int num1, int num2, int num3) {
        if (num1 >= num2 && num1 >= num3) {
            return num1;
        } else if (num2 >= num1 && num2 >= num3) {
            return num2;
        } else {
            return num3;
        }
    }
}
```

Output

```
C:\Users\Kartik Verma>javac LargestOfThree.java
C:\Users\Kartik Verma>java LargestOfThree
The largest of 10, 25, and 15 is: 25
```