Assignment 01

```
1. Armstrong Number
import java.util.Scanner;

public class ArmstrongNumber {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        int originalNum = num, sum = 0;

        while (num != 0) {
            int digit = num % 10;
            sum += digit * digit * digit;
            num /= 10;
        }

        if (sum == originalNum) {
            System.out.println("True");
        } else {
            System.out.println("False");
        }
    }
}

 2. Prime Number
 import java.util.Scanner;

public class PrimeNumber {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        boolean isPrime = true;

        if (num <= 1) {
            isPrime = false;
        } else {
            for (int i = 2; i <= Math.sqrt(num); i++) {
                if (num % i == 0) {
                    isPrime = false;
                    break;
                }
            }
        }

        System.out.println(isPrime);
    }
}
3. Factorial

import java.util.Scanner;

public class Factorial {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
```

```
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        int factorial = 1;

        for (int i = 1; i <= num; i++) {
            factorial *= i;
        }

        System.out.println("Factorial: " + factorial);
    }
}
```

4. Fibonacci Series

```
import java.util.Scanner;

public class FibonacciSeries {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the number of terms: ");
        int n = sc.nextInt();

        int a = 0, b = 1;
        System.out.print("Fibonacci Series: " + a + " " + b);

        for (int i = 2; i < n; i++) {
            int next = a + b;
            System.out.print(" " + next);
            a = b;
            b = next;
        }
    }
}
```

5. Find GCD

```
import java.util.Scanner;

public class GCD {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter two numbers: ");
        int a = sc.nextInt();
        int b = sc.nextInt();

        while (b != 0) {
            int temp = b;
            b = a % b;
            a = temp;
        }

        System.out.println("GCD: " + a);
    }
}
```

6. Find Square Root (Integer Approximation)

```
import java.util.Scanner;
```

```
public class SquareRoot {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int x = sc.nextInt();
        int result = 0;

        for (int i = 1; i * i <= x; i++) {
            result = i;
        }

        System.out.println("Square root (approx): " + result);
    }
}
```

9. Integer Palindrome

```
import java.util.Scanner;

public class IntegerPalindrome {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        int originalNum = num, reversedNum = 0;

        while (num != 0) {
            int digit = num % 10;
            reversedNum = reversedNum * 10 + digit;
            num /= 10;
        }

        System.out.println(originalNum == reversedNum);
    }
}
```

10. Leap Year

```
import java.util.Scanner;

public class LeapYear {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a year: ");
        int year = sc.nextInt();

        boolean isLeapYear = (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);
        System.out.println(isLeapYear);
    }
}
```