AP Tutorials

Java Programming classes under Aryan Singh

Week 1 Assignment

1) Fibonacci Series in Java
2) Prime Number Program in Java
3) Palindrome Program in Java
4) Factorial Program in Java
5) Armstrong Number in Java
6) How to Generate Random Number in Java

```java
// 1) Fibonacci Series in Java
import java.util.Scanner;

public class Fibonacci {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the number of terms: ");
        int n = scanner.nextInt();
        int a = 0, b = 1;

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

```java
// 2) Prime Number Program in Java
import java.util.Scanner;

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

        if (isPrime) {
            System.out.println(num + " is a prime number.");
        } else {
            System.out.println(num + " is not a prime number.");
        }
    }
}
```

```
// 3) Palindrome Program in Java
import java.util.Scanner;

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

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

        if (originalNum == reversedNum) {
            System.out.println(originalNum + " is a palindrome.");
        } else {
            System.out.println(originalNum + " is not a palindrome.");
        }
    }
}
```

```
// 4) Factorial Program in Java
import java.util.Scanner;

public class Factorial {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
```

```
        int num = scanner.nextInt();
        long factorial = 1;

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

        System.out.println("Factorial of " + num + " is " + factorial);
    }
}
```

```
// 5) Armstrong Number in Java
import java.util.Scanner;

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

        while (num != 0) {
            remainder = num % 10;
            result += Math.pow(remainder, digits);
            num /= 10;
        }

        if (result == originalNum) {
            System.out.println(originalNum + " is an Armstrong number.");
        } else {
            System.out.println(originalNum + " is not an Armstrong number.");
        }
    }
}
```

```
// 6) How to Generate Random Number in Java
import java.util.Random;

public class RandomNumber {
    public static void main(String[] args) {
        Random random = new Random();

        // Generate random integer between 0 and 100
        int randomNumber = random.nextInt(101); // upper bound is exclusive

        System.out.println("Random Number between 0 and 100: " + randomNumber);
    }
```

```
}
```

These Java programs cover the Fibonacci series, prime numbers, palindromes, factorial calculations, Armstrong numbers, and generating random numbers. Each program prompts the user for input where applicable and provides the corresponding output.