**FIBONACCI SERIES**

**class FibonacciExample1{**

1. **public static void main(String args[])**
2. **{**
3. **int n1=0,n2=1,n3,i,count=10;**
4. **System.out.print(n1+" "+n2);//printing 0 and 1**
6. **for(i=2;i<count;++i)//loop starts from 2 because 0 and 1 are already printed**
7. **{**
8. **n3=n1+n2;**
9. **System.out.print(" "+n3);**
10. **n1=n2;**
11. **n2=n3;**
12. **}**
14. **}}**

**FACTORIAL**

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

**if (n == 1)**

**return 1;**

**Else**

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

**}**

**REVERSE STRING**

**public class Main {**

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

**String originalStr = "Hello";**

**String reversedStr = "";**

**System.out.println("Original string: " + originalStr);**

**for (int i = 0; i < originalStr.length(); i++) {**

**reversedStr = originalStr.charAt(i) + reversedStr;**

**}**

**System.out.println("Reversed string: "+ reversedStr);**

**}**

**}**

## **2. How do you swap two numbers without using a third variable in Java?**

**public class SwapNumbers {**

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

**int a = 10;**

**int b = 20;**

**System.out.println("a is " + a + " and b is " + b);**

**a = a + b;**

**b = a - b;**

**a = a - b;**

**System.out.println("After swapping, a is " + a + " and b is " + b);**

**}**

**}**

## **3. Write a Java program to check if a vowel is present in a string.**

**public class StringContainsVowels {**

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

**System.out.println(stringContainsVowels("Hello")); // true**

**System.out.println(stringContainsVowels("TV")); // false**

**}**

**public static boolean stringContainsVowels(String input) {**

**return input.toLowerCase().matches(".\*[aeiou].\*");**

**}**

**}**

## **Write a Java program to check if the given number is a prime number.**

**public class PrimeNumberCheck {**

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

**System.out.println(isPrime(19)); // true**

**System.out.println(isPrime(49)); // false**

**}**

**public static boolean isPrime(int n) {**

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

**return false;**

**}**

**if (n == 2) {**

**return true;**

**}**

**for (int i = 2; i <= n / 2; i++) {**

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

**return false;**

**}**

**}**

**return true;**

**}**

**}**

## How do you check whether a string is a palindrome in Java?

**boolean checkPalindromeString(String input) {**

**boolean result = true;**

**int length = input.length();**

**for (int i = 0; i < length/2; i++) {**

**if (input.charAt(i) != input.charAt(length - i - 1)) {**

**result = false;**

**break;**

**}**

**}**

**return result;**

**}**

## Write Java program that checks if two arrays contain the same elements.

**import java.util.Arrays;**

**import java.util.HashSet;**

**import java.util.Set;**

**public class ArraySameElements {**

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

**Integer[] a1 = {1,2,3,2,1};**

**Integer[] a2 = {1,2,3};**

**Integer[] a3 = {1,2,3,4};**

**System.out.println(sameElements(a1, a2));**

**System.out.println(sameElements(a1, a3));**

**}**

**static boolean sameElements(Object[] array1, Object[] array2) {**

**Set<Object> uniqueElements1 = new HashSet<>(Arrays.asList(array1));**

**Set<Object> uniqueElements2 = new HashSet<>(Arrays.asList(array2));**

**// if size is different, means there will be a mismatch**

**if (uniqueElements1.size() != uniqueElements2.size()) return false;**

**for (Object obj : uniqueElements1) {**

**// element not present in both?**

**if (!uniqueElements2.contains(obj)) return false;**

**}**

**return true;**

**}**

**}**

## How do you find the second largest number in an array in Java?

**private static int findSecondHighest(int[] array) {**

**int highest = Integer.MIN\_VALUE;**

**int secondHighest = Integer.MIN\_VALUE;**

**for (int i : array) {**

**if (i > highest) {**

**secondHighest = highest;**

**highest = i;**

**} else if (i > secondHighest) {**

**secondHighest = i;**

**}**

**}**

**return secondHighest;**

**}**