# Java Solutions for Programming Problems

## 6. Find GCD of Two Numbers

import java.util.Scanner;  
  
public class GCD {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.in);  
 System.out.print("Input 1st number: ");  
 int num1 = sc.nextInt();  
 System.out.print("Input 2nd number: ");  
 int num2 = sc.nextInt();  
  
 int gcd = 1;  
 for (int i = 1; i <= num1 && i <= num2; i++) {  
 if (num1 % i == 0 && num2 % i == 0) {  
 gcd = i;  
 }  
 }  
  
 System.out.println("The GCD of " + num1 + " and " + num2 + " is: " + gcd);  
 }  
}

## 7. Convert Decimal to Binary

import java.util.Scanner;  
  
public class DecimalToBinary {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.in);  
 System.out.print("Input any decimal number: ");  
 int decimal = sc.nextInt();  
  
 String binary = Integer.toBinaryString(decimal);  
 System.out.println("The Binary value of decimal no. " + decimal + " is: " + binary);  
 }  
}

## 8. Check if a Number is Prime

import java.util.Scanner;  
  
public class PrimeNumber {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.in);  
 System.out.print("Input any positive 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;  
 }  
 }  
 }  
  
 if (isPrime) {  
 System.out.println("The number " + num + " is a prime number.");  
 } else {  
 System.out.println("The number " + num + " is not a prime number.");  
 }  
 }  
}

## 9. Find LCM of Two Numbers

import java.util.Scanner;  
  
public class LCM {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.in);  
 System.out.print("Input 1st number for LCM: ");  
 int num1 = sc.nextInt();  
 System.out.print("Input 2nd number for LCM: ");  
 int num2 = sc.nextInt();  
  
 int lcm = (num1 > num2) ? num1 : num2;  
  
 while (true) {  
 if (lcm % num1 == 0 && lcm % num2 == 0) {  
 System.out.println("The LCM of " + num1 + " and " + num2 + " is: " + lcm);  
 break;  
 }  
 lcm++;  
 }  
 }  
}

## 10. Print Even or Odd Numbers in a Range

import java.util.Scanner;  
  
public class EvenOddInRange {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.in);  
 System.out.print("Input the range to print starting from: ");  
 int start = sc.nextInt();  
 System.out.print("Input the range to print ending at: ");  
 int end = sc.nextInt();  
  
 System.out.print("All even numbers from " + start + " to " + end + " are: ");  
 for (int i = start; i <= end; i++) {  
 if (i % 2 == 0) {  
 System.out.print(i + " ");  
 }  
 }  
 System.out.println();  
  
 System.out.print("All odd numbers from " + start + " to " + end + " are: ");  
 for (int i = start; i <= end; i++) {  
 if (i % 2 != 0) {  
 System.out.print(i + " ");  
 }  
 }  
 }  
}

## 11. Print Patterns

public class Patterns {  
 public static void main(String[] args) {  
 System.out.println("Pattern A:");  
 for (int i = 1; i <= 5; i++) {  
 for (int j = 1; j <= i; j++) {  
 System.out.print("\*");  
 }  
 System.out.println();  
 }  
  
 System.out.println("\nPattern B:");  
 for (int i = 5; i >= 1; i--) {  
 for (int j = 1; j <= i; j++) {  
 System.out.print("\*");  
 }  
 System.out.println();  
 }  
  
 System.out.println("\nPattern C:");  
 for (int i = 5; i >= 1; i--) {  
 for (int j = 1; j <= 5 - i; j++) {  
 System.out.print(" ");  
 }  
 for (int j = 1; j <= i; j++) {  
 System.out.print("\*");  
 }  
 System.out.println();  
 }  
  
 System.out.println("\nPattern D:");  
 for (int i = 1; i <= 5; i++) {  
 for (int j = 1; j <= 5 - i; j++) {  
 System.out.print(" ");  
 }  
 for (int j = 1; j <= i; j++) {  
 System.out.print("\*");  
 }  
 System.out.println();  
 }  
 }  
}