

Problem 1: Print Binary Representation of a Number

```
public class BinaryRepresentation {

    public static void printBinary(int number) {
        // Convert the number to binary string
        String binaryString = Integer.toBinaryString(number);
        System.out.println(binaryString);
    }

    public static void main(String[] args) {
        printBinary(5); // Output: 101
        printBinary(10); // Output: 1010
    }
}
```

Problem 2: Check if a Number is a Power of Two

```
public class PowerOfTwo {

    public static boolean isPowerOfTwo(int n) {
        return n > 0 && (n & (n - 1)) == 0;
    }

    public static void main(String[] args) {
        System.out.println(isPowerOfTwo(15)); // Output: False
        System.out.println(isPowerOfTwo(32)); // Output: True
    }
}
```

Problem 3: Check Odd or Even Using Bit Manipulation

```
public class OddOrEven {

    public static void checkOddOrEven(int number) {
        if ((number & 1) == 0) {
            System.out.println(number + " is Even");
        } else {
            System.out.println(number + " is Odd");
        }
    }
}
```

```

    public static void main(String[] args) {
        checkOddOrEven(8); // Output: 8 is Even
        checkOddOrEven(3); // Output: 3 is Odd
    }
}

```

Problem 4: Count the Number of Set Bits

```

public class CountSetBits {

    public static int countSetBits(int number) {
        int count = 0;
        while (number > 0) {
            number = number & (number - 1);
            count++;
        }
        return count;
    }

    public static void main(String[] args) {
        System.out.println("Number of set bits in 15: " + countSetBits(15)); // Output: 4
        System.out.println("Number of set bits in 9: " + countSetBits(9)); // Output: 2
    }
}

```

Problem 5: Find the Odd Occurring Element in an Array

```

public class OddOccurringElement {

    public static int findOddOccurrence(int[] arr) {
        int result = 0;
        for (int num : arr) {
            result ^= num;
        }
        return result;
    }

    public static void main(String[] args) {
        int[] arr = {4, 3, 6, 2, 6, 4, 2, 3, 4, 3, 3};
        System.out.println("The odd occurring element is: " + findOddOccurrence(arr)); // Output: 4
    }
}

```