class TwoSingleNumbers {

public static int[] findSingleNumbers(int[] nums) {

// get the XOR of the all the numbers

int n1xn2 = 0;

for (int num : nums) {

n1xn2 ^= num;

}

// get the rightmost bit that is '1'

int rightmostSetBit = 1;

while ((rightmostSetBit & n1xn2) == 0) {

rightmostSetBit = rightmostSetBit << 1;

}

int num1 = 0, num2 = 0;

for (int num : nums) {

if ((num & rightmostSetBit) != 0) // the bit is set

num1 ^= num;

else // the bit is not set

num2 ^= num;

}

return new int[] { num1, num2 };

}

public static void main(String[] args) {

int[] arr = new int[] { 1, 4, 2, 1, 3, 5, 6, 2, 3, 5 };

int[] result = TwoSingleNumbers.findSingleNumbers(arr);

System.out.println("Single numbers are: " + result[0] + ", " + result[1]);

arr = new int[] { 2, 1, 3, 2 };

result = TwoSingleNumbers.findSingleNumbers(arr);

System.out.println("Single numbers are: " + result[0] + ", " + result[1]);

}

}

