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import java.util.ArrayList;
import java.util.Scanner;

public class chmod {

    // Converts numbers to binary filling zeroes if necessary
    public static String toBinary(int num) {
        String stringNum = "";
        while (num / 2 != 0) {
            stringNum = num % 2 + stringNum;
            num = num / 2;
        }
        stringNum = num % 2 + stringNum;

        while (stringNum.length() < 3) {
            stringNum = 0 + stringNum;
        }
        return stringNum;
    }

    // takes the input and puts the nums in an array
    public static int[] getInput(String input) {
        int[] nums = new int[4];
        for (int i = 0; i < nums.length; i++) {
            nums[i] = Character.getNumericValue(input.charAt(i * 3));
        }

        return nums;
    }

    public static ArrayList<String> getPerms(int[] nums) {
        char[] numPerms = { 'r', 'w', 'x' };
        ArrayList<String> permPairs = new ArrayList<String>();

        for (int i = 1; i < nums.length; i++) {
            String permNum = toBinary(nums[i]);
            String perm = "";

            // fills array with appropriate permissions based on binary numbers
            for (int j = 0; j < permNum.length(); j++) {
                if (permNum.charAt(j) == '1') {
                    perm += numPerms[j];
                } else {
                    perm += '-';
                }
            }
            permPairs.add(permNum);
            permPairs.add(perm);
        }

        return permPairs;
    }

    // outputs the permission array in correct output form
    public static String getOutput(ArrayList<String> outArr) {
        String out = outArr.get(0) + " " + outArr.get(2) + " " + outArr.get(4) + " and " +
outArr.get(1) + " "
            + outArr.get(3) + " " + outArr.get(5);
        return out;
    }

    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);

        for (int i = 0; i < 5; i++) { // loops for inputs
            System.out.println("Enter your chmod input:");
            String input = scan.nextLine();
            int[] nums = getInput(input);
            ArrayList<String> permissionArr = getPerms(nums);

            // Accounts for special permissions and changes perms based on it
            if (nums[0] == 1 && permissionArr.get(1).charAt(2) != '-') {
                permissionArr.set(1, permissionArr.get(1).substring(0, 2) + 's');
            } else if (nums[0] == 2 && permissionArr.get(3).charAt(2) != '-') {
                permissionArr.set(3, permissionArr.get(3).substring(0, 2) + 's');
            } else if (nums[0] == 4 && permissionArr.get(5).charAt(2) != '-') {
                permissionArr.set(5, permissionArr.get(5).substring(0, 2) + 't');
            }

            System.out.println(getOutput(permissionArr));

            scan.close();
        }
    }
}

```