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package ACSL_Problems;
import java.util.Scanner;

public class CHMOD {
    //checks if a String is a digit
    public static boolean isDigit(String in) {
        for (int i = 0; i ≤ 7; i++) {
            if (in.equals(Integer.toString(i))) {
                return true;
            }
        }
        return false;
    }
}

//converts base 8 (octal) to base 2 (binary) w/3 digits
public static String fromBase8toBase2(String num) {
    String out = Integer.toString(Integer.parseInt(num, 8), 2);
    while(out.length()<3) {
        out = "0"+out;
    }
    return out;
}

//takes input line and parses into a String[] for permissions()
public static String inputParser(String line) {
    String[] digits = new String[4];
    for (int i = 0, l = 0; i < line.length(); i++) {
        String substring = line.substring(i, i + 1);
        if (isDigit(substring)) {
            if (i == 0) {
                digits[l] = substring;
            } else {
                digits[l] = fromBase8toBase2(substring);
            }
            l++;
        }
    }
    //the digits[] will have {user perm, octal, octal, octal}
    // e.x 1,7,7,7 → digits[] = {1, 111, 111, 111}
    return permOutput(digits);
}

//takes parsed input and returns output
public static String permOutput(String[] bin) {
    String out = ""; //this is output string
    String[] letters = { "r", "w", "x", "-", "s", "t" }; //contains list of characters needed
    //prints out binary for each octal number
    for (int i = 1; i < 4; i++) {
        out += bin[i] + " ";
    }
    out += "and ";
    //loops through each binary number
    for (int i = 1; i < 4; i++) {
        //loops through each digit of binary number
        for (int j = 0; j < 3; j++) {
            //checks if any bit is on or 1 in binary
            if (bin[i].substring(j, j + 1).equals("1")) {
                //if the last digit matches the user perms of 1 or 2 then adds "s"
                if (j == 2 && (Integer.valueOf(bin[0])==i)) {
                    out += letters[4]; // "s"
                }
                //else if the last digit matches the user perm of 4 then adds "t"
                else if (j == 2 && (Integer.valueOf(bin[0])==i+1)) {
                    out += letters[5]; // "t"
                }
            }
            //if it isn't any special case, it just adds read, write or execute perm
            else {
                out += letters[j];
            }
        }
        //adds the hyphen if binary digit is "0"
        else {
            out += "-";
        }
    }
    out += " ";
}

return out;
}

//this method just tests the sample input provided by ACSL
public static void sampleInput() {
    System.out.println("Input: 0, 5, 2, 6\n"+inputParser("0, 5, 2, 6 "));
    System.out.println("\nInput: 1, 7, 3, 0\n"+inputParser("1, 7, 3, 0"));
    System.out.println("\nInput: 2, 4, 1, 5\n"+inputParser("2, 4, 1, 5"));
    System.out.println("\nInput: 4, 2, 3, 4\n"+inputParser("4, 2, 3, 4"));
    System.out.println("\nInput: 4, 5, 6, 7\n"+inputParser("4, 5, 6, 7"));
}

public static void main(String[] args) {
    sampleInput();
    Scanner sc = new Scanner(System.in);
    //for loop to ask input 5 times as directed
    for(int i = 0; i < 5; i++) {
        System.out.println(inputParser(sc.nextLine()));
    }
    sc.close(); //IDE's are annoying about closing Scanners
}
}

```