

# Ali's Ice Cold Conundrum

Filename: ice

Ali is throwing a party at one of his houses, and he's laid out a big selection of drinks for everyone. It's pretty hot outside, so the ice maker is cranked up to the max. However, as Ali is dispensing ice, he notices that the ice maker tends to release ice cubes in small bursts of two to ten cubes each. Being the consummate host, Ali knows that seven cubes is the perfect number of cubes for the glasses he's using, but he's having trouble hitting that mark with the dispenser.

## The Problem:

Given the number of ice cubes dispensed in each burst in order, tell Ali whether or not each cup has the perfect number (7 cubes). If not, let Ali know how many cubes he would have to remove to get the perfect number. Since his guests are thirsty, he won't waste time actually correcting the number of ice cubes in each cup (he just wants to keep track of how he's doing). Once each cup is full (7 or more cubes), Ali will automatically move on to the next cup. Ali will keep filling cups with ice as long as the ice maker dispenses cubes (once it runs out, Ali will wait for it to fill up again). Note that once the ice maker runs out of ice, the last cup might not have enough ice cubes in it. If so, let Ali know how many cubes that cup is missing. After each session, he will immediately serve all of the cups he has filled (whether they have 7 cubes or not).

## The Input:

The ice maker will be filled and dispensed several times today. The input will begin with a single positive integer,  $s$ , on a line by itself, indicating the number of ice dispensing sessions. Each session will start with an integer,  $b$  ( $1 \leq b \leq 50$ ), on a line by itself, indicating the number of ice dispensing bursts in this session. Following this, on each of the next  $b$  lines, there will be a single integer,  $c$  ( $2 \leq c \leq 10$ ), indicating the number of ice cubes in this burst.

## The Output:

At the start of each session, output a line of the form "Session # $n$ :", where  $n$  is the number of the ice dispensing session (beginning at 1). For each filled cup in this session output a line indicating the state of that cup:

- If the cup has exactly 7 cubes, print "Cup # $i$ : Perfect!"
- If the cup has too many cubes, print "Cup # $i$ :  $k$  cubes too many!"
- If the cup has too few cubes, print "Cup # $i$ : Need  $k$  more cubes!"

In all cases,  $i$  is the number of the filled cup in that session (beginning at 1), and  $k$  is the absolute value of the difference between the number of ice cubes dispensed into that cup and 7. The output line for each cup should be indented three spaces and there should be one space after the colon. Leave a blank line after the output for each dispensing session.

**Sample Input:**

2  
3  
10  
2  
5  
4  
2  
2  
3  
2

**Sample Output:**

Session #1:

Cup #1: 3 cubes too many!  
Cup #2: Perfect!

Session #2:

Cup #1: Perfect!  
Cup #2: Need 5 more cubes!