

## **Task 1: HORSE**

The Sultan of Alarabia has a horse which is kept in one of the royal ranches to graze. Every time the Sultan wishes to ride his horse, he will order his servants to fetch the horse. However, the Sultan is an impatient man and if his servants take too long to fetch the horse, he will grow angry and punish the servants severely. Also, as the horse like a certain food and if it passes a ranch with those food inside, it will refuse to move for a certain amount of time and hence it will add to the time the servant needs to take to bring the horse to the Sultan.

All the 10 Sultan's royal ranches are arranged in a single row as shown below. The entrance to the ranches is at the left hand side indicated as A. Assume that it takes 1 minute to move from the entrance to the first ranch and 1 minute from one ranch to the next. If the food that the horse likes in a ranch, the horse will stay there for additional 2 minutes.



A servant is extremely fearful about the punishment and he knows that you are a brilliant programmer. So he asks you to write a program to help him arrange his duties such that he will only be on duty when the horse is kept in a ranch such that no matter where the horse is, the servant will always be able to fetch the horse in time.

## **Input**

Input given will be of the form:

T  
OOXOOHOOOO

Where T is the time in minutes before the Sultan grows impatient. Each character in the second line indicates what is in each ranch. "X" indicates that the food that the horse likes is in that ranch, "O" denotes an empty ranch and "H" indicates the ranch where the horse is found. The servant must start from the entrance (A) of the ranch and fetch the horse within T minutes. That is, he must be able to reach the ranch where the horse is found and be back at A using no more than T minutes. Note that there may be more than one "X" in the sequence.

## **Output**

For each data set, print out "YES – Total time is t" if the servant should arrange his duty on that day or "NO – Total time is t" if he should not. "YES" and "NO" must be all uppercase. t is the total time needed by the servant starting at the entrance, goes to the ranch where the horse is found and brings it back to the entrance.

**Sample Input:****Sample Output:**

Case 1:

10  
OOOOHOOXXO

YES - Total time is 10

Case 2:

15  
OOXXHOOXXX

YES - Total time is 14

Case 3:

11  
OOOOOHXXXX

NO - Total time is 12

Note: There should be a single space in between the items in the output string.

For example, a single space between “NO” and “-”,

a single space between “-” and “Total”, etc

## **Task 2: DIGITS**

House Number Vendor (HNV) is a company that makes plastic digits which are primarily put on the front door of each house to form the house number. In order to make sure that they don't waste any resources, they want to make the exact number of digits for the house numbers needed. You are to write a program to help the company decide how many copies of each digit it needs to make for each order it receives.

### **Input :**

The input consists of two positive integers  $n, m$  ( $1 \leq n < m \leq 100$ ) which indicate the range of house numbers the company has to make for a particular order. The range is inclusive of  $n$  and  $m$ .

### **Output :**

You are to output the number of copies of each digit that HNV needs to make in the following format:

```
0 <number of copies of digit 0>
1 <number of copies of digit 1>
.
.
.
9 <number of copies of digit 9>
```

There should be a single space between the digit and the required copies.

### **Sample input :**

```
1 13
```

### **Sample output :**

```
0 1
1 6
2 2
3 2
4 1
5 1
6 1
7 1
8 1
9 1
```