Question 1

**Problem Description:**

Feb 29, 2020 is a special day in this year.

Write a program to let user to input a number of days, then calculate the date after this number of days from Feb 29, 2020

**Sample Input**: (1< n < 2000)

32

**Output for Sample Input**

2020-04-01

Question 2

**Problem Description:**

We often include emoticons in our text messages to indicate how we are feeling. The three consecutive characters :-) indicate a happy face and the three consecutive characters :-( indicate a sad face. Write a program to determine the overall mood of a message.

**Input Specification**

There will be one line of input that contains between 1 and 255 characters.

**Output Specification**

If the input line does not contain any happy or sad emoticons, output **none**.

Otherwise, if the input line contains an equal number of happy and sad emoticons, output **unsure**.

Otherwise, if the input line contains more happy than sad emoticons, output **happy**.

Otherwise, if the input line contains more sad than happy emoticons, output **sad.**

**Sample Input**

How are you :-) doing :-( today :-)?

**Output for Sample Input**

happy

Question 3

**Problem Description:**

Antonia and David are playing a game. Each player starts with 100 points. The game uses standard six-sided dice and is played in rounds. During one round, each player rolls one die. The player with the lower roll loses the number of points shown on the higher die. If both players roll the same number, no points are lost by either player. Write a program to determine the final scores.

**Input Specification**

The first line of input contains the integer n (1 ≤ n ≤ 15), which is the number of rounds that will be played. On each of the next n lines, will be two integers: the roll of Antonia for that round, followed by a space, followed by the roll of David for that round. Each roll will be an integer between 1 and 6 (inclusive).

**Output Specification**

The output will consist of two lines. On the first line, output the number of points that Antonia has after all rounds have been played. On the second line, output the number of points that David has after all rounds have been played.

**Sample Input**

4

5 6

6 6

4 3

5 2

**Output for Sample Input**

94

91

Question 4

**Problem Description:**

A sentence S is given, composed of words separated by spaces. Each word consists of lowercase and uppercase letters only. We would like to convert the sentence to "Goat Latin" (a made-up language similar to Pig Latin.) The rules of Goat Latin are as follows:

If a word begins with a vowel (a, e, i, o, or u), append "ma" to the end of the word.

For example, the word 'apple' becomes 'applema'.

If a word begins with a consonant (i.e. not a vowel), remove the first letter and append it to the end, then add "ma".

For example, the word "goat" becomes "oatgma".

Add one letter 'a' to the end of each word per its word index in the sentence, starting with 1.

For example, the first word gets "a" added to the end, the second word gets "aa" added to the end and so on.

Return the final sentence representing the conversion from S to Goat Latin.

**Sample Input**

I speak Goat Latin

**Output for Sample Input**

Imaa peaksmaaa oatGmaaaa atinLmaaaaa

Question 5

**Problem Description:**

Let's define a function f(s) over a non-empty string s, which calculates the frequency of the smallest character in s. For example, if s = "dcce" then f(s) = 2 because the smallest character is "c" and its frequency is 2. Now, given string arrays queries and words, return an integer array answer, where each answer[i] is the number of words such that f(queries[i]) < f(W), where W is a word in words.

**Sample Input 1:**

queries = ["cbd"]

words = ["zaaaz"]

**Output for Sample Input 1:**

[1]

**Sample Input 2:**

queries = ["bbb","cc"]

words = ["a","aa","aaa","aaaa"]

**Output for Sample Input 2:**

[1,2]