**Backtracking**

**Plan a # - the maximum 9-digit number divided by 11**

Write a plan that shows the 9-digit number that is different from the largest possible divisible by 11.

A number is divided by 11 if the difference between the sum of the digits in the odd places, and the sum of the digits in its even places, is divided by 11.

For example: in the number: 1529 The sum of the digits in the odd places is 14 and the sum of the digits in the even places is 3, so it is divided by: 11

Note: It is recommended to use long-long type variables to store large numbers with 9 digits.

**Plan b # - pattern matching**

In this program, you must read from the input two strings (up to 50 characters long) and determine whether the first string, which is now called a 'string', matches the second string, which will read: 'The pattern'.

The rules by which a string matches a pattern are as follows:

1. For a 'normal' character in the format (a character that is not '?' Or '\*') only the same character in the string matches it.
2. To the character '?' In the template, each individual character in the string fits
3. The character '\*' in the format may match zero or more characters in the string so that a match is obtained.

So for example:

1. The abcd string matches the formats: abcd, ab \* cd, ab ??, a \* d, a \*\* d, abcd \*
2. The string abcd does not match the formats: abc, abcde, a? Bcd, abc ??

The program output will be: 1 if there is a match, 0 if not.

**Plan c # - The problem of gold bullion**

Two goldsmiths bought N gold bars (set in your plan: N = 5). It can be assumed that the weight of each ingot is a natural number. Now they have to divide the ingots so that each of them gets ingots that weigh half the total weight.

For example: if the weights of the ingots are: {1, 5, 3, 9, 2} then if one of them receives the ingots weighing {1, 9} and the other the rest of the ingots they distributed the ingots as required. If the weight of the ingots is: {1, 1, 4, 1, 1} then one jeweler will be able to have the four ingots weighing 1, and the other the single ingot weighing 4.

Write a plan that reads the weights of the ingots, if the ingots can be divided then the weights of the ingots received by the first jeweler will be shown in one line separated by a space between the figures, and in the second row the weights of the ingots received by the second jeweler. If the ingots cannot be divided as overflow then the output will remain empty.

For the first example above the output will be:

1 9

5 3 2

The plan will try, first, to assign each ingot to the first jeweler, and continue to build beyond that a solution. If she does not succeed, she will try to assign the ingot to the other jeweler. This description also explains to you what output is needed when the ingots can be divided into more than one way