**A1- Compress**

A picture containing shape

Description automatically generatedA picture containing text, green, row, bright

Description automatically generatedAdel Shakal has photo consists of pixel, as you know each pixel need 1 byte to store it. Unfortunately, Shakal hasn’t enough ram and he asks you to compress his photo by represent each 16 pixels by one color. Shakal’s photo consists of three colors red, green, blue. Compress Shakal’s photo with **minimal** difference between the original image and the compressed image (if it’s has same probability take (R , G , B).

**Input**

First line contains one integer – photo consists of pixel.

Each of next lines contain of n space-separated character that determine photo pixels.

It is guaranteed that the input .

**Output**

print compressed photo with size .

**Examples**

|  |
| --- |
| **input** |
| 1  R R G G  R R G G  G G B B  G G B B |
| **output** |
| G |

**B- Coca-Cola**

Adel and Shakal loves Coca-Cola too much. So, they decided to go to super-market and buy **Diamond** of Coca-Cola Can, and they poor in math so, they ask you to help them to divide cans in a fair way, if its impossible print .

Icon

Description automatically generated For example: N = 3

You will be given the number of Can’s in **middle line** in diamond.

Print number of Can’s that sultan will get, if its impossible print .

**Input**

The first line of the input contains a single integer t — the number of test cases.

Second line contains one integer – the number of Can’s in **middle line** in diamond.

**Output**

Print number of Can’s that sultan will get.

|  |
| --- |
| **input** |
| 3  1  2  3 |
| **output** |
| -1  2  -1 |

**C- Prefix Primes**

Adel Shakal’s teacher will give him three numbers and , and his task is:

* Count how many numbers between and that divisible by .

To make his task more difficult will be **prime** number.

**Input**

The first line of the input contains a single integer t — the number of test cases.

Second line contains three integers .

**Output**

Print how many numbers that divisible by C in range .

|  |
| --- |
| **input** |
| 2  10 30 13  8 13 7 |
| **output** |
| 2  0 |

Note:

First test case:

**D- Infinity**

Adel Shakal has an infinity digital screen; Screen can represent any real number.

A screenshot of a computer

Description automatically generated with low confidenceEach digit represents on screen by segments, for example:

We can represent 1 by two segments, 4 by four segments, 7 by three segments.

Print how many segments needed to represent number .

**Input**

Second line contains one integer .

**Output**

|  |
| --- |
| **input** |
| 1 |
| **output** |
| 2 |

|  |
| --- |
| **input** |
| 12789 |
| **output** |
| 23 |

**E- Leader**

As you know Adel Shakal is a boss, so, he decided to unification of all Arab countries. but he has a big problem about National flag of new country, he asks you to help him. You will be given country National flag, each flag consists of color. The new flag should contain any color that frequent at least of National flags.

**Input**

The first line of the input contains two integers — the number countries and percentage of color to be in new flag.

Second line will contain the number of colors in country .

Third line contains of space - separated strings that determine colors of flag consist of.

**Output**

First line print number of colors in new flag.

Second line print **colors** that will be in new flag separated by space.

|  |
| --- |
| **input** |
| 3 50  3  red white black  2  red green  1  green |
| **output** |
| 2  green red |

Green: Red: Black: white:

**F- Euclidean Shakal**

Adel Shakal has an array of size and he need to get maximum multiplication between 2 subarrays.

he must delete **at most** one element that

As max as possible, help Shakal to find index and max value he can get.

**Input**

First line will contain integer number of elements.

Second line will contain integer .

**Output**

First line contains maximum value he can achieve.

|  |
| --- |
| **input** |
| 7  1 2 5 7 8 1 9 |
| **output** |
| 207 |

|  |
| --- |
| **input** |
| 12  1 1 1 1 1 1 1 1 1 1 1 1 |
| **output** |
| 30 |

**G- Shakal’s String**

Adel Shekel go to school and learn how to write English word, but he upset because he found out his colleges play a strange game, they take name and check if can transfer it to left – right string by swap chars for example ezz can transfer zez by swap first char with second, Adel want to help to play with them.

**Input**

The first line contains a word *s* — it consists of lowercase Latin letters and possesses the length from 1 to **.**

**Output**

Print **YES**, if can make this string left-right string, otherwise print **NO**

|  |
| --- |
| **input** |
| ezz |
| **output** |
| YES |

|  |
| --- |
| **input** |
| abdef |
| **output** |
| NO |

**H- Shakal and multiplication**

Adel Shakel’s teacher in Math test Adel in Multiplication table and unfortunately Adel failed in exam, and to make him success in exam, he wants Adel to make program in Multiplication table in number six, which he give you N of six and want you to multiply this digits by six.

**Input**

N represent the **number of digits** of number six, N from 1 to .

**Output**

Print the answer after multiplying this number of digits in six.

|  |
| --- |
| **input** |
| 2 |
| **output** |
| 396 |

|  |
| --- |
| **input** |
| 1 |
| **output** |
| 36 |