

## Tasks

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Task	VAUVAU	VECI	LEKTIRA	MUZICARI	POKLON	KOCKE
<b>Input</b>	standard input (keyboard)					
<b>Output</b>	standard output (screen)					
<b>Memory limit (heap+stack)</b>	32 MB					
<b>Time limit (per test)</b>	1 second					
<b>Number of tests</b>	5	5	5	11	10	10
<b>Points per test</b>	3	5	7	5	8	9
<b>Total points</b>	<b>15</b>	<b>25</b>	<b>35</b>	<b>55</b>	<b>80</b>	<b>90</b>
	<b>300</b>					

**Note:** The evaluation system has two Intel Pentium 4 3.0 GHz processors and is running the Linux operating system. The following compile options are used for different languages:

- C: `-O2 -s -static -std=c99 -lm`
- C++: `-O2 -s -static -lm`
- Pascal: `-O1 -XS`

# 1. VAUVAU

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In a nearby village, the postman, milkman and garbage man face the same problem morning after morning: house 18. House 18 is guarded by two dogs that often cause problems. What they don't know is that the dogs' behaviour is completely predictable.

When the day starts, one dog is aggressive for A minutes and is then calm for B minutes. Similarly, the other dog is aggressive for C minutes, then calm for D minutes. Both dogs repeat their behaviours indefinitely, starting a new aggressive period after the calm period, then another calm period etc.

Given the arrival times of the postman, milkman and garbage man, determine how many dogs (none, one or both) attack each of them.

## Input

The first line of input contains the integers A, B, C and D.

The second line contains the integer P, M and G, the minute in the day during which the postman, milkman and garbage man arrive at house 18. For example, if P is 3, it should be interpreted as "the postman arrived sometime during the third minute in the day".

All numbers in the input will be between 1 and 999.

## Output

Output should consist of three lines; each containing 'both', 'one' or 'none', depending on how many dogs attack each of our heroes.

## Sample test data

**input**

2 2 3 3  
1 3 4

**output**

both  
one  
none

**input**

2 3 4 5  
4 9 5

**output**

one  
none  
none

## 2. VECI

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Your program will be given an integer  $X$ . Find the smallest number larger than  $X$  consisting of the same digits as  $X$ .

### Input

The first line of input contains the integer  $X$  ( $1 \leq X \leq 999999$ ).

The first digit in  $X$  will not be a zero.

### Output

Output the result on a single line. If there is no such number, output 0.

### Sample test data

<b>input</b>	<b>input</b>	<b>input</b>
156	330	27711
<b>output</b>	<b>output</b>	<b>output</b>
165	0	71127

### 3. LEKTIRA

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Mario is making up silly games again instead of reading Dostoevsky for school. The rules of his newest game follow.

First he chooses a random word from the book. Then he splits the word in two arbitrary places to get three separate words.

After that he reverses the order of the letters in each of those three words (exchanges the first and last letters, the second and second last and so on).

Finally, he puts the three words back together in the same order in which they were before splitting.

The goal of the game is to obtain the lexicographically smallest word possible. In other words, of all words that can be obtained by the above procedure, find one which would be earliest in a dictionary.

Write a program that plays Mario's game perfectly.

#### Input

The first and only line of input contains Mario's chosen word, a string of lowercase letters of the English alphabet with no spaces.

The input word will be between 3 and 50 characters long (inclusive).

#### Output

Output the best word on a single line.

#### Sample test data

<b>input</b>	<b>input</b>	<b>input</b>
dcbagfekjih	mobitel	anakonda
<b>output</b>	<b>output</b>	<b>output</b>
abcdefghijkl	bometil	aanadnok

## 4. MUZICARI

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"The Drinking Musicians", a widely known and popular folk group, are coming to your town. The musicians are known not only by their playing skills, but also their rough character. They never arrive on time, don't know which town they're in, and frequently have trouble finding the stage.

Additionally, during the concert, each of the musicians at one point takes a break. If **three or more** of them are on a break at the same time, they start stirring trouble in town and the rest of the group start panicking and playing the wrong chords.

The concert will be  $T$  minutes long, during which each of the  $N$  members will take a break. The length of the break is known for each member.

Help the organizer of the concert by writing a program that determines how to schedule the breaks of the member so that, at any given moment, at most two are absent from the stage. All breaks must be **entirely** during the concert.

### Input

The first line of input contains the integers  $T$  and  $N$  ( $1 \leq T \leq 5000$ ,  $1 \leq N \leq 500$ ), the length of the concert in minutes and the number of musicians in the group.

The next line contains  $N$  integers separated by single spaces, the length of the break in minutes for each member.

**Note:** The input data will be such that a solution, although not necessarily unique, will always exist.

### Output

For each musician output one integer, the number of minutes the musician will spend on stage before going on the break.

Output the musicians in the same order they were given in the input.

### Sample test data

**input**

8 3  
4 4 4

**output**

0 2 4

**input**

10 5  
7 5 1 2 3

**output**

3 3 9 0 0

## 5. POKLON

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Mirko got a set of intervals for his birthday. There are many games he can play with them. In one of them, Mirko must find the **longest** sequence of **distinct** intervals such that each interval in the sequence is in the set and that each interval **contains** the one that **follows** in the sequence.

Write a program which finds one such longest sequence.

### Input

The first line of input contains the integer  $N$  ( $1 \leq N \leq 100000$ ), the number of intervals in the set.

Each of the following  $N$  lines contains two integers  $A$  and  $B$  describing one interval ( $1 \leq A < B \leq 1000000$ ).

### Output

Output the length  $K$  of the longest sequence on the first line.

Each of the following  $K$  lines should contain one element of the sequence, an interval in the same format it was given in the input.

### Sample test data

**input**

```
3
3 4
2 5
1 6
```

**output**

```
3
1 6
2 5
3 4
```

**input**

```
5
10 30
20 40
30 50
10 60
30 40
```

**output**

```
3
10 60
30 50
30 40
```

**input**

```
6
1 4
1 5
1 6
1 7
2 5
3 5
```

**output**

```
5
1 7
1 6
1 5
2 5
3 5
```

## 6. KOCKE

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A robot and five cubes are placed on an infinite board composed of unit squares. The robot and the cubes occupy one square each.

The robot can be moved in each of four directions: up, down, left and right. If the square the robot would enter contains a cube, then the robot pushes it in the direction of movement.

The cubes possess curious magnetic properties. When two cubes are in neighbouring squares (squares that share a side), they join and become one object. If the robot pushes a cube that is joined with one or more other cubes, all cubes in the group move together.

Write a program that controls the robot so that it joins all cubes into a single group which (when viewed from above) forms the letter T in the upright position (it may not be rotated).

### Input

The input consists of five lines. Each line contains two integers X and Y ( $-5 \leq X, Y \leq 5$ ), the starting coordinates of one cube.

The robot is initially in square (0, 0). No cubes will be located at those coordinates.

No pair of cubes will initially be at the same or neighbouring coordinates. More precisely, no cubes will initially share a side (they may share corners).

### Output

Output a string of characters representing the robot's moves on a single line. Each character must be one of 'U' (up), 'D' (down), 'L' (left), 'R' (right).

The sequence must be at most 9999 characters long.

### Sample test data

**input**

```
0 1
-1 0
1 0
0 -1
0 -3
```

**output**

```
DRRUUULLDD
```

**input**

```
-2 0
-1 -1
0 -2
1 0
0 1
```

**output**

```
URRDLLURUULLDDLLDDR
```