en[i]gma 0x01 Junior

December 17, 2023

Problems

Problem	Time Limit	Memory Limit	Points
The fullest piggy bank	1 sec	16MB	10
Games with the temperature	1 sec	16MB	15
Cannons and Civilians	1 sec	16MB	20
School Diaries	1 sec	16MB	25
Santa Clau's most expensive gifts	8 sec	16MB	30
Total			100

The fullest piggy bank

It's New Year's Eve. Totos and his sister Annoula, are getting ready to open their piggy banks. However, Totos has been a spendthrift all year round and Annoula managed to save more money than him. How much more money than Totos has Annoula collected throughout the year?

We want to write a program that reads from the STDIN input 2 positive integers A and T, separated by a line break character ('\n'), where A is the money that Annoula collected and T is the money that Totos collected.

The program will print STDOUT a positive integer N, the difference of Annoula's and Toto's savings.

Attention! Each line of input or output should end with the line change character '\n'.

Examples

1st

STDIN

```
73
39
```

STDOUT

```
34
```

2nd

STDIN

```
34
108
45
```

STDOUT

```
63
```

Games with the temperature

Toto has traveled to the United States to see his uncle. At his uncle's house, he is surprised to find that the thermostat reads 80 degrees(!)

His uncle explains to him that in some countries they measure the temperature with a different system than the one he is used to in Greece. Specifically, in the United States, they use degrees Fahrenheit instead of degrees Celsius.

In order to convert Celsius to Fahrenheit, one has to:

- **multiply** by 9

- **divide** by 5

- **add** 32

Totos then plays a game where he calculates the boiling or freezing point of water in degrees Fahrenheit, but quickly realises that he could write a program that does this conversion (from Celsius to Fahrenheit) automatically. His only problem is that his coding skills have turned a little rusty and so he asks for your help.

We want to write a program that will read from the STDIN input a positive integer N, the temperature in degrees Celsius.

The program will print to the output STDOUT a positive integer M, the corresponding temperature in degrees Fahrenheit.

Attention! Each line of input or output should terminate with the line change character '\n'.

Examples

1st

STDIN

```
25
```

STDOUT

```
77
```

2nd

STDIN

```
100
```

STDOUT

```
212
```

Cannons and Civilians

Toto's favourite English team, Arsenal, is doing very well in the English champions league. They have scored the most points and they are heading for the ultimate win of the championship.

As the last few rounds approach, Totos is getting more and more nervous. He would like to know whether Arsenal is a definite winner of the championship or if there is a chance that they will tie or loose, to Manchester City. This could only happen if Arsenal loses all the next matches (they don't get any extra points) and Manchester City wins all the next matches (getting 3 points for each win).
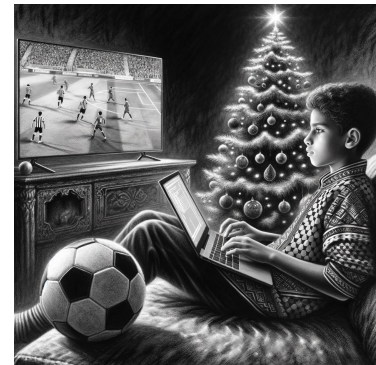
Totos wants to write a program that calculates Manchester City's final points, assuming they are going to win all their next matches. Also, it should make a decision on whether or not Arsenal is ultimately going to win the championship.

The program will read from the input STDIN 3 positive integers separated by a line break character ('\n'), with the first integer indicating the number of upcoming matches, the second integer indicating the points Arsenal has accumulated so far, and the third integer indicating the points Manchester City has accumulated so far.

The program will print 2 lines in the STDOUT output: the first line will contain the total points that Manchester City scored by winning each subsequent match and the second line will contain the word **Champion**, if Arsenal finally secured the championship or **Pending**, if the championship is not yet decided.

Examples

1st

STDIN

```
3
52
47
```

STDOUT

```
56
Pending
```

Explanation of 1st example:
The number on the first line of input, indicates that there are 3 matches left, which we asume are won by Manchester City.
This means that this team will gain $3 \times 3 = 9$ more points, resulting in $47 + 9 = 56$ total points.
Arsenal's points (52) are less than Manchester City's (56), according to the initial assumption that Manchester City won all their games.

That means, that the game results can't be predetermined and Totos has to wait for the final matches to be completed to find out the results :(.

2nd

STDIN

```
1
89
78
```

STDOUT

```
81
Champion
```

Explanation of 2nd example:

The number on the first line of input, indicates that there is 1 match left, which we asume is won by Manchester City.

This means that this team will gain $1 \times 3 = 3$ more points, resulting in $78 + 3 = 81$ total points.

Arsenal's points (89) are more than Manchester City's (81), according to the initial assumption that Manchester City won all their games.

That means that Arsenal is a definite winner.

School Diaries

Toto's and Annoula's class has decided to sell their school's calendars in order to raise money for a school trip.

The kids came with the idea to visit all the buildings of some of the biggest streets in Athens, in order, since there are a lot of stores there.

To finish their goal faster, they decided that the boys would enter buildings with an odd number on their address, on a particular street, while the girls would enter the ones with an even number on their address.

We would like to write a program that reads from the input STDIN 3 positive integers, seperated by a line change character ('\n').

The first number will be either 0, to indicate the girl's team, or 1 to indicate the boy's team.

The second number indicates the adress number of the starting building, where the kids begin their sales, on a particular street.

The third number indicates the adress number of the final building, where the kids finish their sales journey, at that particular street.

Each street has at most N buildings, where $1 \leq N \leq 100$.

The program will print in the output STDOUT all the address numbers that the girls or boys will visit (this will be decided by the program based on the first number in the input, i.e. 0 or 1), separated by a line break character ('\n').

Note:

- If the **second number** in the input, which indicates the address number of the building from which the children start selling the calendars, is **smaller** than the **third number** in the input, which indicates the address number of the building in which the children finish selling the calendars, then the even or odd numbers are printed in the output, respectively, starting with the smallest and ending with the largest.

- If the **second number** in the input, which indicates the number of the address of the building from which the children start selling the diaries, is **larger** than the **third number** in the input, indicating the number of the address of the building in which the children finish selling the diaries, then the even or odd numbers are printed in the output, starting with the largest and ending with the smallest.

Examples

1st

STDIN

```
1
2
23
```

STDOUT

```
3
5
7
9
11
13
15
17
19
21
23
```

Explanation of 1st example:

In the first line, the number 1 indicates that we are considering **the boys' group**, and so we should print the **odd** numbers of the street addresses that the boys' group went through to sell calendars. The following are the lines of code that include the odd numbers of street addresses that the boys' group passed by.

2nd

STDIN

```
0
10
2
```

STDOUT

```
10
8
6
4
2
```

Expanatin of 2nd example:

On the first line, the number 0 indicates that we are concidering the **girls' group**, and so we should print the **even** numbers of the street addresses that the girls' group went through to sell calendars.

The following are the lines of code that include the even numbers of the street addresses that the group of girls passed by.

Santa Clau's most expensive gifts

Totos had a very strange dream last night. In his dream he was Santa's elf and he even had the role of loading all the children's the presents into Santa's sack!

Like the sly and mischievous boy he is (even in his sleep), he did the following: After finding out the value of all the presents that Santa would distribute, he made sure to put in the sack the 3 most expensive ones first, in order from most to least expensive, and afterwards, all the other presents. He had the secret hope, you see, that at least these would be left over. This way he would keep the most expensive of all for himself, the next most expensive for his friend Annoula, and the third most expensive present he would keep to...sell!

Can you help Totos in the mischief of his dream?

We want to write a program that reads from the input STDIN a positive integer N, the number of presents in the bag, followed by N positive integers P_i, separated by a line-change character ('\n'), denoting the value of each present. The program will print at the output STDOUT 3 positive integers, separated by a line change character ('\n'), the values of the three most expensive presents, in the order in which Totos chooses them.

Constraints

- $3 \leq N \leq 1.000.000$

- No present is worth more than 1000 North Pole dinars :-)

Examples

1st

STDIN

```
3
1
2
3
```

STDOUT

```
3
2
1
```

2nd

STDIN

```
8
10
1
9
3
10
8
1
11
```

STDOUT

```
11
10
10
```