# Lab: Intro and Basic Syntax

Problems for lab for the ["Technology Fundamentals" course @ SoftUni](https://softuni.bg/courses/technology-fundamentals).

You can check your solutions in [Judge](https://judge.softuni.bg/Contests/1191/).

## Student Information

You will be given 3 lines of input – student name, age and average grade. Your task is to print all the info about the student in the following format: "Name: {student name}, Age: {student age}, Grade: {student grade}".

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| John  15  5.40 | Name: John, Age: 15, Grade: 5.40 |
| Steve  16  2.50 | Name: Steve, Age: 16, Grade: 2.50 |
| Marry  12  6.00 | Name: Marry, Age: 12, Grade: 6.00 |

## Passed

Write a program, which takes as an input a **grade** and prints “**Passed!**” if the grade is **equal or more than 3.00**.

### Input

The **input** comes as a single floating-point number.

### Output

The **output** is either "**Passed!**" if the grade is **equal or more than 3.00**, otherwise you should print nothing.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 5.32 | Passed! |  | 2.34 | *(no output)* |

## Passed or Failed

Modify the above program, so it will print "**Failed**!" if the grade is **lower than 3.00**.

### Input

The **input** comes as a single double number.

### Output

The **output** is either "**Passed**!" if the grade is **more than 2.99**, otherwise you should print "**Failed**!".

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 5.32 | Passed! |  | 2.36 | Failed! |

## Back in 30 Minutes

Every time Stamat tries to pay his bills he sees on the cash desk the sign: **"I will be back in 30 minutes"**. One day Stamat was sick of waiting and decided he needs a program, which **prints the time** after **30** **minutes**. That way he won’t have to wait on the desk and come at the appropriate time. He gave the assignment to you, so you have to do it.

### Input

The **input** will be on two lines. On the **first** **line**, you will receive the **hours** and on the **second** you will receive the **minutes**.

### Output

Print on the console the time after **30** minutes. The result should be in format **hh:mm**. The **hours** have **one or two** **numbers** and the **minutes** have always **two numbers (with leading zero)**.

### Constraints

* The **hours** will be between **0 and 23**.
* The **minutes** will be between **0 and 59**.

### Examples

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 1  46 | 2:16 |  | 0  01 | 0:31 | 23  59 | 0:29 |  | 11  08 | 11:38 |  | 11  32 | 12:02 |

## Month Printer

Write a program, which takes an **integer** from the console and prints the corresponding **month**. If the number **is more than 12** or **less than 1** print "**Error!**".

### Input

You will receive a **single** **integer** on a **single line**.

### Output

If the number is within the boundaries print the corresponding month, otherwise print "**Error!**".

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 2 | February |  | 13 | Error! |

## Foreign Languages

Write a program, which prints the language, that a given country speaks. You can receive only the following combinations: English **is spoken** in England and USA; Spanish **is spoken** in Spain, Argentina and Mexico; for the others**,** we should print "unknown".

### Input

You will receive a **single country name** on a **single line**.

### Output

**Print** the **language**, which the country **speaks**, or if it is **unknown** for your program, print **"**unknown**"**.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| USA | English |  | Germany | unknown |

### Hint

Think how you can **merge** multiple cases, in order to **avoid** writing more code than you need to.

## Theatre Promotions

A theatre **is doing a ticket sale**, but they need a program **to** calculate the price of a single ticket. If the given age does not fit one of the categories**,** you should print "Error!". You can see the prices **in** the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Day / Age** | **0 <= age <= 18** | **18 < age <= 64** | **64 < age <= 122** |
| **Weekday** | 12$ | 18$ | 12$ |
| **Weekend** | 15$ | 20$ | 15$ |
| **Holiday** | 5$ | 12$ | 10$ |

### Input

The input comes in **two lines**. On the **first** line, you will receive the **type of day**. On the **second** – the **age** of the person.

### Output

Print the price of the ticket according to the table, or "**Error!**" if the age is not in the table.

### Constraints

* The age will be in the interval **[-1000…1000]**.
* The type of day will **always be** **valid**.

### Examples

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| Weekday  42 | 18$ |  | Holiday  -12 | Error! | Holiday  15 | 5$ |  | Weekend  122 | 15$ |

## Divisible by 3

Write a program, which prints all the numbers from **1 to 100**, which are **divisible by 3**. You have to use a single for loop. The program should not receive input.

## Sum of Odd Numbers

Write a program that prints the next **n** **odd numbers** (starting from 1) and on the **last row** prints the **sum of them**.

### Input

On the first line, you will receive a number – **n**. This number shows how many **odd numbers** you should print.

### Output

Print the next **n** odd numbers, starting from **1**, separated by **new lines**. On the last line, print the **sum** of these numbers.

### Constraints

* **n** will be in the interval **[1…100]**

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 5 | 1  3  5  7  9  Sum: 25 |  | 3 | 1  3  5  Sum: 9 |

## Multiplication Table

You will receive an **integer** as an input from the console. Print the **10 times table** for this integer. See the examples below for more information.

### Output

Print every row of the table in the following format:

{theInteger} X {times} = {product}

### Constraints

* The integer will be in the interval **[1…100]**

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 5 | 5 X 1 = 5  5 X 2 = 10  5 X 3 = 15  5 X 4 = 20  5 X 5 = 25  5 X 6 = 30  5 X 7 = 35  5 X 8 = 40  5 X 9 = 45  5 X 10 = 50 |  | 2 | 2 X 1 = 2  2 X 2 = 4  2 X 3 = 6  2 X 4 = 8  2 X 5 = 10  2 X 6 = 12  2 X 7 = 14  2 X 8 = 16  2 X 9 = 18  2 X 10 = 20 |

## Multiplication Table 2.0

Rewrite your program so it can receive the **multiplier from the console**. Print the **table from the given multiplier to 10**. If the given multiplier is **more than 10** - print only one row with the **integer**, the given **multiplier** and the **product**. See the examples below for more information.

### Output

Print every row of the table in the following format:

{theInteger} X {times} = {product}

### Constraints

* The integer will be in the interval **[1…100]**

### Examples

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 5  1 | 5 X 1 = 5  5 X 2 = 10  5 X 3 = 15  5 X 4 = 20  5 X 5 = 25  5 X 6 = 30  5 X 7 = 35  5 X 8 = 40  5 X 9 = 45  5 X 10 = 50 |  | 2  5 | 2 X 5 = 10  2 X 6 = 12  2 X 7 = 14  2 X 8 = 16  2 X 9 = 18  2 X 10 = 20 |  | 2  14 | 2 X 14 = 28 |

## Even Number

Take as an input an even number and **print its absolute value**. If the number is odd, print **"Please write an even number."** and continue reading numbers while you receive even number and stop the program.

### Output

If you receive **even** number print: **"The number is: {number}"** and finish the program,  
otherwise print **"Please write an even number."**

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 1  3  6 | Please write an even number.  Please write an even number.  The number is: 6 |  | -6 | The number is: 6 |

## Price Change Alert

You are assigned to **rework a given piece of code** which is working **without bugs** but is **not properly formatted**.

The given program **tracks stock prices** and **gives updates** about the **significance in each price change**. Based on the significance, there are **four kind of changes**: no change at all (price is equal to the previous), minor (difference is below the significance threshold), price up and price down.

### Input

* On the first line you are given **N** - the number of prices
* On the second line you are given the significance threshold
* On the next N lines, you are given prices

### Code

|  |
| --- |
|  |
| $n = *intval*(*readline*()); $granica = *floatval*(*readline*());  $last = *floatval*(*readline*()); **for** ($i = 0; $i < $n - 1; $i++) {  $c = *floatval*(*readline*());  $div = ($c - $last) / $last;  $isSignificantDifference = *abs*($div) >= $granica;   $to = **""**;  **if** ($div == 0) {  $to = **"NO CHANGE: "** . $c;  } **else if** (!$isSignificantDifference) {  $to = *sprintf*(**"MINOR CHANGE: %f to %f (%.2f%%)"**, $last, $c, $div \* 100);  } **else if** ($isSignificantDifference && ($div > 0)) {  $to = *sprintf*(**"PRICE UP: %f to %f (%.2f%%)"**, $last, $c, $div \* 100);  } **else if** ($isSignificantDifference && ($div < 0))  $to = *sprintf*(**"PRICE DOWN: %f to %f (%.2f%%)"**, $last, $c, $div \* 100);  **echo** $to . ***PHP\_EOL***;  $last = $c; } |

### Output

* Don’t print anything for the first price
* If there is **no difference** from the previous price the output message is: **"NO CHANGE: {current price}"**
* In case of **minor change**: **"MINOR CHANGE: {last price} to {current price} ({difference}%)"**
* In case of **major change**: **"PRICE UP: {last price} to {current price} ({difference}%)"** or **"PRICE DOWN: {last price} to {current price} ({difference}%)"**

The percentage should be rounded to the second digit after the decimal point.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 3  0.1  10  11  12 | PRICE UP: 10.000000 to 11.000000 (10.00%)  MINOR CHANGE: 11.000000 to 12.000000 (9.09%) |
| 3  0.1  10  10  12 | NO CHANGE: 10  PRICE UP: 10.000000 to 12.000000 (20.00%) |

### Hints

Deal with poor code formatting - Remove unnecessary blank lines, indent the code properly