# Challenge 4\_1. Debug programs.

Take the following programs, debug them and try to fix them. The main goal of this exercise is not to solve the problem, but to familiarize with the debug functionality.

1. **Debug1.java.**

A program to classify 2 numbers. Follow the instructions in the “System.out.println” to fix it.

1. **Debug2.java.**

By using the “while” statement, make a program which stores in a variable a secret number between 1 and 10. The program will ask to the user a number to guess the secret number. Each time the user enters a number, the program have to indicate if the number entered by the user is smaller than, equal to , greater than the secret number or if the user has guessed the right number (in this case, the program should finish).

1. **Debug3.java.**

Ask to the user for the name of 2 persons and store them into variables.

Then you have to print “coincidence” if the names of both persons start by the same letter or if they finish by the same letter. In any other case, print “there is NO coincidence”.

Example of execution:

Enter the name of person 1:  
Emilio  
Enter the name of person 2:  
Eugenia  
coincidence

Example of execution:

Enter the name of person 1:  
Emilio  
Enter the name of person 2:  
Fernando  
coincidence

Example of execution:

Enter the name of person 1:  
Emilio  
Enter the name of person 2:  
Felipe  
there is NO coincidence

1. **Voting in the elections.**

There are elections to the president of the country. There are 3 political parties: A “the cool party”, B “the angry party” and C “the supercrazy party”.

To vote, the user should enter (A, B or C) and we have to print “You have voted for the XXXX party” (where XXXX is the name of the corresponding party).

If the user enter an invalid option, print “invalid option” and ask again to the user for the vote.

Example of execution:

What party do you want to vote for?  
E  
Invalid option.  
What party do you want to vote for?  
F  
Invalid option.  
What party do you want to vote for?  
B  
You have voted for the angry party

1. **[BEGINNER] Is it a vowel.**

Ask to the user for a String. If the String is a vowel (a, e, i, o, u) show the message “It is a vowel”, otherwise show “It is NOT a vowel”.

If the user enters more than one character, show an error informing that this is not possible.

Example of execution:

Please, enter a String:  
i  
It is a vowel

Example of execution:

Please, enter a String:  
g  
It is NOT a vowel

Example of execution:

Please, enter a String:  
fa  
This is not possible

1. **Writing the name of a person with lowercase, lowercase and initials in upper.**

Ask for the full name of a person.

Write the name in lowercase, in uppercase and with the initial letter of each word in Uppercase.

Example of execution:

Enter the full name of a person:  
AITOR Tilla Segura  
Minúsculas:  
aitor tilla segura  
Mayúsculas:

AITOR TILLA SEGURA  
Iniciales mayúsculas:  
Aitor Tilla Segura

1. **Extracting a phone number.**

The phone number of a company has the next format: *prefix-number-extension,* where *prefix* is the country code (i.e. +34), and the extension can have between 2 and 4 digits. For example, this would be a number +34-968256541-33.

Write a program asking for a phone number with this format and show on screen the phone without the prefix nor the extension.

Example of execution:

Enter a phone number:  
+34-968123456-789  
The number without extension is:  
968123456

1. **Changing to uppercase a vowel in a sentence.**

Ask for a sentence (phrase) to the user.

Ask for a vowel to the user (store it as an String).

Show the same sentence but with the vowel entered by the user in uppercase.

*Tip: to convert a chart to an String you can use (in this way, you can compare a character with an String):*

char letra = 'a';  
String letraString = String.valueOf(letra);

Example of execution:

Enter a sentence:  
En un lugar de la Mancha  
Enter a vowel:  
a  
En un lugAr de lA MAnchA

1. **[BEGINNER] Number of euros and number of decimals.**

Write a program which store in a String the price in euros with 2 decimals entered by the user.

Print in screen the number of euros and the number of decimals.

Example of execution:

Enter a price in euros:  
137.22  
The number of euros is:  
137  
The number of cents is:  
22

1. **[ADVANCED] Shopping list.**

The user have to introduce by keyboard the list of products in a shopping list separated by commas.

Show each product in a different line.

Example of execution:

Enter the shopping list:  
bananas,tomato,chocolate,pizza  
Shopping list with each product in different line:  
bananas  
tomato  
chocolate  
pizza

1. **Asking for a password.**

Store in a variable a secret password.

Ask to the user for the password and print if the password entered is right or not.

Repeat the program until de password is ok.

Modify the program to not having into account lowercase and uppercase characters.

Example of execution (if the password is “myCatHarry”):

Enter the password:  
hello  
Wrong password  
Enter the password:  
mycatharry  
Wrong password  
Enter the password:  
myCatHarry  
Right password

Example of execution (if the password is “myCatHarry”) and we are ignoring lower and uppercase letters:

Enter the password:  
hello  
Wrong password  
Enter the password:  
mycatharry  
Right password

1. **[BEGINNER] Print odd numbers.**

Ask for a positive number to the user and print all “odd” numbers (1,3,5,7,…) from 1 to the number separated by commas.

1. **Is it a prime number?**

Ask for a number to the user and tell if it is a “prime number” or not.

1. **[BEGINNER] Number of times that a letter is in a sentence.**

Ask to the user for a sentence (phrase).

Ask to the user for a letter.

Tell the number of times that this letter is in the sentence.

*Tip: to convert a chart to an String you can use (in this way, you can compare a character with an String):*

char letra = 'a';  
String letraString = String.valueOf(letra);

Example of execution:

Enter a sentence:  
Hola caracola  
Enter a letter:  
a  
The number of times that the letter is in the sentence is:  
4

1. **[ADVANCED] “Goya chicken”.**

In “Goya Chicken” shop we can buy nuggets in packages of 4, 7 or 10 units.

Ask to the user for a number of nuggets and tell if it is possible to buy this exact number of nuggets at “Goya Chicken”.

For example, we can buy 27 nuggets (2 packages of 10 and one of 7), but it is not possible to buy 13 nuggets exactly.

1. **Sum positive numbers.**

Read int numbers by keyboard, until the user enters the number 0.

Sum all the positive numbers and show the result.

1. **Which one is the greatest.**

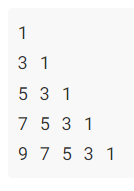
Read positive numbers by the keyboard until the user enters a non positive number.

Tell which one of them was the greatest.

1. **[ADVANCED] “Odd” number triangle.**

Ask to the user for a number of rows.

Write a program to show a triangle like the following (this is if the user enters the number 5):



1. **[ADVANCED] Counting vowel in book sections.**

Create a program that allows to the user to enter titles of books.

The program should finish when the user enters the string “\*” (asterisk).

Each time that the user enters a slash “/” we consider that a section has finished and the program have to tell how many number digits (from 0 to 9) appeared in the titles of the books on this section.

Finally the program has to tell how many sections it has processed.

Example of execution:  
Book: Los 3 mosqueteros  
Book: Historia de 2 ciudades  
Book: /  
Section Finished. 2 number digits appeared.  
Book: 20000 leguas de viaje submarino  
Book: El señor de los anillos  
Book: /  
Section Finished. 5 number digits appeared.  
Book: 20 años después  
Book: \*  
End. 2 sections were processed  
Fin. Se leyeron 2 líneas completas.

1. **[ADVANCED] Caesar encryption.**

Encrypt a message by using “Caesar encryption”. It consist in move each letter 1 position. For example, the A would be B, the B would be C, and so on. The Z would be A.

Modify it to ask the user by the number of letters to move (with 2, the A would be C now).