# 2 2IP90 Homework Assignment Ð Guessing Game

Write a program called `GuessingGame` that plays a game with the user. The user is asked to guess an integer number, called the *code*, between 0 and 99 that is secretly input by someone else or randomly chosen by the computer.

You are **required** to use `Random randomGenerator = new Random();` as explained in the **hint** section at the bottom of this page. Make sure that you name your class `GuessingGame`, name your method `void run()`, and store your class in a file named `GuessingGame.java`. You are strongly advised to use the template file which can be found at the course page.

## Input

The input consists of an answer to the first question (the word "yes" or "no") possibly followed by the code (if the user answered "yes") and then a sequence of integer numbers, the guesses. In your program you may assume that the input is in compliance with this description. I.e., if the user should input an integer number, you don't have to check whether it really is an integer.

## Output

- Start your program with the line "Do you want to enter the secret code yourself?"
- If the user answers this with "yes", the program prints "Secretly type the code". The code is read and the game starts with the line "Start guessing!". If the users answers "no" this line is immediately printed.
- The program gives helpful replies to each guess: "lower" when the guess is higher than the code and "higher" when the guess is lower than the code.
- When the player guesses right, the program outputs: "Good guess! You won." and when the maximum number of guesses has been reached without a good guess, it prints "No more guesses, you lost.". **The maximum number of guesses is 7.**
- Afterwards the guessing history is printed. (see the next section)

Examples of the output can be seen on the next page.

## Guessing history

The guessing history consists of

1. The number of guesses followed by the string " guesses:".
2. For each guess a line that shows how close your guess was. The line consists of 100 characters: 98 or 99 dots, an `X` at the position of the guess and a `|` at the position of the code. E.g., when the code is 50 and the guess is 48, the line will be

   `.....X.|.....`

   If the two positions coincide, an `X` should be printed at this position and no `|` should be printed in that line at all. This is the only case in which 99 dots are printed.

## Hint

To be able to get random numbers, put the following line on top of your class, after the declaration of the Scanner:

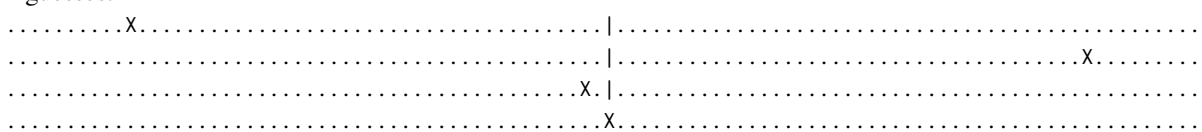
```
Random randomGenerator = new Random();
```

Now the expression `randomGenerator.nextInt(n)` will give you a random integer number between 0 and $n$, including 0 and not including $n$. So if `number` is an `int` variable, the statement `number = randomGenerator.nextInt( 4 );` will store a random number out of 0, 1, 2, 3 into `number`.

## Example 1

Input is preceded by a >.

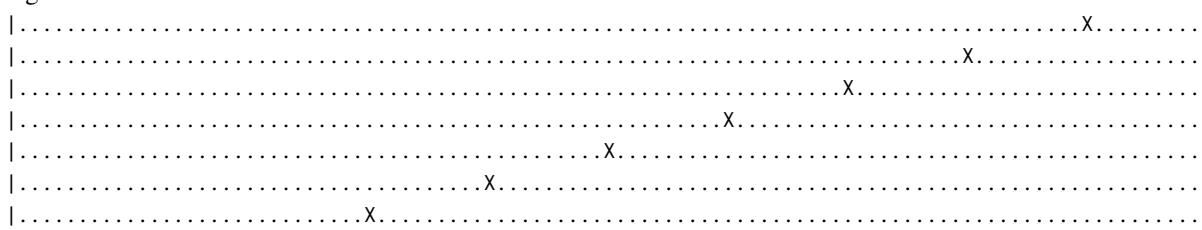
Do you want to enter the secret code yourself?
>yes
Secretly type the code
>50
Start guessing!
>10
higher
>90
lower
>48
higher
>50
Good guess! You won.
4 guesses:



## Example 2

The randomly picked number is 0. Input is preceded by a >.

Do you want to enter the secret code yourself?
>no
Start guessing!
>90
lower
>80
lower
>70
lower
>60
lower
>50
lower
>40
lower
>30
lower
No more guesses, you lost.
7 guesses:



## Example 3

Input is preceded by a >.

Do you want to enter the secret code yourself?
>yes
Secretly type the code
>37
Start guessing!
>90
lower
>0
higher
>45
lower
>25
higher
>40
lower
>35
higher
>37
Good guess! You won.
7 guesses:

```
.....................................|.................................................X.........
X....................................|..................................................................
.....................................|.......X..........................................................
.........................X...........|..................................................................
.....................................|..X...............................................................
.................................X.|..................................................................
.....................................X..................................................................
```