

Mastery Grids (Java Learning System)

User manual

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My Progress



Mastery Grids is an interface that gives you access to several types of learning content organized in different topics. They are shown here as grid cells.

Me

Show detailed estimations of your knowledge in Java concepts ▾



This row represents your progress in the topics of the course. Each topic is a cell. Gray means 0% of progress and darker color means more progress.

0% 100%

Points per Topic

means that you got 2 points for completing at least 2 problems.

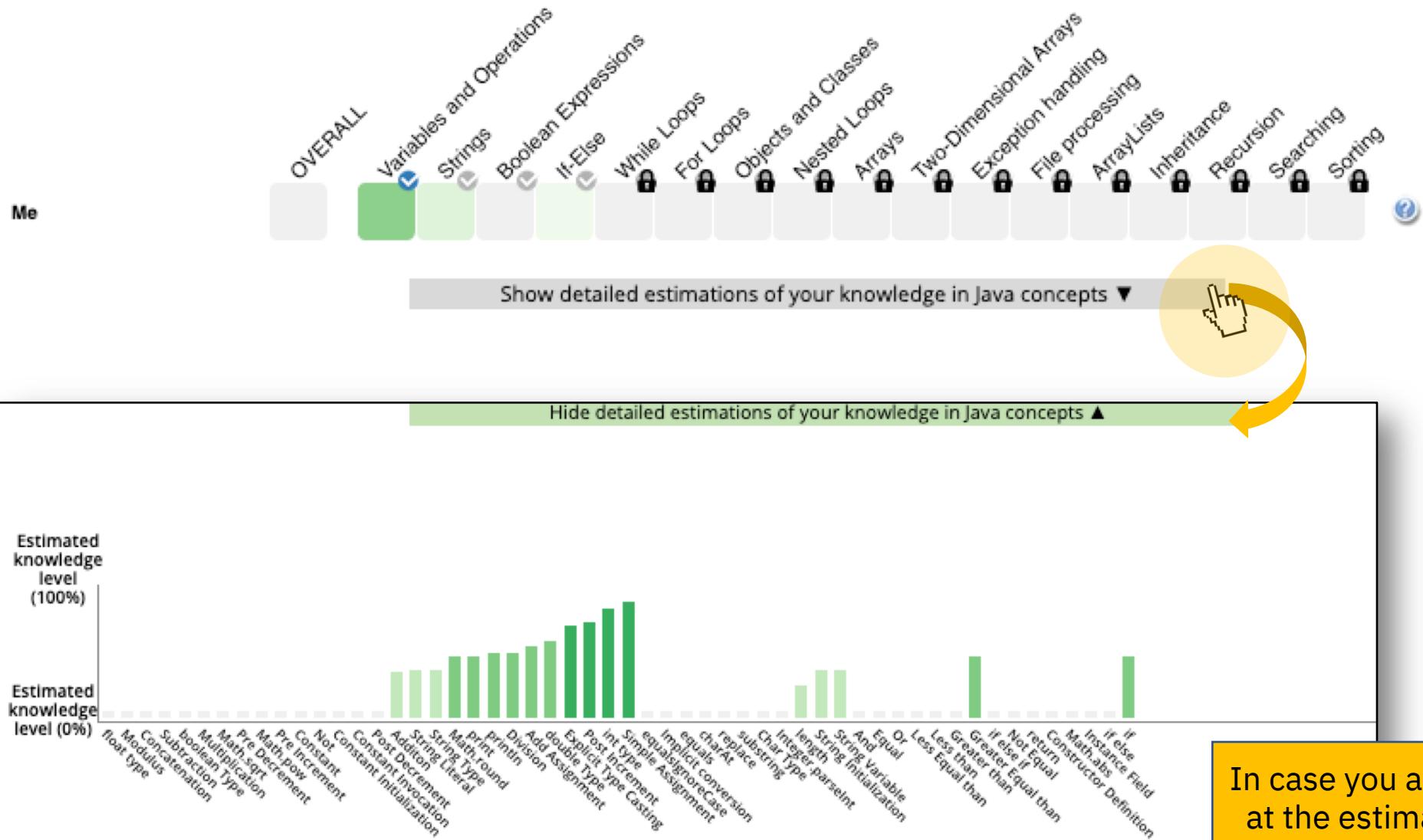
means that you got 1 point for completing at least 1 problem.

means that you have not completed any problem in this topic.

Topic Opening

means that the topic is not available for now but will be opened by your instructor at a later time.

My Progress



In case you are curious, you can get a closer look at the estimation of proficiency the system has calculated for you in every fine-grained Java programming concept (click on "Show detailed ...")

OVERALL

Me

Recommended Activities

1. String Comparison
2. Name Initials
3. String Comparison (Case 2)

The system recommends you learning activities based on your current stage of learning. Recommended activities are highlighted with star icons and represent the most appropriate content to expand your knowledge.

All Activities

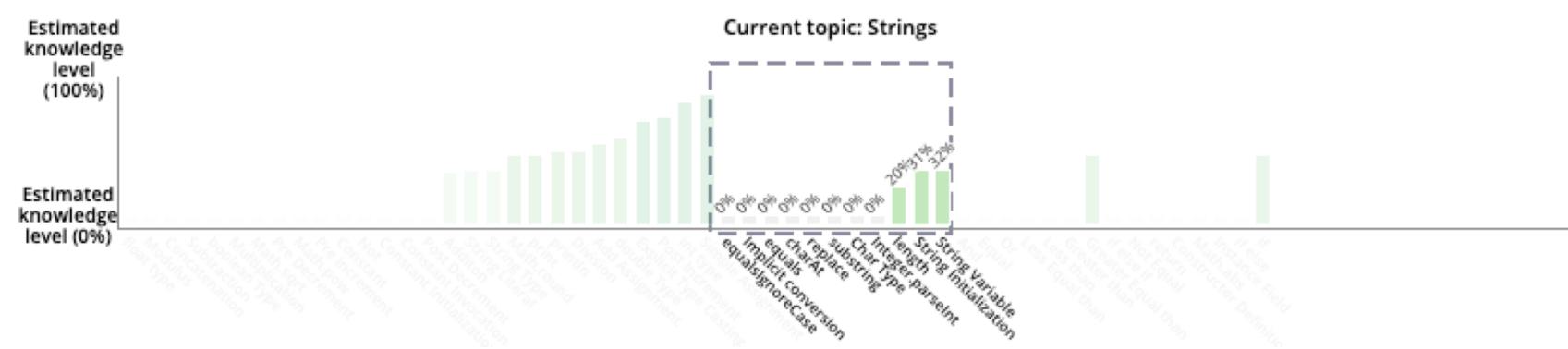
Activity Type	Topic	Estimated Knowledge Level
Programming Examples	String Comparison	High (Green)
	Name Initials	Medium (Orange)
	String Comparison (Case 2)	Medium (Orange)
Coding Problems	String Comparison	Medium (Orange)
	Name Initials	Low (Grey)
	String Comparison (Case 2)	Low (Grey)

Hide detailed estimations of your knowledge in Java concepts ▲

Appropriateness for expanding your knowledge

low high

By clicking on a topic cell, you can access several types of interactive Java learning activities which are represented by several grid cells. Each row is a different type of learning content.



My Progress

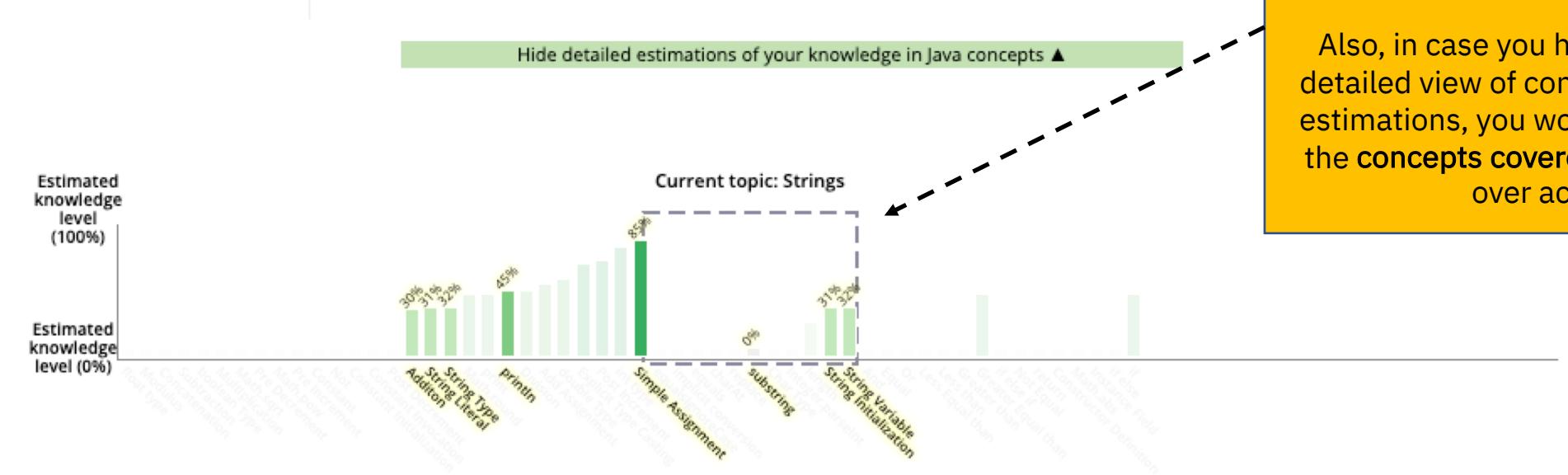


Recommended Activities	All Activities
1. String Comparison	Animated Examples
2. Name Initials	Tracing Problems
3. String Comparison (Case 2)	Programming Examples
	Programming Challenges
	Coding Problems



By mousing over an activity cell you can access the **appropriateness score (see gauge)** that is used to recommend you learning content.

Also, in case you have activated the detailed view of concepts' proficiency estimations, you would be able to see the **concepts covered** by the moused over activity.



Animated examples

Topic: Strings • Activity: ToString Demo

```
1 public class ToStringDemo {  
2     public static void main(String[] args) {  
3         double d = 858.48;  
4         String s = Double.toString(d);  
5  
6         int dot = s.indexOf('.');  
7  
8         System.out.println(dot + " digits " + "before decimal point.");  
9         System.out.println((s.length() - dot - 1) + " digits after decimal point.");  
10    }  
11 }  
12 }  
13 }
```

Stack

Stack frame

Evaluation area

Literals

Double

Double.toString(d)

String

length() indexOf(c)

System.out.println(text)

+

-

Text console



Close window

Animated Examples (AE): AEs show visually how each step of an example problem is executed. These examples are useful to learn about the behavior of different programming constructs.

Tracing Problems

Topic: Strings • Activity: Strings 1

Tester

```
public class Tester {  
    public static void main(String[] args) {  
        String s = "what is the answer to this question?";  
        String sub = s.substring( 7, 11);  
        System.out.print(sub);  
    }  
}
```

What is the output?

Be careful of the space/newline in your answer.

Submit

Tracing Problems (TP): TPs assess your knowledge of how different programming contracts behave when being executed. If you feel that these problems are too hard, check [Animated Examples](#).

Close window

Tracing Problems (Table Trace)

Topic: Strings • Activity: Strings 1

Tester.java Trace Table

```
1+ public class Tester {  
2+   public static void main(String[] args) {  
3+     String s = "what is the answer to this question?";  
4+     String sub = s.substring( 7, 11);  
5+     System.out.print(sub);  
6+   }  
7+ }  
8  
9  
10
```

Tracing Problems (TP): TPs assess your knowledge of how different programming contracts behave when being executed. If you feel that these problems are too hard, check [Animated Examples](#).

In case you fail on getting the correct answer you will be able to trace the problem instance line by line to discover where you made the mistake and learn from it!

Trace Output

Line	Step	s	sub
3	2	what is the answer to this question?	
4	3		

[Close window](#)

Programming Examples

Topic: Strings • Activity: Name Initials

Example: Printing Name Initials

Construct a program that prints the initials of the name "John Smith".

```
1 public class Initials
2 {
3     public static void main(String[] args)
4     {
5         //Step 1: Define the name
6         String fullName = "John Smith"; ?
7         //Step 2: Extract the initial letter from the first name
8         String firstInitial = fullName.substring(0, 1); ?
9         //Step 3: Extract the initial letter from the last name
10        String lastInitial = fullName.substring(5, 6); ?
11        //Step 4: Create the initials from the initial letter in the
12        //first and the last name
13        String initials = firstInitial + lastInitial; ?
14        //Step 5: Print the initials
15        System.out.println(initials); ?
16    }
}
```

EXPLAIN THE PROGRAM 

Click on each line to get explanations

Programming Examples (PE): PEs walk you through complete solutions of meaningful programming problems. Use it to understand how programs should be constructed.

Close window

Programming Challenges

Topic: Strings • Activity: String With Escape Characters (Case 2)

Challenge: String With Escape Characters (Case 2)

Construct a program that prints the following output:

"Two Double Quotes"

Slashes \/

How "confounding" "\\" it is!

Drag a tile to each missing field to construct this program.

```
1 public class JEscapeChar2
2 {
3     public static void main (String[] args)
4     {
5         //Step 1: Print the first two lines
6
6
7         //Step 2: Print the last line
8         System.out.print("How '\"confounding' \"\\\" it is!");
9     }
10 }
```

Drag and drop the tiles to complete the right code

Drag a tile from here

CHECK

```
System.out.println("'''Two  
Double Quotes'''\tSlashes  
\\\"");
```

```
System.out.println("//\"Two  
Double Quotes\"\\n\\nSlashes  
\\\"\\\"");
```

```
System.out.println("\"\\"Two  
Double Quotes\"\\tSlashes  
\\\"\\\"");
```

[Close window](#)

Coding Problems

Topic: Strings • Activity: Concatenating Two Strings Without Including the First Character of Each of Them

Concatenating two strings without including the first character of each of them



Given two string variables `str1` and `str2`, complete the following code in order to concatenate the two strings without including the first character of each of them. Store the resulting string in a variable called `str3`. Assume that the initial value of variables `str1` and `str2` is already set to a string with at least one character.

E.g. 1: if the value of `str1` is "Hello" and the value of `str2` is "There", the code prints ellohere.

E.g. 2: if the value of `str1` is "java" and the value of `str2` is "code", the code prints avaode.

E.g. 3: if the value of `str1` is "shot!" and the value of `str2` is "java", the code prints hotlava.

```
1 | String str3;
2 | // TODO: add your code here
3 |
4 |
5 | System.out.println(str3);
```

Submit

Coding Problems (CP): CPs is the ultimate check of your program construction knowledge. Given the task, you need to write code to solve it. Your solution is checked using a set of tests.

Close window