# New Java SE Classes

## Overview

In this lab, you will write an application that makes use of new classes in Java SE.

## Source folders

Student project: StudentNewJavaSEClasses

Solution project: SolutionNewJavaSEClasses

## Roadmap

There are 4 exercises in this lab, of which the last exercise is "if time permits". Here is a brief summary of the tasks you will perform in each exercise; more detailed instructions follow later:

1. Using the StringBuilder class
2. Using formatting techniques
3. Using regular expressions
4. Additional suggestions

## Exercise 1: Using the StringBuilder class

Open UsingStringBuilder.java, and write an application that explores the capabilities of the StringBuilder class.

Suggestions and requirements:

* Write a simple main() method that creates a StringBuilder object with an initial capacity of 50 characters (say), to give it some initial space to grow into.
* Call append() on the StringBuilder object, to append some text.
* Call delete() to delete some of the text.
* Call deleteCharAt() to delete a character at a specific position.
* Call insert() to insert new text at various positions.
* Call replace() to replace text at various positions.
* Call setCharAt() to set a character at a specific position.
* Call reverse() to reverse the text.
* Finally, call toString() to create an immutable String from the text.

## Exercise 2: Using formatting techniques

Open Formatting.java, and write some code to explore the formatting capabilities of the Formatter class and the String class.

Suggestions and requirements:

* First, take a look at the demo code that accompanies this chapter (see the DemoNewJavaSEClasses project, and the Formatting.java source file).
* In your application, create a Formatter object, and use it to format strings using various format specifiers (see the demoFormatter() method in the demo code, and experiment with the options).
* Use String.format() to achieve the same effect (see the demoStringFormat() method in the demo code).
* Experiment with number formatting (see the demoNumberFormatting() method in the demo code).
* Experiment with time formatting (see the demoTimeFormatting() method in the demo code).
* Experiment with date formatting (see the demoDateFormatting() method in the demo code).

## Exercise 3: Using regular expressions

Open RegularExpressions.java, and write some code to make use of regular expressions.

Suggestions and requirements:

* First, take a look at the demo code that accompanies this chapter (see the DemoNewJavaSEClasses project, and the RegularExpressions.java source file).
* In your application, write code to do simple pattern matching, as illustrated by the demoSimpleRegex() method in the demo code.
* Write code to explore the matching functionality provided by the Matcher class, as illustrated by the demoMatching() method in the demo code.
* Write code to perform repeated searches on a string, as illustrated by the demoRepeatedFinds() method in the demo code.
* Write code to explore the regular expression support built into the String class, as illustrated by the demoStringRE() method in the demo code.

## Exercise 4 (If time permits): Additional suggestions

Experiment with locales in your "formatting" code.

Experiment with group captures and replacements in your "regular expression code". For some ideas of what's possible, open the RegularExpressions.java demo code and take a look at the demoGroups() and demoReplacement() methods.