

Systematic Software Development

Week 3 Exercises

1. Download the project for the Stopwatch artefact from the Moodle site. Unzip it into the area you are using for your NetBeans projects for this module
2. Create a new project called StopwatchExercise, and create a package called *stopwatch*
3. Copy the source files from the *stopwatch* package of the project Stopwatch into the *stopwatch* package of the project StopwatchExercise, and then close the Stopwatch project
4. Run the Stopwatch class to run the artefact
5. In StopwatchView replace the main panel being used from StopwatchPanel to StopwatchPanel2 (you need to comment and uncomment lines of code to do this).
6. Right click on StopwatchExercise to create a new Form panel called StopwatchPanel3 and, using drag and drop in the Design tab, try and make it as close as possible to being the same as StopwatchPanel2 inspecting the code that has been autogenerated. After you have built it interactively you will need to copy and paste in code from StopwatchPanel2 that has NOT been generated automatically.
7. In StopwatchView replace the main panel used to be StopwatchPanel3 and test out if Stopwatch still runs as expected.
8. In StopwatchView revert back to the main panel being StopwatchPanel.
9. Alter the layout management diagram to add another button called “Lap” to the layout management.
10. Within the code of the StopwatchExercise project, implement the above change in the appropriate place. Why does pressing the “Lap” button have no effect?
Now remove the lap button.
11. From within the code for StopwatchPanel, alter the background colour of the time display to red adding, in the appropriate place, the line

```
timerLabel.setBackground(Color.red);  
timerLabel.setOpaque(true);
```

12. Now change the layout management (first of all by redrawing the layout management diagram and then altering the code) so that timerLabel sits directly in the CENTER location of the StopwatchPanel rather than sitting on an intermediate panel. Explain the difference in appearance.
13. Alter the control panel to be managed by a GridLayout..
14. Redesign the layout management diagram such that a label “My Stopwatch” appears centred above the stopwatch in the same window. Then implement your changes. Is there another way of doing the same thing?