Model-View-Controller – Review Questions

CSE1720, W12, Version 1.0, Prepared by: M. Baljko

Preamble: Model View Controller as a topic can be discussed in different ways and at different levels of detail: in broad, general terms or in specific, technical detail. Some aspects are not relevant for us because we have not covered the relevant material (e.g., discussion of UI Delegates, since we are not using any stateful widgets).

For answers to these questions, you should draw on the lecture notes and, especially, the lecture presentations.
For supplementary material, please consult general descriptions,

- the Wikipedia page
- "Java SE Application Design With MVC" (http://www.oracle.com/technetwork/articles/javase/index-142890.html)
  Focus on the first two sections "What Is Model-View-Controller (MVC)?" and "Interaction Between MVC Components"; material in the subsequent sections is more advanced.

1. In general terms, what is the purpose of MVC?
2. What is meant by: a *model*? By a *view*? By a *controller*?
3. How does the view keep itself updated?
4. What is the purpose of the model?
5. What is an example of a model? For this example, what is an example of an operation that the user might perform that would cause the model to change?
6. What is the observer pattern? What are two demonstrations of this pattern in the MVC framework (e.g., in the app in L20_pkg)
7. How does the controller modify the model?
8. Is it possible to have two views of the same model?
9. What is the Event Dispatching Thread and what is its role in the MVC architecture?

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Questions from worksheet

1. [This question relies on L15_pkg]. Consider the following scenario: The app `L15App1` is launched. The user resizes the window. Identify the code in the application that is responsible for the **drawing (not rendering)** of the green ellipse.

2. In the above scenario, describe the sequence through which this code is invoked.

3. In the app `L15App1`, describe the elements in the containment hierarchy.
4. The main method contains a single method invocation. Why doesn't the app terminate after the method invocation?
5. What is the purpose of the static method `invokeLater(Runnable)` ?
6. Why do we create the class definition `L15Runnable`? What does the class encapsulate?
7. How is it possible that we define the class `L15Runnable` in a file that contains ***two*** class definitions?

8. Suppose we were to modify line 14 of L15App1.java to be the following:

   ```
   new L15Frame(); // instead of new L15FrameVeryBasicVersion();
   ```

   Discuss how the app would behave differently.

9. What is this `BorderLayout` and how is it used?

10. Suppose a MouseMotion Listener is installed on the L15Frame. Describe the app behaviour. Repeat this explanation for each of the listeners.