

Student Name: _____ Student ID # _____

UOSA Statement of Academic Integrity

On my honor I affirm that I have neither given nor received inappropriate aid in the completion of this exercise.

Signature: _____ Date: _____

Notes Regarding this Examination

Open Book(s) You may consult any printed textbooks in your immediate possession during the course of this examination.

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No Electronic Devices Permitted You may not use any electronic devices during the course of this examination, including but not limited to calculators, computers, and cellular phones. All electronic devices in the student's possession must be turned off and placed out of sight (for example, in the student's own pocket or backpack) for the duration of the examination.

Violations Copying another's work, or possession of electronic computing or communication devices in the testing area, is cheating and grounds for penalties in accordance with school policies.

Question 1: Graphics (10 points)

When developing a graphical display by extending an existing `javax.swing Class`, *explain* whether you should *override* or *overload* the `paintComponent` method.

Question 2: Event Driven Programming (10 points)

Explain whether a `JList` is a source or a listener for events.

Question 3: Event Driven Programming Redux (10 points)

Explain why Java provides a `WindowAdapter` convenience adapter for the `WindowListener` interface but not an `ActionAdapter` convenience adapter for the `ActionListener` interface.

Question 4: Graphical User Interfaces (20 points)

Explain how the GUI shown above could be constructed using common Java Swing components and containers and common Java AWT layout managers we have covered in class. Note that the shapes containing the ‘<’ and ‘>’ symbols are “clickable,” as are all of the numbered rectangles (days of the month), but the month name (November) is not. Further, as the overall window is enlarged or reduced, the numbered rectangles grow or shrink but the other viewable items do not.

Question 5: MVC (50 points)

Last year Santino created a Java program for classroom scheduling that reads a file describing the class sessions that need to be scheduled and the rooms available and creates a schedule which it then writes out to a second file. It uses good object-oriented programming practices as we have discussed them in class, including providing appropriate accessor and mutator methods for its data.

This year, Kathleen wants to develop a GUI-based version of this program following the Model-View-Controller design pattern.

Explain the following kinds of additions or changes that Kathleen will need to make to Santino's code in order to use it as the model in the MVC. **In these explanations, be sure to explain *why* each addition or change is necessary.**

A. *Explain* one data structure Kathleen will need to add.

B. *Explain* one new public method Kathleen will need to add.

C. For the method you just described in Part B, *explain* why this method needs to be public.

D. *Explain* one new private method Kathleen will need to add.

E. For the method you just described in Part D, *explain* why this method should be private.

F. *Explain* which existing methods from Santino's code need to be modified (or wrapped) and how.