

C4984: GUI Programming & Graphics

Test 1

October 1, 2008, 4:00PM – 5:15PM

Name: _____

ID #: _____

Instructions

- Before answering questions, fill in your name and ID number. Before you turn in your exam, sign bellow testifying that you have neither given nor received aid on this exam. **UNSIGNED EXAMS WILL NOT BE ACCEPTED!**
 - This is a closed book exam. You are not allowed to consult any textbooks or notes.
 - Put your answers in the space provided on the exam sheets. Your answers must fit in the given space. If needed, use both sides of the paper.
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VIRGINIA TECH UNDERGRADUATE HONOR SYSTEM

1. Report promptly to the HONOR SYSTEM violation of the Honor Code.
2. Leave a vacant seat on each side of you if possible.
3. As a courtesy to others be quiet during the exam.

On Honor, I have neither given nor received aid on this examination.

Signature: _____

QUIZ QUESTIONS (30 points)

1. What is GUI?
2. Each GUI component instance can be contained only once in a containment hierarchy.
 - a. TRUE
 - b. FALSE
3. What is a framework?
4. What thread is used to process user interaction with GUI components?
 - a. Initial
 - b. Background
 - c. Worker
 - d. Event dispatch
5. What interface must implement all components that support Java Accessibility API?
 - a. Usable
 - b. Runnable
 - c. Accessible
 - d. Readable
6. Swing components are heavyweight components.
 - a. TRUE
 - b. FALSE
7. What type of beans properties is validated by another bean?
 - a. Simple
 - b. Indexed
 - c. Bound
 - d. Constrained
8. A layered architecture promotes:
 - a. Low coupling
 - b. Low cohesion
 - c. High coupling
 - d. High accessibility
9. All Swing components are beans.
 - a. TRUE
 - b. FALSE
10. In Swing, event handling is done in a separate thread from painting GUI components.
 - a. TRUE
 - b. FALSE

PROBLEM QUESTIONS (70 points)

1. What is Model View Controller (MVC)? Describe how it works and use a figure or diagram to illustrate your description. How Java Swing framework leverages MVC design?

2. Your task is to create a simple GUI that allows you to enter and save a student record. The record contains first name, middle name, last name and student ID. The user should also have an option to cancel the entry.

- a. Draw a sketch of the user interface and list ALL Swing classes you plan to use for each section of the user interface.
- b. Provide a containment hierarchy for your user interface.

3. The user interface created in problem 2 is combined in a single GUI component class `StudentPanel`. Whenever a student record is entered, a custom event `StudentEvent` that contains entered information is generated by a `StudentPanel` object. Identify what needs to be done to support complete handling of `StudentEvent` events.