

University of Nebraska – Kearney
CSIT 150: Object Oriented Programming
2017
HW4 – GUI

Due: 11/10/2017
100 points possible

Objectives

1. Practice creating a graphic interface and responding to user events.
2. Practice dealing with strings.
3. Practice reading/writing a file.

Requirements

1. The homework is expected to be submitted on time. Late work will be accepted; however you lose 10% of your points for each late day.
2. You can get help from the instructor, the tutor, or other students. However, the homework must be finished by yourself, and you should indicate it on the paper if you got any help.
3. The first 12 questions should be answered in a document and submitted through Blackboard.
4. The programming part should be completed in Java and submitted through Blackboard.

Multiple Choice: Questions 1-15 are multiple-choice questions. Each one has one correct answer.

1. [2 points] `javax.swing` package is lightweight and `java.awt` package is heavyweight. So, you should use the class in `javax.swing` if a class is provided by both packages. Is this statement true or false?
A. True B. False
2. [2 points] In Java, we can nest a class (called *inner class*) into another class (called *outer class*). The methods defined in the outer class cannot access the fields defined in the inner class. Is this statement true or false?
A. True B. False
3. [2 points] To deal with the events triggered by two different components, we must use two different listeners. Is this statement true or false?
A. True B. False
4. [2 points] This is the default layout manager for a `JFrame`:
A. `BorderLayout` B. `GridLayout` C. `FlowLayout` D. None
5. [2 points] If a container is set up with *flow layout*, when its size is changed, the sizes of the components inside it also change. Is this statement true or false?
A. True B. False
6. [2 points] Check boxes in the same panel have *mutually exclusive relationship* between them. Is this statement true or false?
A. True B. False
7. [2 points] If your code needs to reference interface `ActionListener`, which of the following statements **must** be included?
A. `import javax.swing.*;` B. `import javax.swing.event.*;`
C. `import java.awt.*;` D. `import java.awt.event.*;`
8. [2 points] To display a scroll bar with a `JTextArea` component, you must

- A. do nothing; the `JTextArea` automatically appears with scroll bars if necessary
B. add the `JTextArea` component to a `JScrollPane` component
C. call the `setScrollBar` method
D. none of the above; you cannot display a scroll bar with a `JTextArea` component
9. [2 points] By default, a `JTextArea` component does not perform line wrapping. Is this true or false?
A. True B. False
10. [2 points] After a `JTextField` is set *un-editable* by using method `setEditable(false)`, the content of this text field cannot be changed either by the user or by code. Is this statement true or false?
A. True B. False
11. [4 points] Find and fix the error(s).
//Create a `JList` and add it to a scroll pane.
//Assume the array already exists.
`JList list = new JList(array);`
`JScrollPane scrollPane = new JScrollPane();`
`scrollPane.add(list);`

Programming Challenge

Either complete the robot maze programming challenge OR the Connect-4 programming challenge. Each of these are described in separate files. You can earn bonus points for completing both of the challenges.

12. [56 points] Correctness: Your code should be able to function correctly according to the description of the above requirements.
13. [10 points] Style and Documentation: Your code should meet the style and documentation requirements listed below:
- Use indentation to show the logical structure of your code.
 - Use blank lines to separate code blocks and give each code block a brief comment.
 - Give JavaDoc comments to each class and each method.
 - Include your name and algorithm in your program's heading documentation.
 - Output your name as part of the output.
14. [10 points] Interface
The layout of your interface should be user-friendly.

Deliveries

- Finished `HW4.java`.
- The generated technical documents.
- Solution to questions 1-11.