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Rochester Institute of Technology
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Name: ______________________________ Section: _____

ISTE-121 – Lab 03 – GUI w/ Inner classes & Binary

Problem 1 – Byte I/O (40%)

Objectives:

Practice reading and writing binary file I/O.

Description:

Write a program, BytePe1.java, that reads a binary file ClassList.dat, calculating the grades and prints the results. The file layout is:

Data type	**Data item**
UTF	Student Name
integer	Student number
double	Grade in class 1
double	Grade in class 2
double	Grade in class 3
double	Grade in class 4

Requirements:

Read the binary data file not knowing how many records are in the file. Compute the average of grades, and print the average as the last column of the data read.

There are three examples shown. However, the data file contains more data than shown. Do not program for only three people. The program must handle all the data, and terminate without errors.

Use the printf method for formatting. Make sure your headings, and column output matches exactly. Blank spacing between columns does not have to match exactly.

Partial *sample of the output:*

```
Name                      ID Grade1 Grade2 Grade3 Grade4    Avg.
Kathryn Morris     193038393   93.2   94.3   89.0   96.5    93.3
John Finn          394720953   89.5   92.7   77.8   96.5    89.1
Jeremy Ratchford   252648093   75.6   88.5   67.0   98.3    82.4
```

Part 1 – Byte I/O

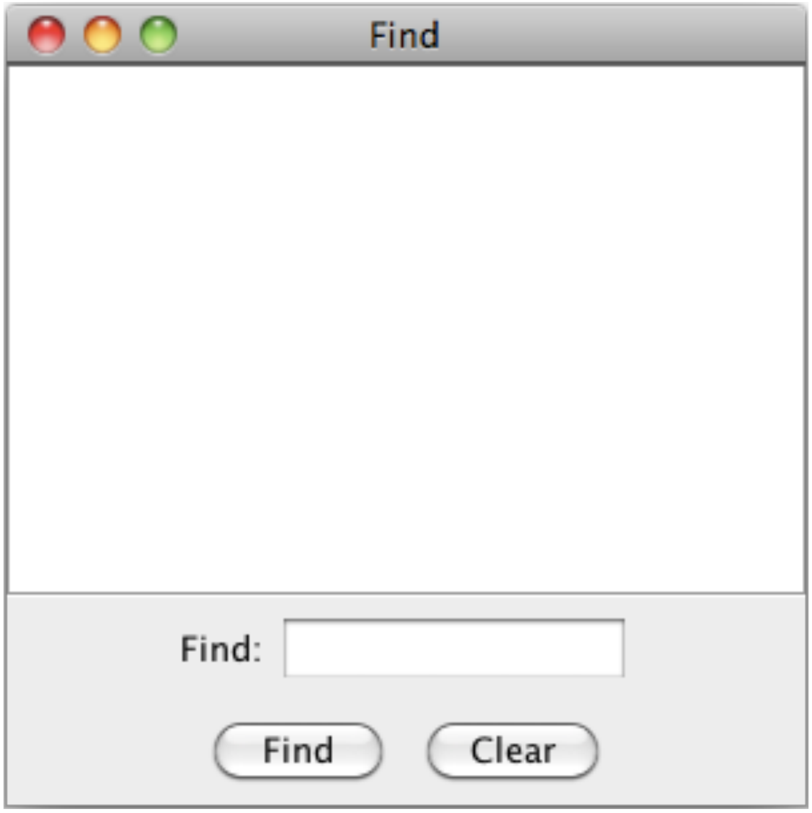
Instructor/TA signoff: ____________________

Problem 2: Inner Classes (60%)

Read all of problem 2 before starting, hints are given throughout the problems statement.

Overview

For this exercise, you will create a "Find" application that will locate a word in a block of text that is displayed in a text area. You will create inner classes to handle events. At startup the GUI appears as follows.



To use this application enter a sentence or copy/paste the code into the text area. Then in the text field labeled Find: enter some short text to find within the upper text. The program only needs to identify the first occurrence of the text.

The program is to use inner classes for some of the controls, and you are required to look up method(s) you don't know in JavaDocs only.

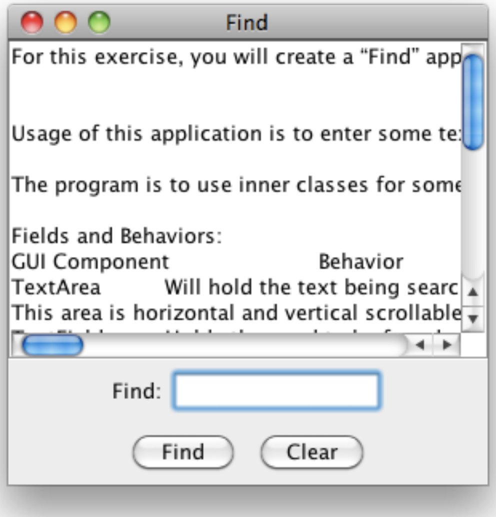
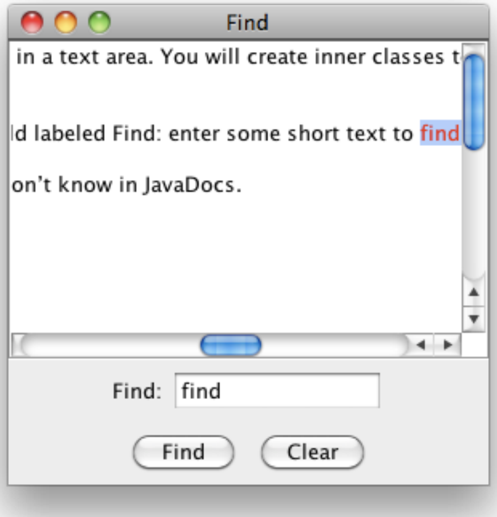
Fields and Behaviors:

GUI Component	Behavior
TextArea	Will hold the text being searched. It needs to be updated when a word is found. This area is horizontal and vertical scrollable.
TextField	Holds the word to be found
Find Button	Every time this button is pressed, the first occurrence of the "find" word in the TextArea will be located and highlighted. **An instance inner (member) class.**
Clear Button	Clears the TextField that holds the word to match. Sets the input focus to the 'find' text field. This does NOT clear the text area. **An Anonymous inner class.**
Windows close	Close using window listener/adapter inner class, and print a "Thank you for using finder" message. **An Anonymous inner class.** Add a WindowListener using WindowAdapter class formatted similar to an ActionListener.

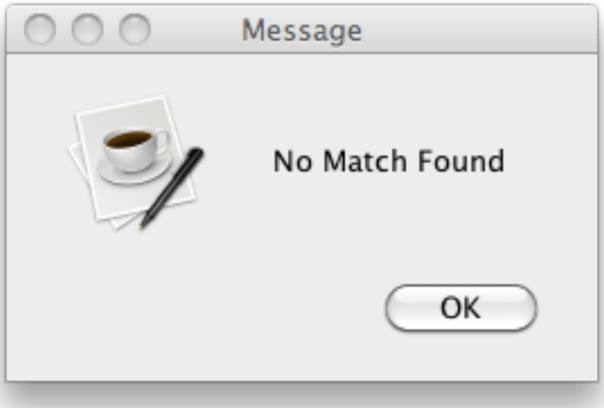
Requirements:

1. You need to develop your own inner classes to handle the events. You must handle the window closing and button presses.
2. The search is case sensitive. If the case of the letters in the word in the JTextArea does not match exactly to the word in the JTextField, skip over it.
3. You only need to locate the **first** occurrence of a string of text. Use ONE of the string methods for this 'find'.
4. To simplify input, you may populate the text area with a copy and paste operation from another document, or loading some constant text into the field.
5. The Find operation is able to find text such as in this sentence, "this sentence" should be found, or "s s" as end and beginning of the two words would be found.

Execution example: (screens shrunk)

Loaded the text area with text from this assignment. Notice the word "Find" in the first line.  For this exercise, you will create a "Find" app Usage of this application is to enter some te The program is to use inner classes for some Fields and Behaviors: GUI Component Behavior TextArea Will hold the text being searc This area is horizontal and vertical scrollable Find: 	Entered "find" and pressed the find button. Notice it skipped "Find" to get to "find".  in a text area. You will create inner classes t ld labeled Find: enter some short text to find on't know in JavaDocs. Find: find The word "find" is highlighted in red.

6. In the event there is no match, your inner class should create a dialog box stating the lack of a match, as shown here.



No Match Found

JavaDoc research you will need to do:

1. Look at the String class for string matching methods.
2. Look at JTextField, JTextArea, and JTextComponent (or their Swing equivalents) for useful methods to *select text* and *set the selected text color* from gray to another **Color**, such as .RED or .BLUE.
   (The above gave two hints to find the needed methods)
3. For a JTextArea to indicate selected text, TextArea may require focus. Read the javadocs for **requestFocusInWindow()** method.
4. For the Windows Adapter/Listener usage, look at the WlDemo.java and WlDemo2.java examples. This usage must be in the form of an anonymous inner class, not a separate class as the example code shows.

What class does requestFocusInWindow() belong? _______________

Instructor / TA signoff: __________________

Did you know? (Extra practice / learning, after Part 2 is done)

A JTextField can use addActionListener. Add an action listener to the ‘find’ JTextField that will access the code of the find button. Enter a value in the text field and press ENTER to activate the ActionListener on the JTextField. Do not duplicate your code.