

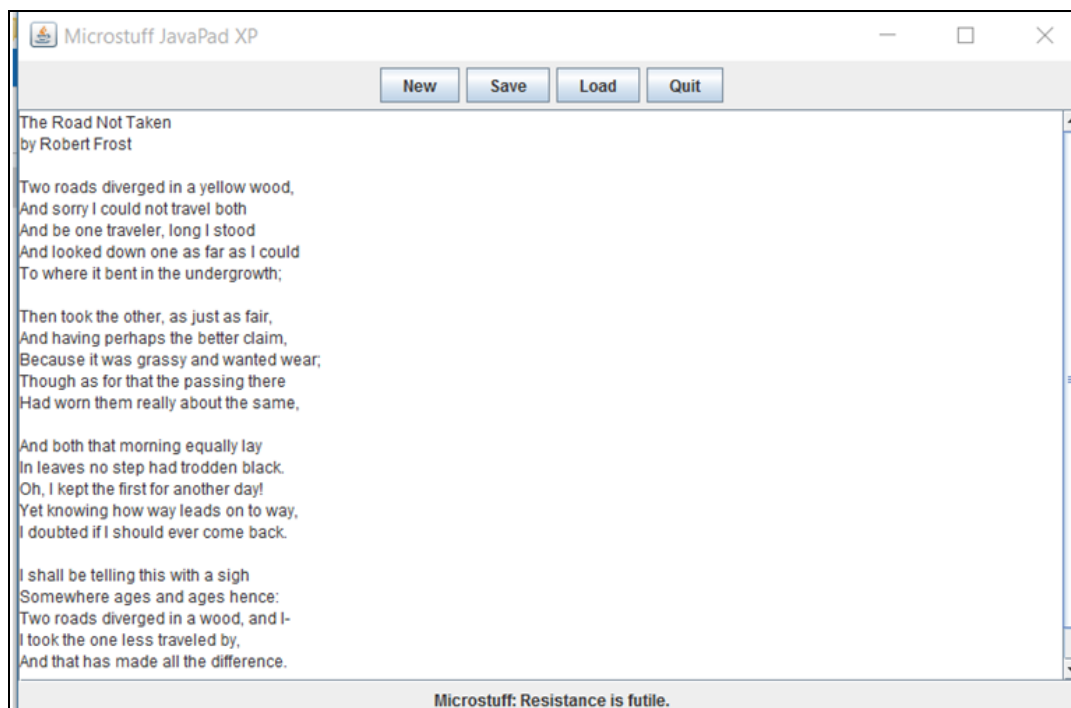
## Programming Assignment 9: GUI Application (Pair Programming)

### Total Points (30 pts) - Due Monday, November 30 at 11:00 AM

This assignment is designed to test your understanding of writing a basic graphical user interface (GUI) in Java. The key concepts are Swing components, event-driven programming with action events, layout management, and input/output.

The scenario for this assignment is as follows: Macrosoft Company has decided to enter the office product market with a new word processor named *JavaPad XP*. Because of your solid work on past assignments, you have been selected to write the *JavaPad* graphical user interface.

Your assignment name is *JavaPad.java*. Your assignment's "main" class (the class with the main method that runs the program) should be named *RunJavaPad.java*.

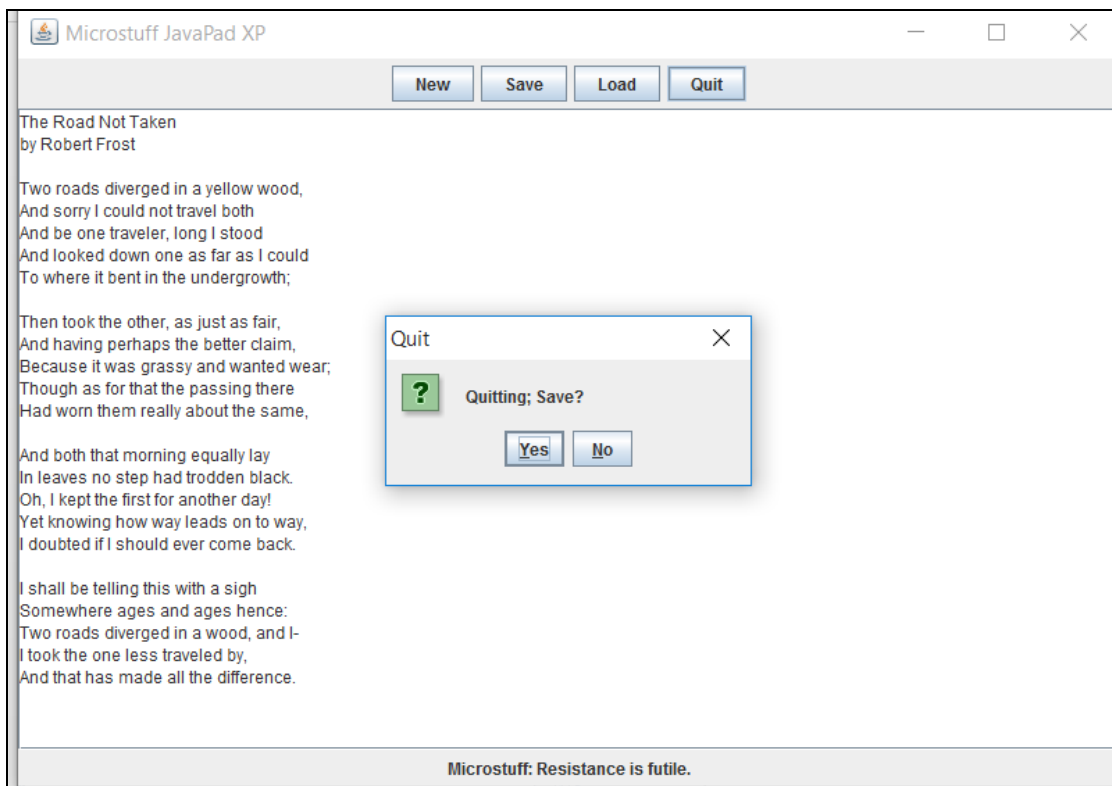


Beyond this, you may name your classes, methods, etc. as you like, as long as the names are representative and meaningful.

When the *JavaPad* program runs, your main window should appear and should have the following properties:

- The window title should be: **Macrosoft JavaPad XP**
- The window should start in its default position in the top-left corner of the screen, at pixel position (0, 0).
- The window should be resizable.
- When the window is closed, the program should terminate.

- The content pane of the window should contain the following components:
  - A **label** of Macrosoft's company slogan: **Macrosoft: Resistance is futile.** This label lies in the center of the bottom area of the window. It should stay centered as the window resizes.
  - A **text area** in the center of the window. The text area should be initialized with 15 rows and 25 columns. The area is initially blank (contains no text). Long lines should wrap around to the next line. The area becomes scrollable, with a visible vertical scroll bar, when its contents become bigger than the area itself. (The screen shot above at right shows an example.) Its contents can be saved, loaded, and cleared as described below.
  - Four **buttons** in the top area of the window, centered horizontally, with the following labeling and click actions:
    - **New:** clears text in the main text area
    - **Save:** writes text that's currently in the main text area into the file *hardcode.txt*
    - **Load:** reads the file *hardcode.txt* if possible and places its text into the main text area
    - **Quit:** prompts to save, then exits the program  
The prompt should be a "confirm dialog" option pane with Yes and No options, with title **Quit** and message **Quitting; Save?**  
The prompt should be a modal child of the JavaPad window.  
If the user chooses Yes, the program should save the text area's text to *hardcode.txt* and exit; If the user chooses No, the program should simply exit without saving anything.



Properties of the window, continued:

- The window should be sized exactly to fit the preferred size of the components in it, regardless of platform.
- As the window resizes, the buttons and slogan label remain centered horizontally.
- The buttons and label do not change size as the window resizes.
- The text area expands to fill all available space as the window resizes.
- The screenshot below is an example:

Your program should not throw exceptions on failed I/O during load operation. When an I/O operation causes an exception (for example, when the file to read isn't found), it should be handled by your program. Handle the exception by displaying an appropriate message, and then continue processing.

Follow good style guidelines as described in your previous assignments, such as encapsulation, comments, indentation, spacing, and identifier names.

You are cautioned that various aspects of the program, such as constant strings, numbers and names, could change at a later date, so you are advised to make them into static final constants. These constants should be used throughout the program instead of their literal value.

### **Extra Credit (10 points)**

Include the following as additional functionalities:

1. Allow the user to specify the color of the text. Use a text field or a combo box to obtain the color.
2. Allow the user to specify the size of the font. Use a text field or a combo box to obtain the size.

## Submitting Your Assignment

Each assignment requires two submissions: an electronic component submitted through Insight, and a hardcopy component submitted in class.

- The hardcopy submissions must include the following:
  1. A copy of your program. This copy needs to include all the code that you have written for the assignment.
  2. One or more sample runs of your program. In addition to the program copy, submit examples showing the output of your program.
- Additionally, your program must be uploaded to Insight. To upload:
  1. Create a new directory (Assignment9) on your computer, and put all files: (JavaPad.java, JavaPad.class, Run JavaPad.java, Run JavaPad.class) inside that directory. Then, compress, or zip up, the directory.
  2. Upload the file Assignment1.zip to Insight by the due date/time.
- The program uploaded to Insight must be the exact same one submitted in class.