Computer Science Division
Department of Mathematics
Faculty of Science


Level 3- Fall Semester
Course Code: COMP 301
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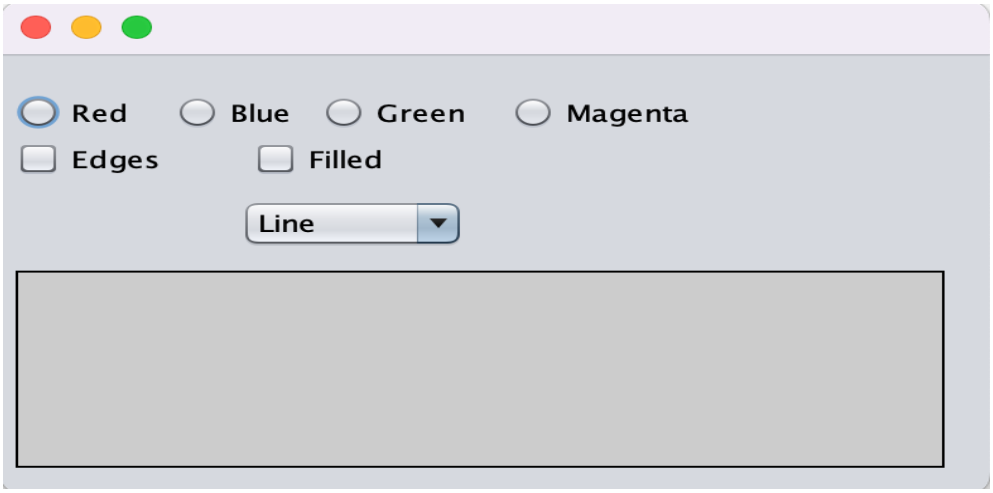
# Sheet 8

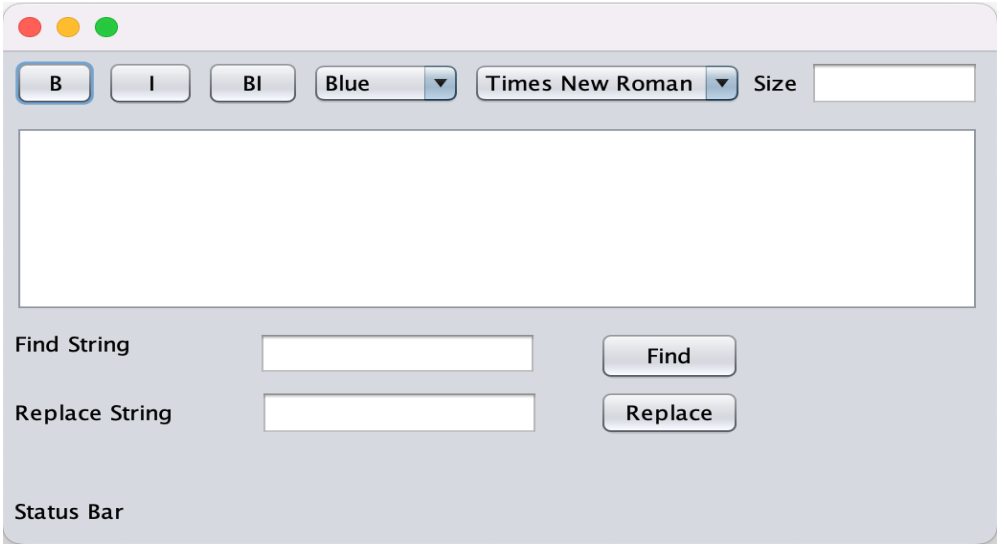
Objective: upon successful completion of this sheet, students should be able to handle events related to GUI components, utilize `Graphics` methods, and practice `ArrayList` methods.

1. Design a JFrame that looks like the figure below including the following components: radio buttons for selecting colors, a drop-down list for selecting shapes, and check boxes for describing how the shape is drawn. Upon clicking anywhere in the grey-bordered area (acting as a panel), the chosen shape will be drawn in the selected color and the drawing style. The staring point for drawing the shapes will be determined by the point clicked by the user.



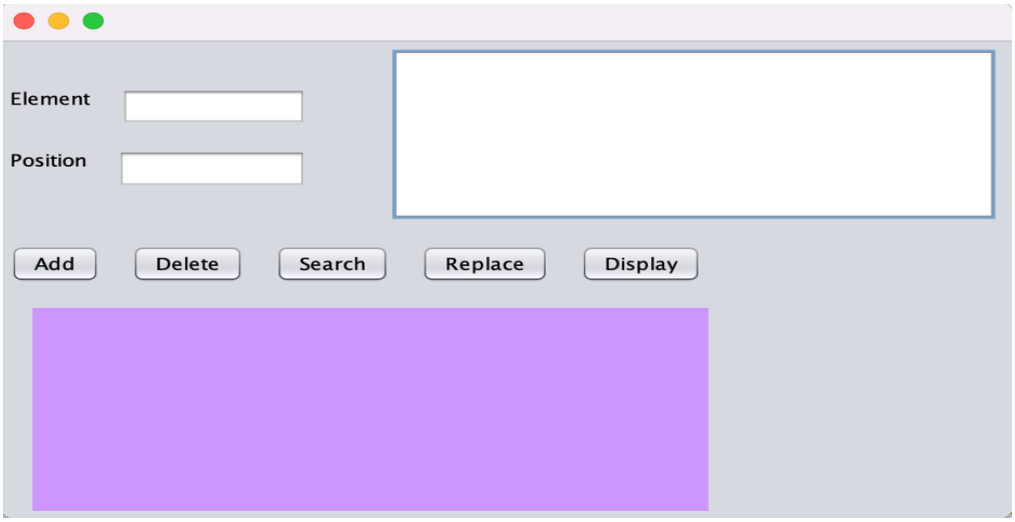

2. Design a JFrame containing a text field and a panel for drawing shapes. If the entry in the text field is even, then blue consecutive squares are drawn depending on the given number. Otherwise, red consecutive circles are drawn depending on the given number.

3. Design a JFrame that simulates a part of word processing, looking like the figure provided below.




**N.B.** The status bar is used to display messages in case of searching for and replacing a string. For example, if the searched string has been found, the number of times will be displayed or the "Not Found" message will be displayed instead.

4. Design a JFrame that simulates the behaviour of methods in the `ArrayList` class on a set of integer values. The JFrame looks like the following figure.




The GUI components function as follows:

- The "Add" button inserts the specified element at the end of the list or at a specified position, depending on whether the value for the position field is empty or not.
- The "Delete" button removes a specified element (if it exists) or an element at a specified position, depending on which field has a non-empty value.

- The “Search” button returns the index of a specified element (if it exists).
- The “Replace” button changes the value specified in the entry of the position field with the entry of the element field.
- The “Display” button shows all elements stored in the list.
- The text area field shows messages related to each button operation. For example, when adding an element at a specified position, a message appears in the text area indicating the operation in the list: “Adding element `5` at position `2`”. Similar messages apply for other buttons.
- The colored panel visually represents the elements in the list as consecutive magenta squares, with the actual elements written in white. Any modifications such as addition or deletion are reflected in the colored drawn squares.