



In all the exam we want to write a java program that creates the above frame.

When clicking on the `Width + 2` button the width of the ellipse is increased by 2.

When clicking on the `Height + 2` button the height of the ellipse is increased by 2.

The two other buttons change the color of the ellipse.

We will use two classes : `ChangingEllipseFrame` for the frame, `ChangingEllipsePanel` for the Panel with the buttons and the ellipse.

Question 1: Write the class `ChangingEllipseFrame` for a frame that contains a `ChangingEllipsePanel`. Write also a `main` to run your program.

Question 2: Declare the `ChangingEllipsePanel` that has three private fields: `ellipseWidth`, `ellipseHeight` and `ellipseColor`.

Question 3: Write the `paintComponent(Graphics g)` method of the `ChangingEllipsePanel` that draws an ellipse of size `ellipseWidth`×`ellipseHeight` and of color `ellipseColor`.

Question 4: (bonus) Ameliorate the `paintComponent` method to center the ellipse in the panel, and prevent it from being bigger than the panel.

Question 5: Here is the beginning of the constructor for the `ChangingEllipsePanel`:

```
public ChangingEllipsePanel(){
    JButton redButton = new JButton("Red");
    JButton blackButton = new JButton("Black");

    redButton.addActionListener(new ColorListener(Color.red));
    blackButton.addActionListener(new ColorListener(Color.black));

    add(redButton);
    add(whiteButton);
}
```

Write the inner class `ColorListener` that is used with this code (this class as one field `color`).

Question 6: What method of which object is called by the Java Virtual Machine if the Red button is clicked?

Question 7: Write the sequel of the `ChangingEllipsePanel()` constructor to create and add the two other buttons. You must create their `ActionListener` by using local anonymous inner classes.

Good Luck!!