Question

Hi, below is the assignment I am working on right now. There are Assignment12 class, ControlPane class, TextControlPane class, and TextPane class. Assignment12 and ControlPane class should be good already. There are some methds that I could not figure out how to do it. I will post the description of the methods that needs to be implement in TextControlPane class, and TextPane class below. I will post the code that I have so far below. I post this earlier, but did not get an answer, so I am re-posting this here.

Your GUI should contain two sets of four buttons for a text, "Start", "Stop", "Clear" and "Change the text". The first three buttons will be organized horizontally, and there should be a textfield where a user can enter a text, and the button "Change the text" should be under the textfield (see the snapshot of the GUI). Under the button "Change the text", there should be a label "Rate", then below it, there will be a slider that a user can use to change the rate (speed) of a text. Right hand side of the buttons, a textfield, a label and a slider there are panes, each pane showing a text with their initial color. The top should be red and the bottom one should be blue with their background black. The picture below shows a snap shot of the GUI. Each pane should keep printing the given text.

TextPane class

TextPane class a subclass of Pane class. It is used to define a pane where texts are drawn. It has the following additional attributes:

Attribute name

Attribute type

Description

x1

double

current x coordinate of the text/string to be drawn

y1

double

current y coordinate of the text/string to be drawn

stepX

double

each step that the current x coordinate moves for the text/string for each timeline ticks

string1

String

current string to be drawn in a pane

currentColor

Color

color that is used to draw the string

timeline

Timeline

a given string will be drawn with this time line ticking

The following constructor method should be provided:

public TextPane(Color color, String initialString)

The current color is initialized to the value of the color parameter, and the string1 is initialized to the value of the initialString parameter.

The background of this pane should be set to black color. The x1 and y1 should be initialized to 0, and The stepX and stepY should be set to 30. The timeline1 should be instantiated with its duration of 1000 mill seconds and an object of TextHandler class that you will be defining. The timeline1's rate should be 1. Then it should start by calling play() method.

The following method should be implemented:

public void resume()

The timeline1 should start again using its start method.

public void suspend()

The timeline1 should stop using its stop method.

public void changeColor(Color anotherColor)

It sets the member variable currentColor using the parameter.

public void clear()

It should remove all text drawn in its pane.

public void changeString(String string2)

It sets the member variable string1 using the parameter.

public void setRate(int rate1)

This method set the rate of the timeline1 using its parameter. (Hint: setRate method of the Timeline class)

TextHandler class

This class can be defined as a private class of the TextPane. It implements ActionHandler<ActionEvent> interface.

public void handle(ActionEvent event)

created using the updated x1, y1, currentColor, and string1, and it should be added to the pane that is displaying them.

Also the drawn texts should not go outside of the panel. If x1+stepX < 0 or x1+stepX > getWidth()-string1.length()*7,

then the sign (+ or -) of stepX should be changed.

If y1+stepY < 0 or y1+stepY > getHeight(),

then the sign (+ or -) of stepY should be changed.

TextControlPane class

The TextControlPane is a subclass of BorderPane class. It contains 4 buttons including a start button, a stop button, a clear button, and a button to change the text. It also contains one TextField, one Label, one ColorPicker and one Slider. It also contains one panel-- an object of TextPane class. Note that two objects of this class will be used, one for the red texts and one for the blue texts in the ControlPanel class.

The following constructor method is already given:

public TextControlPane(int width, int height, Color initialColor, String initialString)

Its parameters are width and height of the pane, and the initial color of the text, and an initial text. It should instantiate each components and arrange them using layout managers. The Slider for rate should have its range from 0 to 10, and the initial rate should be 1. Its major tick unit should be 5, and minor tick spacing should be 1 and it should be shown horizontally. You can use other methods defined in Slider to make your Slider look like the one shown in this page. An object of the ButtonHandler class should be set to each button, and an object of the SpeedHandler class should be added to the rate Slider object.

ButtonHandler class

This class can be defined as a private class of the TextControlPane. It implements ActionHandler<ActionEvent> interface.

public void handle(ActionEvent event)

Its handle method should define an action for each button (There are 4 buttons). To distinguish buttons, you can use getSource() method of the ActionEvent object. For instance, if "start" is the start button for the text panel, we can check if that button is pushed as:

```
public void handle(ActionEvent event)
{
 if (event.getSource() = = start)
  {
  ...
  }
}
```

If "stop" button is pushed, then the drawing texts movement should stop. If the "clear" button is pushed, then all texts in the corresponding pane should disappear. If a user types a new text in the TextField and push "Change the text" button, then the new text should be the one to be drawn (do not change the texts that are already drawn before.)

ColorHandler class

This class can be defined as a private class of the TextControlPane. It implements ActionHandler<ActionEvent> interface.

public void handle(ActionEvent event)

Its handle method should define an action in case a user uses the ColorPicker to choose another color for a text. It should get the chosen color from the ColorPicker (by using getValue() method of the Color Picker object, Color color1 = picker.getValue();) and use it to change the color of a text.

SpeedHandler class

This class can be defined as a private class of the TextControlPane. It implements ChangeHandler interface. You need to provide a definition for the following:

public void changed(ObservableValue<? extends Number> observable, Number oldValue, Number newValue)

by getting the selected value of the slider, and assign it as a rate of the corresponding timeline.

```
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.layout.StackPane;

public class Assignment12 extends Application
{
  private final int WIDTH = 550;
  private final int HEIGHT = 400;

  public void start(Stage primaryStage)
  {
   ControlPane pane = new ControlPane(WIDTH, HEIGHT);

   //put pane on top of the rootPane
   StackPane rootPane = new StackPane();
```

```
  Scene scene = new Scene(rootPane, WIDTH, HEIGHT);

   primaryStage.setScene(scene); // Place the scene in the stage
   primaryStage.show(); // Display the stage
  }
  public static void main(String[] args)
  {
   Application.launch(args);
  }
}
```

```
import javafx.scene.layout.*;
import javafx.scene.paint.Color;
import javafx.geometry.Orientation;


public class ControlPane extends StackPane
 {
 private int width, height;
 private int paneNum;

 //The constructor creates panes and
 //control panes that control their movement, and organize them using layouts
 public ControlPane(int width, int height)
  {
    this.width = width;
    this.height = height;
    paneNum = 2; //the number of panes

    //create 2 panes to control the movement
    TextControlPane[] textPanes;
    textPanes = new TextControlPane[paneNum];
    textPanes[0] = new TextControlPane(width, height/paneNum, Color.RED, "Hello");
    textPanes[1] = new TextControlPane(width, height/paneNum, Color.BLUE, "Hello");
```

```
    for (int i = 0; i < paneNum; i++)
      pane1.add(textPanes[i], 0, i);

    this.getChildren().add(pane1);
  }
}
```

```
import javafx.scene.layout.*;

import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.control.Slider;
import javafx.scene.control.ColorPicker;

import javafx.scene.paint.Color;
import javafx.geometry.Orientation;

import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.beans.value.ChangeListener;
import javafx.beans.value.ObservableValue;

public class TextControlPane extends BorderPane
 {
   //components of the pane
   private TextPane tPane;
   private Button start, stop, clear, change;
   private Slider speed;
   private Label label1;
   private GridPane buttons1;
   private TextField textField;
   private ColorPicker picker;

   private int width, height;
   private Color color;
```

```
public TextControlPane(int width, int height, Color initialColor, String initialString)
 {
  color = initialColor;
  this.width = width;
  this.height = height;

  //pane displaying texts, with the specified color and string
  tPane = new TextPane(initialColor, initialString);

  //create 3 buttons, start, stop, and clear
  start = new Button("Start");
  stop = new Button("Stop");
  clear = new Button("Clear");

  start.setMaxSize(Double.MAX_VALUE,Double.MAX_VALUE);
  stop.setMaxSize(Double.MAX_VALUE,Double.MAX_VALUE);
  clear.setMaxSize(Double.MAX_VALUE,Double.MAX_VALUE);

  buttons1 = new GridPane();

  buttons1.add(start, 0, 0);
  buttons1.add(stop, 1, 0);
  buttons1.add(clear, 2, 0);

  //button to change the word
  change = new Button("Change the text");

  //textfield to enter a text
  textField = new TextField(initialString);

  //color picker for a text
  picker = new ColorPicker(initialColor);

  // label for the rate
  label1 = new Label("Rate");

  // slider for the rate for the text drawing with major tick unit 5,
```

```
    speed.setMajorTickUnit(5);
    speed.setMinorTickCount(1);
    speed.setShowTickLabels(true);
    speed.setShowTickMarks(true);
    speed.setOrientation(Orientation.HORIZONTAL);


    speed.valueProperty().addListener(new SpeedHandler());

    GridPane pane5 = new GridPane();
    pane5.add(buttons1, 0, 0);
    pane5.add(textField, 0, 1);
    pane5.add(change, 0, 2);
    pane5.add(picker, 0, 3);
    pane5.add(label1, 0, 4);
    pane5.add(speed, 0, 5);


    pane5.setMinSize(width/3, height);
    tPane.setMinSize(width*(2.0)/(3.0), height);
    this.setCenter(tPane);
    this.setLeft(pane5);

    //Step #1: set an appropriate handler object to the buttons and the color picker
    /***to be completed***/


    //Step #2: set an appropriate handler object to the slider
    /***to be completed***/

}

//ButtonHandler defines actions to be performed when each button
//is pushed.
private class ButtonHandler implements EventHandler<ActionEvent>
{
  public void handle(ActionEvent event)
```

```
  }
 } //end of ButtonHandler

 //ColorHandler defines actions to be performed when a color is chosen
 //using the color picker
 private class ColorHandler implements EventHandler<ActionEvent>
 {
  public void handle(ActionEvent event)
  {
   //Step #4 complete the method here
   /***to be completed***/
  }
 } //end of ColorHandler


 //SpeedHandler adjusts the speed/rate of drawing based on
 //the chosen integer in the corresponding slider.
 private class SpeedHandler implements ChangeListener<Number>
 {
  public void changed(ObservableValue<? extends Number> observable,
          Number oldValue, Number newValue)
  {
   //Step #5 complete the method here
   /***to be completed***/
  }

 } //end of SpeedHandler
}
```

Subject: Computer Science, Engineering & Technology, Java Programming

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