

Assignment 9

Title:

Write an Applet to Display a Welcome Message and Change Background Color Dynamically

Objective:

To create a Java applet that displays a welcome message and allows users to change the background color dynamically by clicking a button.

Theory:

An applet is a small Java program that runs within a web browser or an applet viewer. It extends the `Applet` class and overrides methods like `init()` and `paint(Graphics g)`. Event handling is used to change the background color dynamically when a button is clicked.

Algorithm:

1. Import necessary Java packages (`java.applet.*`, `java.awt.*`, `java.awt.event.*`).
2. Extend the `Applet` class and implement the `ActionListener` interface.
3. Declare a string message and a background color variable.
4. Initialize the applet by creating a button and setting the default background color.
5. Override the `paint(Graphics g)` method to display the welcome message.
6. Implement the `actionPerformed(ActionEvent e)` method to change the background color dynamically.
7. Compile and run the applet using an applet viewer.

Program Code:

```
import java.applet.*;  
  
import java.awt.*;
```

```
import java.awt.event.*;

/* <applet code="WelcomeApplet" width=400 height=200></applet> */

public class WelcomeApplet extends Applet implements ActionListener {

    private String message = "Welcome to Java Applet!";

    private Color bgColor = Color.LIGHT_GRAY;

    private Button changeColorButton;

    public void init() {

        changeColorButton = new Button("Change Background Color");

        add(changeColorButton);

        changeColorButton.addActionListener(this);

        setBackground(bgColor);

    }

    public void paint(Graphics g) {

        g.setColor(Color.BLACK);

        g.setFont(new Font("Arial", Font.BOLD, 16));

        g.drawString(message, 100, 100);

    }

    public void actionPerformed(ActionEvent e) {

        bgColor = new Color((int)(Math.random() * 255), (int)(Math.random() * 255),
(int)(Math.random() * 255));

        setBackground(bgColor);

        repaint();

    }

}
```

```
}  
  
}
```

Output:

- Displays the message "Welcome to Java Applet!" in black.
- A button labeled "Change Background Color" is visible.
- Clicking the button changes the background color randomly.

Explanation:

1. The ``init()`` method initializes the applet, adds a button, and sets the background color.
2. The ``paint(Graphics g)`` method draws the welcome message on the applet screen.
3. The ``actionPerformed(ActionEvent e)`` method generates a random color and updates the background color when the button is clicked.

Conclusion:

This Java applet successfully demonstrates event handling and dynamic UI changes by allowing users to modify the background color interactively.