



Vidyavardhini's College of Engineering and Technology

Department of Artificial Intelligence & Data Science

Experiment No. 11
Implement a program on Applet or AWT Controls
Date of Performance:
Date of Submission:



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Aim: Implement a program on Applet or AWT Controls

Objective:

To develop application like Calculator, Games, Animation using AWT Controls.

Theory:

Java AWT (Abstract Window Toolkit) is an API to develop Graphical User Interface (GUI) or windows-based applications in Java.

Java AWT components are platform-dependent i.e. components are displayed according to the view of operating system. AWT is heavy weight i.e. its components are using the resources of underlying operating system (OS).

The `java.awt` package provides classes for AWT API such as TextField, Label, TextArea, RadioButton, CheckBox, Choice, List etc.

1. A general interface between Java and the native system, used for windowing, events and layout managers. This API is at the core of Java GUI programming and is also used by Swing and Java 2D. It contains the interface between the native windowing system and the Java application¹.
2. A basic set of GUI widgets such as buttons, text boxes, and menus¹. AWT also provides Graphics and imaging tools, such as shape, color, and font classes². AWT also avails layout managers which helps in increasing the flexibility of the window layouts²

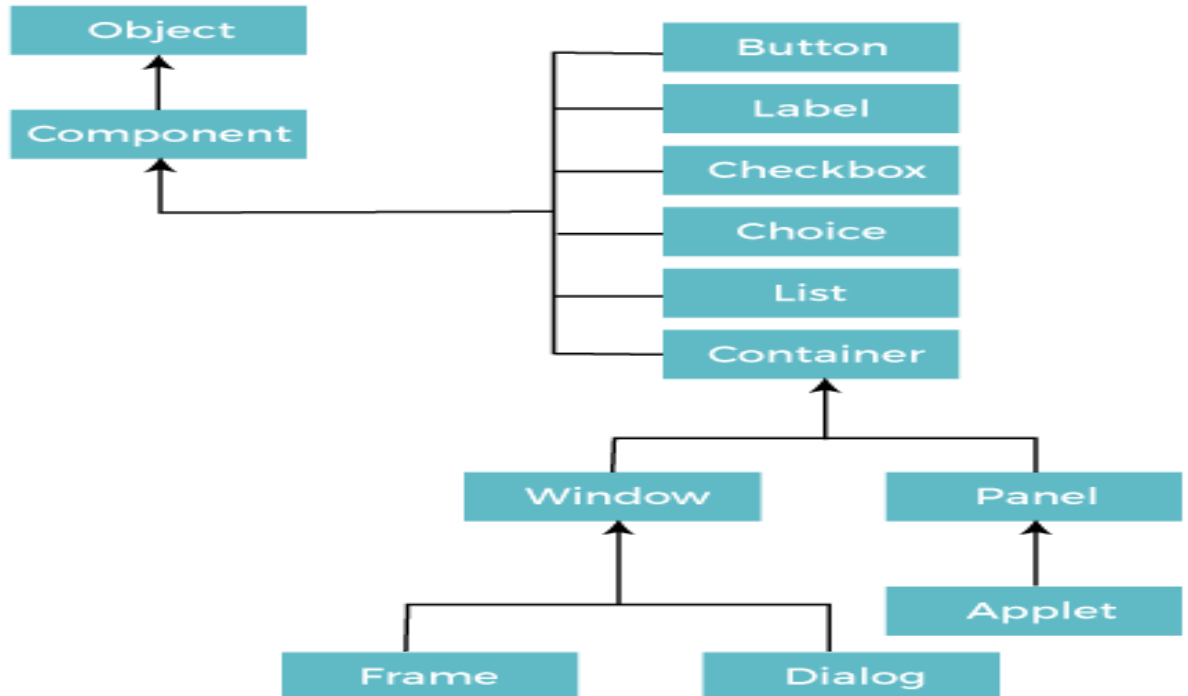
Java AWT calls the native platform calls the native platform (operating systems) subroutine for creating API components like TextField, ChechBox, button, etc.

For example, an AWT GUI with components like TextField, label and button will have different look and feel for the different platforms like Windows, MAC OS, and Unix. The reason for this is the platforms have different view for their native components and AWT directly calls the native subroutine that creates those components.

In simple words, an AWT application will look like a windows application in Windows OS whereas it will look like a Mac application in the MAC OS.



Java AWT Hierarchy



Code:

```
import javax.swing.*;
import java.awt.*;

class Face extends JPanel {

    @Override
    protected void paintComponent(Graphics g) {
        super.paintComponent(g);

        // Drawing shapes

        g.setColor(Color.BLACK);
        g.drawOval(50, 50, 150, 50);

        g.setColor(Color.BLACK);
        g.drawOval(300, 50, 150, 50);

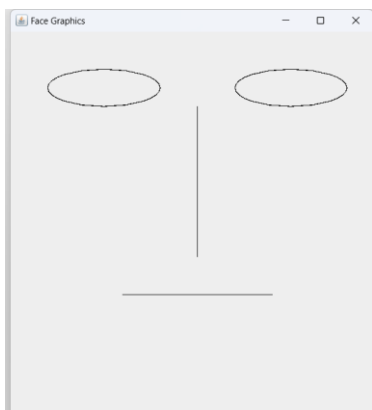
        g.setColor(Color.BLACK);
        g.drawLine(250, 100, 250, 300);
    }
}
```



```
g.setColor(Color.BLACK);
g.drawLine(150, 350, 350, 350);
}

public static void main(String[] args) {
    SwingUtilities.invokeLater(() -> {
        JFrame frame = new JFrame("Face Graphics");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.add(new Face());
        frame.setSize(500, 550);
        frame.setVisible(true);
    });
}
```

OUTPUT:-



Conclusion:

Comment on application development using AWT Controls.

Application development using AWT (Abstract Window Toolkit) controls in Java involves creating graphical user interfaces (GUIs) for desktop applications. AWT provides a set of basic GUI components, such as buttons, labels, text fields, and more. Here's a brief overview:

1. AWT Controls: AWT offers GUI controls for building your application's user interface.
2. Layout Managers: AWT provides layout managers to arrange and position controls



within your GUI.

3. Customization: You can customize the appearance and behavior of AWT controls.
4. Platform Independence: AWT is platform-independent but may not provide the most modern look and feel.
5. Window and Frame: AWT allows you to create top-level containers (e.g., `Frame`) as the main windows for your application.