

## **Unit 12:**

# **Introduction to Java Applets**

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## Applet :

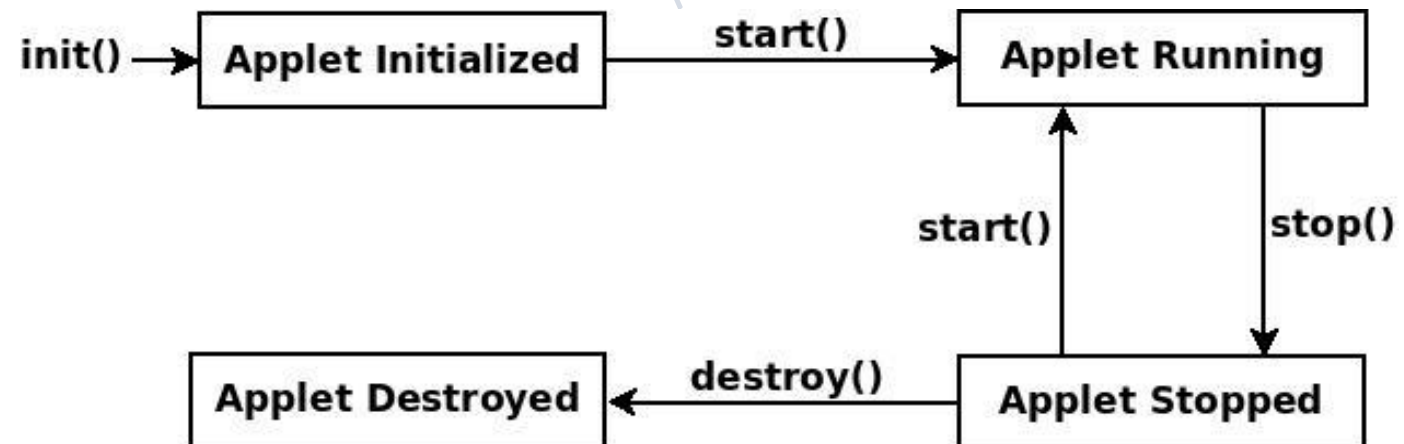
- ❖ Applet is a special type of program that is embedded in the webpage to generate the dynamic content. It runs inside the browser and works at client side.
- ❖ To create an applet, a class must class extends **java.applet.Applet** class.
- ❖ An Applet class does not have any main() method. It is viewed using JVM. The JVM can use either a plug-in of the Web browser or a separate runtime environment to run an applet application.
- ❖ JVM creates an instance of the applet class and invokes init() method to initialize an Applet.

## Advantages of Applet :

- ❖ They are very secure.
- ❖ It works at client side so less response time.
- ❖ Applets can be executed by browsers running under different platforms.

## Lifecycle of Java Applet :

1. Applet is initialized
2. Applet is running
3. Applet is stopped.
4. Applet is destroyed.



### 1. **Applet Initialized:**

Objects regarding Applet get initialized in this phase. An `init()` method is called for the same purpose.

### 2. **Applet Running:**

Applets are embedded in a webpage. When a part of webpage which consists of applet is shown on a screen, then applet is in Running phase. A `start()` method is called, which takes applet to the Running phase.

### 3. **Applet Stopped:**

When a webpage is minimized or webpage is scrolled down/up; so that, applet is disappeared from the screen, then applet is in Stopped phase. `Stop()` method is called when applet is disappeared from the screen.

### 4. **Applet Destroyed:**

When you closed the webpage which consists of applet, applet is get destroyed. A `destroy()` method is called when applet is destroyed.

## **Lifecycle methods for Applet:**

1. **`init()`**: is used to initialize the Applet. It is invoked only once.

2. **`start()`**: is invoked after the `init()` method or browser is maximized. It is used to start the Applet.

3. **`paint(Graphics g)`**: is used to paint the Applet. It provides Graphics class object that can be used for drawing oval, rectangle, arc etc.

4. **`stop()`**: is used to stop the Applet. It is invoked when Applet is stop or browser is minimized.

5. **`destroy()`**: is used to destroy the Applet. It is invoked only once.

## Run Applet:

There are two ways to run an applet

- 1.By html file.
- 2.By appletViewer tool (for testing purpose).

## Applet viewer :

- ❖ It is a command line program to run Java applets.
- ❖ It is included in the SDK.
- ❖ It helps you to test an **applet** before you run it in a browser.

## Steps:

1. Save the Java code with extension as \*.java
2. Open a command prompt and compile java code using javac command.
3. After successfully compilation, a \*.class file should be generate in the same directory.
4. Embed the compilation file \*.class in a html file.
5. Use appletviewer command to run the html

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## Example of Applet with adding controls:

```
import java.applet.Applet;
import java.awt.Button;
import java.awt.Color;
import java.awt.Graphics;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class AppletDemo extends Applet implements ActionListener{
    Button btn1;
    public void init() {
        btn1 = new Button("Click Me...");
        btn1.addActionListener(this);
        add(btn1);
    }
    public void paint(Graphics g) {
        g.drawString("Teaxs International College", 10, 10);
        g.drawOval(50, 50, 50, 50);
    }
    public void actionPerformed(ActionEvent e) {
        setBackground(Color.RED);
    }
}
```

### AppletDemo.html

```
<html>
<body>
<applet code="AppletDemo.class" width="300" height="300">
</applet>
</body>
</html>
```