

# Applet in Java

## 14.1 Applet Basics

An applet is a Java program that can be used to create dynamic web pages on the browser with the help of HTML tags. All applets are subclasses of **Applet**. Thus, all applets must import **java.applet** package. Applets must also import **java.awt** package.

The Applets interact with the user through the AWT classes and not the console based I/O classes. The AWT provides support for a window based graphical interface. **AWT stands for the Abstract Window Toolkit.**

An applet is a class file that is specially written to display graphics in a web browser.

Applets are embedded in web pages using the HTML tag **<Applet>**.

There are two ways in which we can run an applet.

- (i) Using a java compatible web browser, for example Netscape Navigator, to execute the applet.
- (ii) Using an appletviewer, for example the standard JDK tool, **appletviewer**. The applet then gets executed in a separate window.

The **Applet** class provides methods that load and display images, and methods that load and play audio clips. **Applet** extends the AWT class **Panel**. In turn, **Panel** extends **Container**, which extends **Component** as shown in figure 14.1. These classes provide support for Java's window-based, graphical interface. Thus, **Applet** provides all of the necessary support for window-based activities.

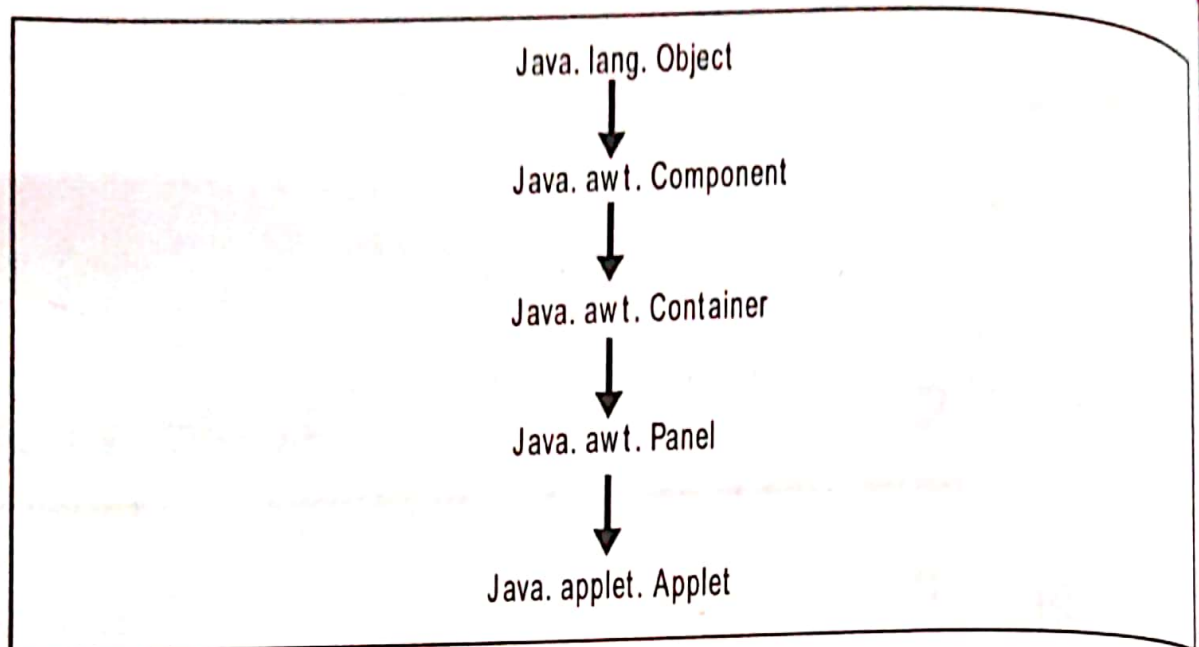


FIGURE 14.1

An applet, like any application program, can perform arithmetic operations, display graphics, play sounds, play games, create animation, accept user input etc.

### 14.1.1 Types of An Applet

There are two types of applets.

#### (i) Local Applets

A Local applet is one which is stored on our local computer system. When browser try to access the applet, it is not necessary for our computer to be connected to the Internet as shown in figure 14.2.

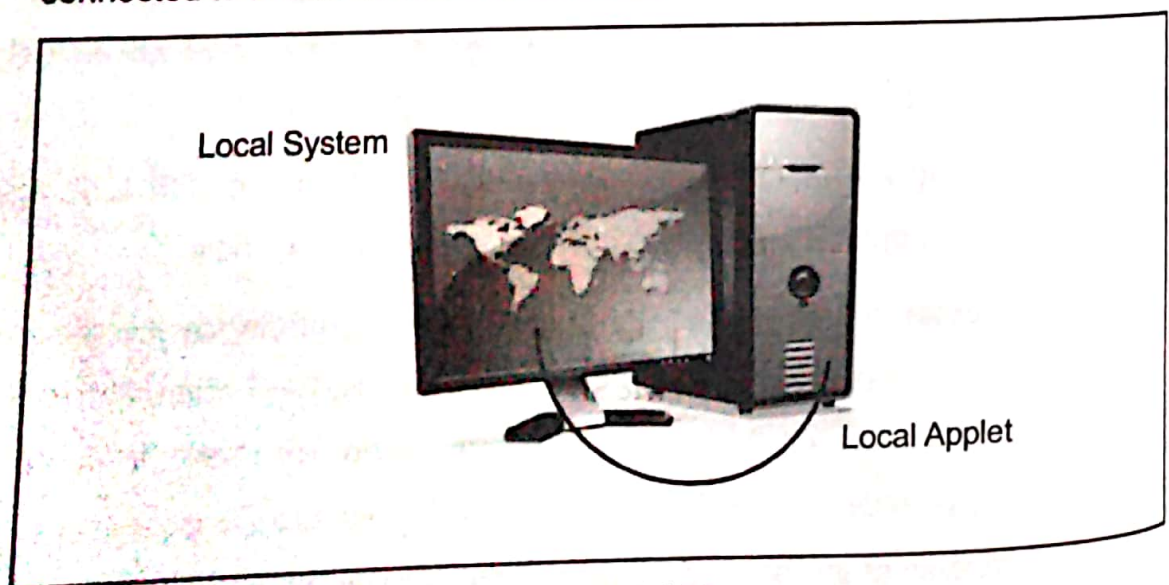


FIGURE 14.2



When a web page is trying to find a local applet, it simply searches the directories in the local system and locates and loads the specified applet.

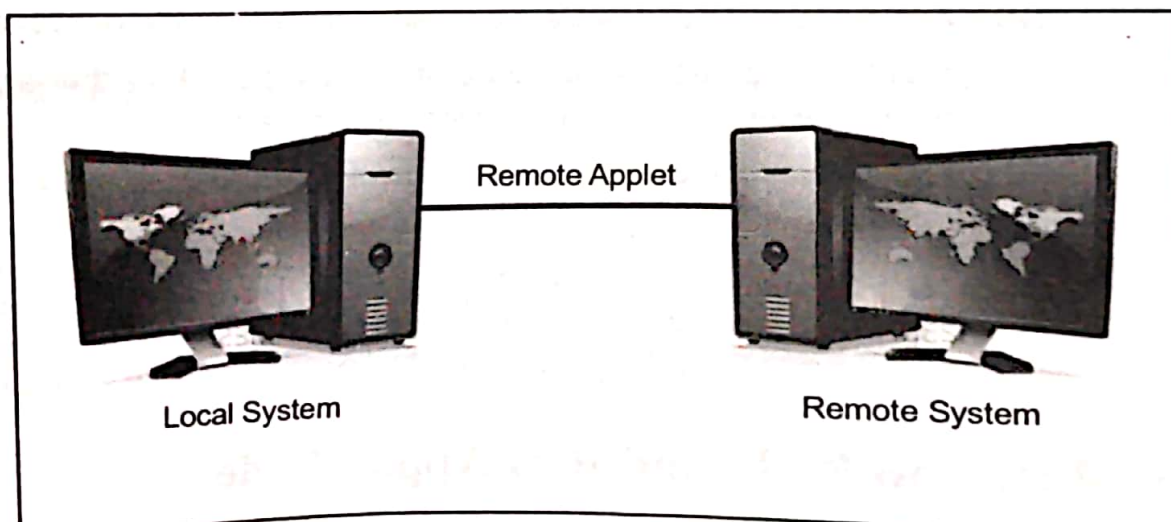
**Syntax to specify a Local Applet is :**

```
<APPLET CODEBASE="localApplet"  
        CODE="localApplet.class"  
        WIDTH=200  
        HEIGHT=80>  
</APPLET>
```

Where **codebase** specifies a path name on your system for the local applet and **code** specifies the name of the byte-code file (.class) that contains the applet's code.

## (ii) Remote Applets

A Remote applet is one which is not stored on our computer system but located on another computer system. We are required to be connected to the Internet as shown in figure 14.3. Our browser must be connected to the Internet at the time it needs to display the remote applet. To display the remote applet in our Web browser, we must know the URL of Applet.



**Syntax to specify a Remote Applet is :**

```
<APPLET CODEBASE="http://www.myapplet.com/remotepapplet"  
        CODE="remoteApplet.class"  
        WIDTH=200  
        HEIGHT=80>  
</APPLET>
```

The main difference between local applet and remote applet is the value of the **codebase** attribute. In the local applet, **codebase** may be absent or may specify a local folder and in the remote applet, it specifies the URL, where the applet is located.

### **14.1.2 Differences between Applets and Java Standalone Applications**

Main differences between Applet and Java Standalone Application are :

- (i) A **main()** method is not invoked on an applet, and an applet class will not define **main()**.
- (ii) Applets are designed to be embedded within an HTML page. Therefore, Applets cannot run independently.
- (iii) An applet is a program that has to be run from a web browser while a java application is a stand-alone program that can run by itself.
- (iv) We can use all the features of a web browser that is being used for creating an applet.
- (v) When a user views an HTML page that contains an applet, the code for the applet is downloaded to the user's machine by the browser.
- (vi) Applets cannot communicate with other servers on the networks.
- (vii) A JVM is required to view an applet. The JVM can be either a plug-in of the Web browser or a separate runtime environment.
- (viii) Applets are restricted from using libraries from other languages such as C++
- (ix) Applets cannot run any program from the local computer.
- (x) Applets have strict security rules that are enforced by the Web browser. The **security of an applet** is often referred to as **sandbox security**, comparing the applet to a child playing in a sandbox with various rules that must be followed.