BCA – 401: Java Programming

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In today's Class we have discussed on Applet Programming in Java.

Applet:-

An applet is a Java program that runs in a Web browser. An applet can be a fully functional Java application because it has the entire Java API at its disposal.

A special type of Java program that runs in a Web browser is referred to as Applet. It has less response time because it works on the client-side. It is much secured executed by the browser under any of the platforms such as Windows, Linux and Mac OS etc.

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.

Advantage of Applet:-

There are many advantages of applet. They are as follows:

- It works at client side so less response time.
- Secured.
- It can be executed by browsers running under many plateforms, including Linux, Windows, Mac Os etc.

Drawback of Applet:-

- Plugin is required at client browser to execute applet.

Applets Vs Applications:-

There are some important differences between an applet and a standalone Java application, including the following−

- An applet is a Java class that extends the java.applet.Applet class.
- A main() method is not invoked on an applet, and an applet class will not define main().
- Applets are designed to be embedded within an HTML page.
- When a user views an HTML page that contains an applet, the code for the applet is downloaded to the user's machine.
- 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.
- The JVM on the user's machine creates an instance of the applet class and invokes various methods during the applet's lifetime.
- 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.

- Other classes that the applet needs can be downloaded in a single Java Archive (JAR) file.

Types of Applets in Java:-

There are two types of applets that a web page can contain.

1) **Local Applet**
2) **Remote Applet**

Local Applet:-

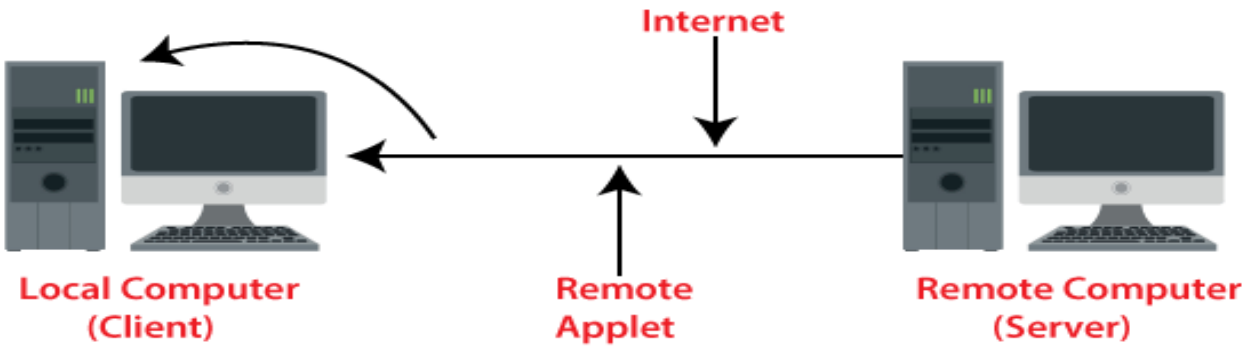
Local Applet is written on our own, and then we will embed it into web pages. Local Applet is developed locally and stored in the local system. A web page doesn't need the get the information from the internet when it finds the local Applet in the system. It is specified or defined by the file name or pathname. There are two attributes used in defining an applet, i.e., the codebase that specifies the path name and code that defined the name of the file that contains Applet's code.

How we can create it and embedded it into web page.

1) First, we will create a Local Applet for embedding in a web page.
2) After that, we will add that Local Applet to the web page.

Remote Applet:-

A remote applet is designed and developed by another developer. It is located or available on a remote computer that is connected to the internet. In order to run the applet stored in the remote computer, our system is connected to the internet then we can download run it. In order to locate and load a remote applet, we must know the applet's address on the web that is referred to as Uniform Recourse Locator(URL).



Difference Between Local Applet and Remote Applet:-

The following table describes the key differences between Local applet and Remote applet.

S.No.	Local Applet	Remote Applet
01.	There is no need to define the Applet's URL in Local Applet.	We need to define the Applet's URL in Remote Applet.
02.	Local Applet is available on our computer.	Remote Applet is not available on our computer.

03.	In order to use it or access it, we don't need Internet Connection.	In order to use it or access it on our computer, we need an Internet Connection.
04.	It is written on our own and then embedded into the web pages.	It was written by another developer.
05.	We don't need to download it.	It is available on a remote computer, so we need to download it to our system.

Lifecycle of Applet:-

The java.applet.Applet class 4 life cycle methods and java.awt.Component class provides 1 life cycle methods for an applet.

1) Applet is initialized.
2) Applet is started.
3) Applet is painted.
4) Applet is stopped.
5) Applet is destroyed.

init – This method is intended for whatever initialization is needed for your applet. It is called after the param tags inside the applet tag have been processed.

start – This method is automatically called after the browser calls the init method. It is also called whenever the user returns to the page containing the applet after having gone off to other pages.

stop – This method is automatically called when the user moves off the page on which the applet sits. It can, therefore, be called repeatedly in the same applet.

destroy – This method is only called when the browser shuts down normally. Because applets are meant to live on

an HTML page, you should not normally leave resources behind after a user leaves the page that contains the applet.

paint – Invoked immediately after the start() method, and also any time the applet needs to repaint itself in the browser. The paint() method is actually inherited from the java.awt.

Lifecycle methods for Applet:-

The java.applet.Applet class provides 4 life cycle methods and java.awt.Component class provides 1 life cycle methods for an applet.

java.applet.Applet class:-

For creating any applet java.applet.Applet class must be inherited. It provides 4 life cycle methods of applet.

1. public void init(): It is used to initialized the Applet. It is invoked only once.

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

3. public void stop(): It is used to stop the Applet. It is invoked when Applet is stop or browser is minimized.

4. public void destroy(): It is used to destroy the Applet. It is invoked only once.

java.awt.Component class:-

The Component class provides 1 life cycle method of applet.

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

Who is responsible to manage the life cycle of an applet?

Java Plug-in software is responsible to manage the life cycle of an applet.

How to run an Applet?

There are two ways to run an applet.

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